COST-EFFECTIVE, EQUITABLE AND FLEXIBLE HIGHER EDUCATION THROUGH OPEN AND DISTANCE LEARNING IN BANGLADESH

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ABSTRACT

This paper examines how this mega-university offers increasing access to cost-effective, equitable and flexible higher education by analyzing data from primary and secondary sources, identifies challenges impacting the continued growth of enrollment in distance education, and outlines opportunities for increasing access to higher education through scaling of distance initiatives. For pedagogic delivery, BOU uses both the conventional face-to-face tutorial system based on print module and electronic learning technologies such as CD, audiovisual cassettes, and radio and TV broadcasts. It revealed that BOU education is flexible, cost-effective, and insensitive to gender and geography and of standard comparable to that of the conventional universities. The reasons behind the success and cost-effectiveness of BOU programs were;

- **BOU has access to any government and non-government infrastructures and resources without any cost or with nominal costs and can engage specialists from any institution for tutoring with a small honorarium;**
- **it broadcasts program free of cost through government-owned radio and TV channels;**
- **the demand for higher education is very high due to seat limitations only 4-5% of students get the chance to enroll in public universities after their HSC; and**
- **the degree/diploma/certificate of BOU is accepted by all as equivalent to those of conventional public universities.**

Survey of opinions from students of different programs identified the problems in the current system and proposed alternatives to mitigate them by applying some innovative interactive and flexible learning technologies including mobile phone. Considering the success of BOU and to accommodate the huge demand of higher education, conventional universities should also open their doors for ICT-mediated cost-effective and flexing learning to make the vision of knowledge-based 'digital Bangladesh' a reality by the year 2021.

Keywords: Mega-university; flexible learning; mobile learning; e-learning; cost-effectiveness; digital Bangladesh

INTRODUCTION

Bangladesh has an approximately 150.45 million population crowded into an area of 147,570 sq km. About half of the population of this country is struggling to survive as they are living under the poverty line.

Education *per se* is widely seen as a necessary precondition for economic growth within the knowledge-based economies since of the late-twentieth and early twenty-first centuries. Importance of education has been emphasized through fundamental rights, principles, and statutes/acts in a number of countries including Bangladesh.

However, educating and training a vast portion population of people for both preparatory and in-service purposes is a huge and expensive venture, which is very challenging task to manage in the highly populated developing countries like Bangladesh mainly due to the budgetary constraints. It has been estimated that after passing the Higher Secondary Certificate (HSC, Grade XII), only four percent students pursue higher education in Bangladesh because all the conventional universities combined do not have adequate seats to accommodate them (Anonymous 2007).

As a result, a large number of these young students are forced to give up their dreams for higher education and a major proportion of them are unemployed. Distance education is considered an important alternative to offer these aspirant young students an opportunity for higher education (Islam 2007).

The history of open and distance education (DE) was started back in 1956, however, a real breakthrough came in 1992 when establishment of a public university namely, Bangladesh Open University (BOU) Act was passed by the National Parliament. Since its establishment, enrollment of students in BOU was rapidly increasing which justifies the high demand of higher education and acceptance of DE in Bangladesh (Islam & Selim 2006, Islam, Rahman & Rahman 2006, Islam 2007).

Due to easy access and flexibility in age, gender, geographical locations, and regular attendance in class, many students find BOU as an alternative to the conventional universities for higher education.

The distance education is now defined as learners being able to communicate with voice, video and data, real time with teacher and other learners using modern information and communication technologies (ICTs).

Online education is already providing better access to education for many, and many more will benefit from this increased access in the coming years (Mayadas, Bourne & Bacsich 2009).

Applications of ICTs are expanding very fast in every sector of life as the Government of Bangladesh has declared a visionary goal to establish a 'digital Bangladesh' by the year 2021. However, no other public university in Bangladesh is yet to offer academic programs through open and distance mode.

So far, no study has been carried out to compare conventional universities and current ODL systems on access, equitability, flexibility and quality of education (Islam 2007).

