POST-MORTEM AND EFFECTIVE MEASURE OF SCIENCE PROGRAMS:
A Study of Bangladesh Open University

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ABSTRACT

Distance education can be more learners centered if distance educators are aware of the problems, needs, attitudes and characteristics of their learners.

The aim of this study was to compare the learners' profile in terms of their attitude and demography between the learners of computer science and health science. A cross-sectional study design was used to collect data using a structured pre-tested self-administrated questionnaire. A total of 612 learners were responded, among them 71.1% were female. The mean age of the learners were 33.2 years and ranged from 21 to 52 years. The mean age of the learners of BSN was significantly higher than the learners of DCSA. The results significantly stated that the learners of DCSA program were resided far away than the learners of BSN program (p=0.012) whereas a total of 65.2% of the learners were resided on average 10 kilometer distance from the study centers. The monthly family income of the learners of DCSA program was significantly higher than the learners of BSN program. Significantly the highest number of learners (57.9%) of DCSA program were detached from their study than the learners (49.3%) of BSN program (p=0.012). Regarding the media programs, 62.7% of the learners gave their opinion that TV programs were at the level best but they wanted to watch TV program at the evening or night schedule. Based on opinions from the learners, revision of curricula and syllabuses, interactive printed materials, effective coordination between academics and administrative staffs and rescheduling of on-air TV programs are suggested. Results of this study might provide valuable information for the policy makers and future researchers to develop more appropriate learning materials and effective delivery mechanisms for the enhancement of open and distance learning.

Keywords: Learners, attitudes, demographic profiles, health science, computer ccience

INTRODUCTION

Bangladesh Open University (BOU) is one of the public universities in Bangladesh which providing a wide variety of distance education programs across the country. School of Science and Technology (SST) is one of the six schools of Bangladesh Open University. The main objective of this school is to create a scientifically and technically skilled manpower in the country. The extended activities of this school is to build scientific awareness of health and information and communication technology (ICT), degree awarding and advance research programs e.g. M. Phil. and Ph.D. are on process.

SST has been offering Diploma in Computer Science and Application (DCSA) and B.Sc.-in-Nursing (BSN) programs since 1998 and 2003, respectively, which facilitate learners' pursuit of knowledge relevant to their life and career. Both the programs are running very successfully and well accepted by the learners throughout the country. In both programs, admission takes place once a year.

Text materials for the programs of SST have developed by following the special design of British Open University modular format. Moreover, the school follows strict regulations during development of curriculum-based modular printed course books, radio and TV programs, enrolment, tutoring and assessment of the learners. Learners are attending the tutorial services twice a month to solve their problems while studying learning materials and/or while preparing assignments. To understand the difficult lesson or part of the unit of the text an Audio-Visual programs have been developed and broadcast regularly for the learners.

DCSA program has launched in 1998 and consists of 33 credits. Duration of this program is one and half year (three semesters), which must be completed within 6 semesters. The main objectives of this program are to use a computer properly and its areas of application in office environment, to know the use of databases, computer programming and software development and to learn maintenance and troubleshooting a microcomputer.

BSN program has launched in 2003 and consists of 100 credits. To earn the bachelor degree in nursing, learners should completed all the 25 theoretical and practical courses within minimum three years (six semesters) and maximum 12 semesters. The main objectives of this program are to provide higher educational opportunities to the diploma holder nurses, to develop clinical competencies and quality of nursing care services, to develop teaching skill, management, and research skills.

To create an opportunity for huge unskilled and less educated peoples, BOU was established in 1992. Over the years, it has launched 23 formal and 19 non-formal academic programs under six schools. To teach in a distance mode, BOU uses a combination of conventional face-to-face tutorial service based on the print module and electronic technologies such as audio-cassettes, radio, and TV broadcasts.

The response of BOU programs are so phenomenal that current enrolment of learners (2,89,791) is several fold higher than that of total enrolment in all public and private universities in the country.

Thus, BOU is emerged as a member of the mega-universities (Daniel, 1996). In several studies, it has been found that BOU education is flexible, cost-effective and comparable standard that of the conventional universities (Anonymous, 2002; Islam et. al. 2006).

To provide learner support services, BOU has set up 12 regional resource centers (RRCs), 80 coordinating offices (COs) and more than 1200 selected study centers (SC) all over the country.

Success of distance education would be depended on how the policy makers' are aware of the problems, needs, attitudes and characteristics of their learners.

Therefore, the present study was aimed to determine the differences of attitude and demographic characteristics between the learners of computer science (DCSA) and health science (BSN) program of the School of Science and Technology.

MATERIALS AND METHODS

This study was conducted amongst the learners whose were randomly selected from study centers of SST of BOU during the period of August to December, 2007. The entire list of learners of SST was served as sampling frame and the sample size was 633. A total of 612 learners were responded among them.