The objectives of this study were to;

- **examine how BOU offers increasing access to cost-effective, equitable and flexible higher education compared to conventional systems by analyzing data from primary and secondary sources,**
- **identify challenges impacting the continued growth of enrollment in distance education, and**
- **outline opportunities for increasing access to higher education through scaling of distance initiatives.**

METHODOLOGY

To bring education to the door step of the people, Bangladesh Open University (BOU) has set up 12 regional centers (RCs), 80 coordinating offices (COs) and more than 1000 tutorial centers (TCs), geographically distributed throughout the country (Islam 2008). This report focuses the analytical results of data from the 35th annual reports of the University Grants Commission, Dhaka, recent survey along with previously conducted case studies on some important academic programs of BOU (Islam 2008, Rahman, Shah, Alam & Alam 2005, Shah, Rahman, Alam & Alam 2005).

A brief description of BOU academic programs and current students' enrollment are given in Table 1. Structured questionnaires were prepared and used as described previously (Islam 2008, Rahman, Shah, Alam & Alam 2005).

Besides, a number of employers and successful past students were also interviewed at their offices or farms.

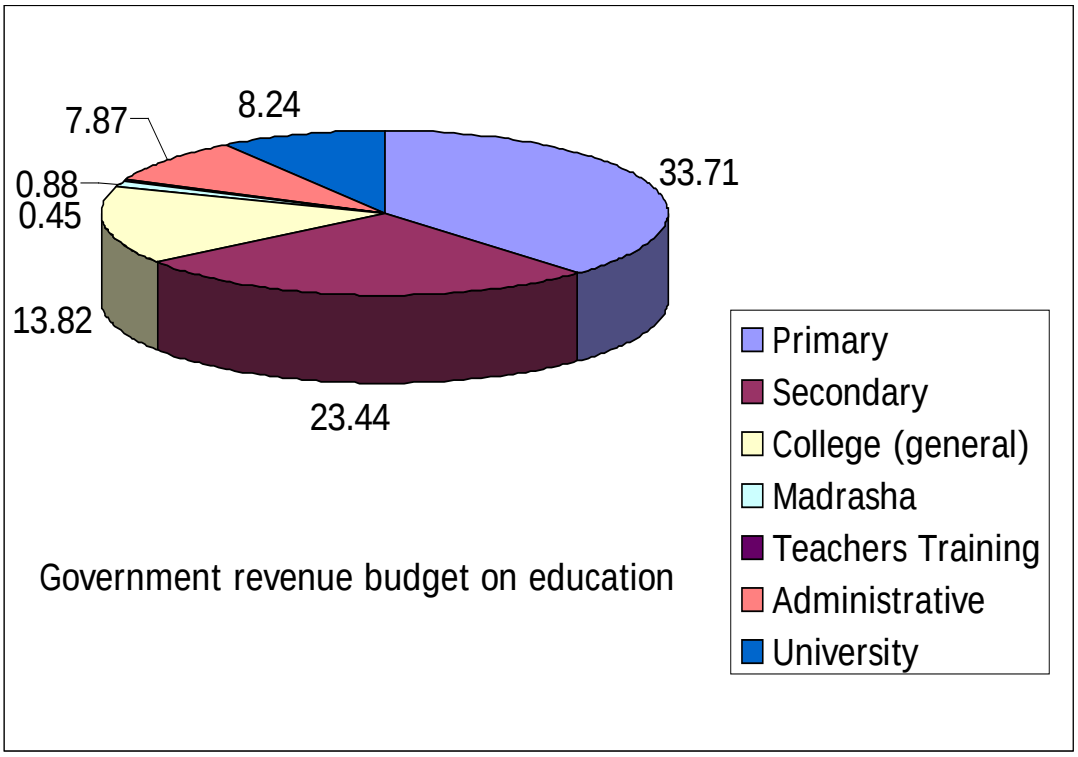

Figure: 1
Distribution of government revenue budget on education.

RESULTS AND DISCUSSIONS

Access and Equity of Higher Education

Although tremendous success has been achieved in decreasing the rate of drop-outs at primary and secondary levels, access to higher education is seriously constrained in Bangladesh due to lack of enough seats in 31 public and 51 private universities. These universities combined can accommodate less than 10% of the total aspirant students for higher education.