A cross-sectional study design was used to collect the data by a structured pre-tested self-administrated questionnaire and analyzed using SPSS (Statistical Package for Social Science, version 17.0) (SPSS, Inc. Willy, 2004). For all the outcomes, p value of 0.05 or less was considered indicating significance.

RESULT AND DISCUSSION

Socio-Demographic Profile

The composition of learners' demographic status of SST is shown in Table 1. The results showed that among the 612 learners, 75.2% (n=460) and 24.8% (n=152) learners were enrolled in Bachelor of Nursing program and Diploma in Computer Science and Application program, respectively and among them 71.1% (n=435) learners were female.

The mean age of the learners of SST was 33.2 years and ranged between 21 and 52 years. While the mean age of BSN learners was 34.8 (95% CI 34.2 to 35.4) years and median age was 35 years.

The mean age of DCSA learners was 28.4 (95% CI 27.5 to 29.3) years and median age was 26 years. The mean age of the learners of DCSA was significantly (t=11.13; df=610 and p=0.000) lower than the learners of BSN.

It was found that 63.9% (n=391) of the learners were below 35 years of age. The findings of this study corroborated with those of Valentine & Darkenwald (1990); MacBrayne (1995); Johnstone & Rivera (1965), which showed that adult learners who choose to enroll in distance education programs were aged between 18 and 40 years.

Table: 1
Demographic Status of the Learners of BSN and DCSA program

Variable	Description	Name of the program		*p* Value
		BSN	DCSA	
Gender	**Male**	50 (10.9)*	127 (83.6)	0.0000
	Female	410 (89.1)	25 (16.4)	
Enrolment of learners		460 (75.2)	152 (24.8)	
Age groups of respondents	**Age below 25 years**	33 (7.2)	58 (38.2)	0.000
	25 years to 30 Years	98 (21.3)	50 (32.9)	
	31 Years to 35 Years	125 (27.2)	27 (17.8)	
	36 years to 40 Years	133 (28.9)	12 (7.9)	
	> 40 years	71(15.4)	5 (3.3)	
Marital Status	**Single**	74 (16.1)	86 (56.6)	0.000
	Married	386 (83.9)	66 (43.4)	
Religion	**Muslim**	323 (70.2)	132 (86.8)	0.0000
	Hindus	112 (24.3)	16 (10.5)	
	Christian & Buddhist	25 (5.4)	4 (2.6)	
Education Level of Learners	**Diploma in Nursing**	322 (70.00)	0 (0.00)	0.0000
	HSC	88 (19.10)	42 (27.6)	
	Bachelor	35 (7.6)	91 (59.9)	
	Masters	15 (3.3)	19 (12.5)	
Place of Residence	**Urban**	254 (55.2)	77 (50.7)	0.157
	Suburban	137 (29.8)	42 (27.6)	
	Rural	69 (15.0)	33 (21.7)	
Distance from Residence to SC (Km)	**Minimum**	1	1	
	Maximum	300	300	
	Mean	25.7	26.41	

* **Figure in the parenthesis indicates percent value.**

The study showed that 74.3% (n=455) learners were Muslims, 20.9% were Hindus and 4.2% were Christian and Buddhist. However, this figure did not represent the major religions in Bangladesh. The study also found that the majority 73.9% (n=452) of the learners were married.

Table: 2
Learners residential distance from the Study Centre by program

Distance from SC	Name of the program					
	BSN		DCSA		Total	
	n	*%*	*n*	*%*	*n*	*%*
Up to 10 KM	312	67.8	87	57.2	399	65.2
11 to 25 KM	47	10.2	25	16.4	72	11.8
26 to 50 KM	30	6.5	19	12.5	49	8.0
> 50 KM	71	15.4	21	13.8	92	15.0
Total	460	100.0	152	100.0	612	100.0

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This study stated that more than half (54.1%; n=331) of the learners were came from urban areas and more than a quarter were came from suburban (29.2%; n=179) areas where they were living. The learners of SST were travelled on average 22.7 km surroundings from the study centers where the tutorial and practical sessions were performed. Learners were resided on an average 25.9 KM from the RRC where most of the administrative activities were performed for them. Our results more or less similar to that reported by Raghavan and Kumar, 2007, they found that 89.2% learners of Malaysian distance education institutes (89.2%) has been travelled higher distant than that of Bangladeshi distance education learners. The study revealed in the Table 2 that 65.2% of both the learners of DCSA and BSN were resides on an average 10 kilometer distance from the study center. Among the learners, 12.5% learners of DCSA program were reside from 26 to 50 Km away from the study center in comparison with the learners (6.5%) of BSN. In Table 3, this study also shows that the learners of DCSA and male were residing far away from the RRC than the learners of BSN and females; whereas learners of DCSA and male were resides nearer to the study centers than the learners of BSN and female.

There was a significant difference found between the learners of BSN and DCSA program by comparing with the distance residing from the RRC (χ^2=11.03; df=3 and p=0.012).

Table: 3
Learners average residential distance from the RRC and SC by program and Gender

Distance from Residence to	Name of the program		Gender	
	BSN	DCSA	Male	Female
RRC (in Km)	25.70	26.41	28.61	24.77
SC (in Km)	23.01	20.39	20.36	23.18

Learners' monthly family income of the BSN and DCSA programs are shown in Table 4. The mean monthly family income of the learners of SST was TK 15685.00 (95% CI 14825 to 16545TK) *(1 USD=80 BDT). And the mean monthly family income (TK 15966.00) of the learners of DCSA program was higher than the learners of BSN program (TK 15601.00). The study also expressed that nearly 70% (20.1 and 49.1) learners total monthly family income were below TK 20000.00 (Table 4). There was a significant difference observed between the learners of BSN and DCSA program (χ^2=12.2; df=4 and p=0.016).

Table: 4
Learners Monthly Family Income by Program

Income Group	Name of the program					
	BSN		DCSA		Total	
	n	%	*n*	%	*n*	%
< 10000 TK*	78	17.3	40	29.2	118	20.1
10000 TK to 19999	235	52.1	54	39.4	289	49.1
20000 to 29999 TK	96	21.3	29	21.2	125	21.3
30000 Tk to 39999	25	*5.5*	6	4.4	31	5.3
> 40000 TK	17	3.8	8	5.8	25	4.3
Total	451	100.0	137	100.0	588	100.0

Learners' Opinion on the Text Materials

The results showed that 80.4% of the learners gave their opinion that the programs were as usual and 96.4% of the learners expressed that the quality of the text materials was up to the mark.
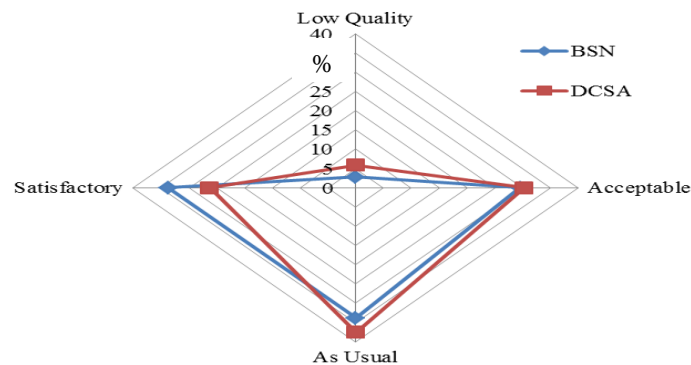

Figure: 1
% distribution of Learners Opinion Regarding the Course Materials

Islam and Numan (2005) found nearly similar (93.5%) findings about the BOU's text materials that those were easy to understand and average in quality. Comparatively higher positive responses were observed regarding the quality of the text materials by the learners of BSN than the learners of DCSA. Among the learners, 31.9% were stated that it was satisfactory, 34.8% learners stated that it was as usual and 29.7% learners were stated that it was acceptable.

Learners Queries regarding the Study Process

The Figure: 2 showed that on an average 31% of the learners were use to communicate with the teachers of SST at BOU main campus for their study related queries. There were also a few (20.4%) learners of DCSA communicated with the teachers' of main campus those who were directly responsible for the program to clarify their queries and advices than the learners (34.6%) of BSN (χ^2=10.7; df=1 and p=0.001). This might be due to lack of communication skills or abilities of the learners of DCSA. These situation should be overcome by contineuous motivating the learners about the prospects of the program.
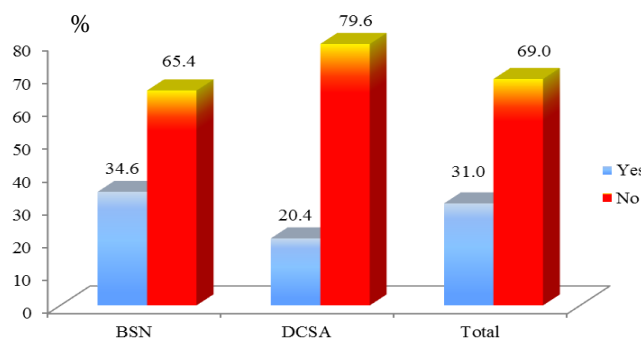

Figure 2:
Percentage distribution of Learners to Communicate with the Teachers by Program

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It was also alarming that more than 50% learners of SST were keep in touch with study material less than seven hours a week (Table 5). It was significantly (x^2=11.03 and p=0.012) alarming that the learners of DCSA were higher detached with their study than the learners of BSN program and the values were 57.9% and 49.3%, respectively.

This situation might be changed if continuous motivational activities could take by the tutors and the academics of BOU as well as providing necessary support to the learners time to time.

Table: 5
Learners Study Hours per Week by Program

Study Hours by Week	Name of the program					
	BSN		DCSA		Total	
	n	*%*	*n*	*%*	*n*	*%*
Up to 7 Hours in a Week	224	49.3	88	57.9	312	51.5
8 to 14 Hours in a Week	155	34.1	47	30.9	202	33.3
15 to 21 Hours in a Week	54	11.9	14	9.2	68	11.2
22 to 28 Hours in a Week	12	2.6	2	1.3	14	2.3
> 28 Hours in a Week	9	2.0	1	0.7	10	1.7
Total	454	100.0	152	100.0	606	100.0

Learners' view on the quality of TV Program and on-air Schedule
Broadcasting educational TV program is a popular means of communication in distance education system because of its universal accessibility (Chander, 1991). By watching educational TV program learners acquire necessary knowledge and information about their courses. Figure 3 shows that 56.4% of the learners desire that BOU's TV programs should be broadcast at night from 6 PM to 9 PM, and 33% were expressed that it should be broadcast at evening schedule. The study also significantly stated that learners of DCSA were desire to watch more TV programs at morning, noon and evening than the learners of BSN; and it was reverse at the night schedule (χ^2=7.9; df=3 and p=0.046). The reason might be for their job pattern and leisure period. The study also showed that 28.3% (n=162) of the learners were expressed that the TV programs were excellent in quality, 36.3% (n=222) stated these were good and 35% (n=214) said as usual. This study also expressed that BOU's TV Program should be more enjoyable and informative (Data not shown).
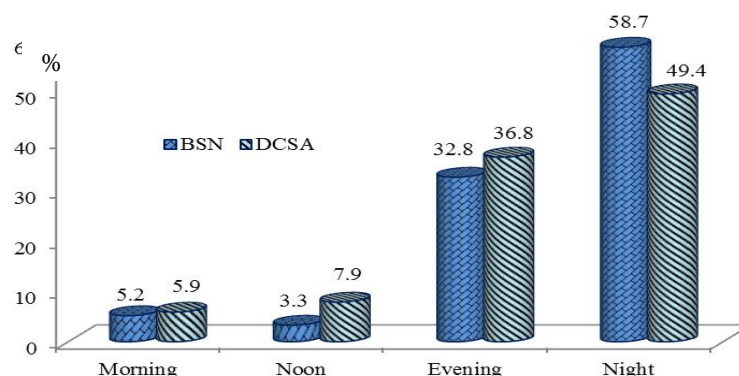

Figure: 3
Learner's Response on Suitable time for TV Program

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CONCLUSION

The learners of DCSA and BSN programs have the scope to get education anywhere, either at home or in any place and in any situation. Among the learners, 71.1% were female, 73.9% were married and 74.3% were Muslims. Moreover, average age of the learners of BSN was higher than the DCSA, and 63.9% of the learners were below 35 years of age. More than half (54.1%) of the learners were come from urban areas and travel on an average 22.7 Km. Learners of DCSA were residing far away from the RRC than the learners of BSN and male learners were reside far away from RRC than female learners. On the other hand, learners of DCSA and male were resides nearer to the study centers than the learners of BSN and female. Comparatively higher positives responses were observed from the learners of BSN regarding the quality of the text materials and communication skills with the teachers of SST than the learners of DCSA; whereas the learners of DCSA were less interested to study more and watching TV program at night than the learners of BSN. The results of this study might provide valuable information for the policy-maker of BOU because distance education can be more learners oriented if distance educationists are aware of the problems, needs, attitudes and characteristics of their learners (Numan et al. 2008). This study also reflected that more supports from the learners' support service stuffs are needed for effective open and distance education.

RECOMMENDATIONS

The results of this study have important implications for research and it might be provided basic information to improve and develop a sustainable delivery mechanism for BOU existing programs. However, following measures should be taken to strengthen and maintain quality education of the existing programs offered by the university.

- ➢ Job oriented programs curricula and syllabuses should be developed.
- ➢ Effective and meaningful coordination is necessary between academics and administrative staff.
- ➢ *Presentation of printed text materials should be self-instructional, activity based and more learner-oriented.*
- ➢ *On-air timetable of the TV programs should be rescheduled and further research is needed in this regard.*
- ➢ The attitude of the learner support services stuffs should always be positive towards the learners, which might help to promote the program.

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