Due to huge expenditure required for promoting primary and secondary levels of education, only 8.24% of total budget for education is allocated for the university education (Figure: 1).

Therefore, it is almost impossible for the government to establish enough number of new public universities to satisfy the growing demand of higher education in this highly populated developing country.

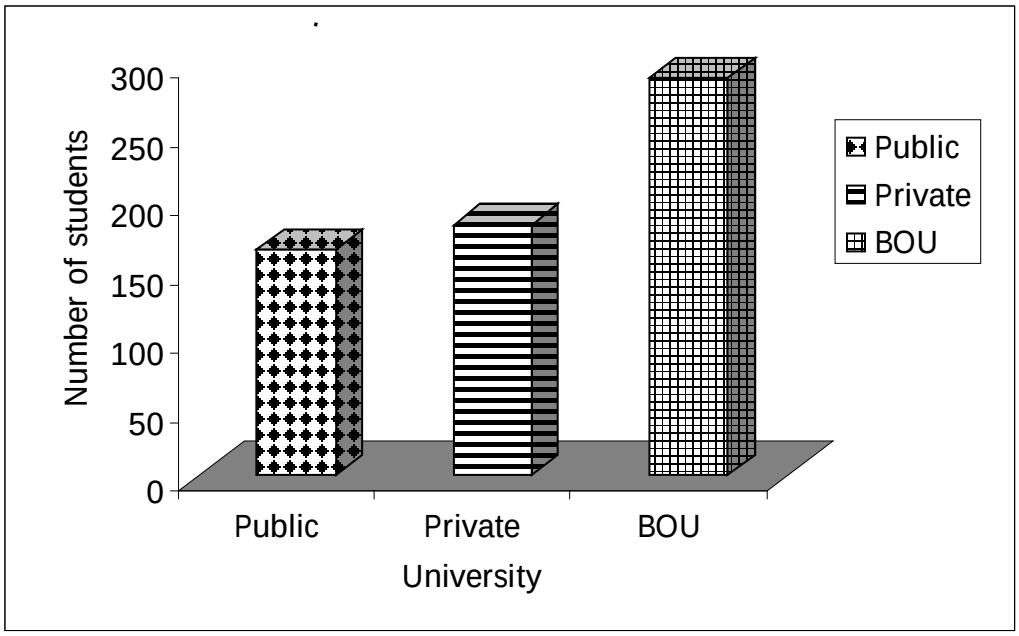

Figure: 2
Number of students enrolled different types of universities.

Moreover, very high cost of higher education at private universities restricts many meritorious and financially insolvent students to go there for higher education. Thus a major proportion of the qualified students either choose general colleges or BOU, and rest of them is forced to drop-out.

Distance education at BOU has become an option for both regular young students, adult and in-service life-long learners (Islam 2007).

BOU offers 20 formal academic programs from Certificate to Masters Levels, which covers a wide area of human knowledge and skills through 6 academic Schools (Table: 1). In addition, it also broadcasts 19 non-formal programs through nation-owned radio and TV on agriculture, health, nutrition, environment, livelihood, development and so on.

BOU education is more or less flexible to age, gender, and strict pre-qualifications (Islam 2007).

Number of enrollment at BOU is now higher than the total number of students accommodated by all public universities (Table 2). Age range of the students is very high from 15 to 57 years. Nearly 70% of BOU's students is enrolled under the Open School which mainly offers secondary and higher secondary levels of education.

These students were drop outs from the main stream of education due to financial constraints, early marriage and other social barriers (Islam 2007).

Due to flexibility in regular attendance in the class, very high rate of female and other disadvantaged students choose BOU education compared to strict requirements for attendance in the face-to-face teaching at the conventional universities (Figure: 3).

Another reason for high demand of distance education are;

- **BOU is a public university which has qualified faculty members;**
- **the curriculum and contents of courses are more or less equivalent to other public institutions;**
- **most of the tutorial centers (TCs) are public academic institutions and thus the tutors are also highly qualified; (iv) networking of BOU evenly covers all over the country; and**
- **certificate, diploma and degree from BOU is accepted everywhere.**

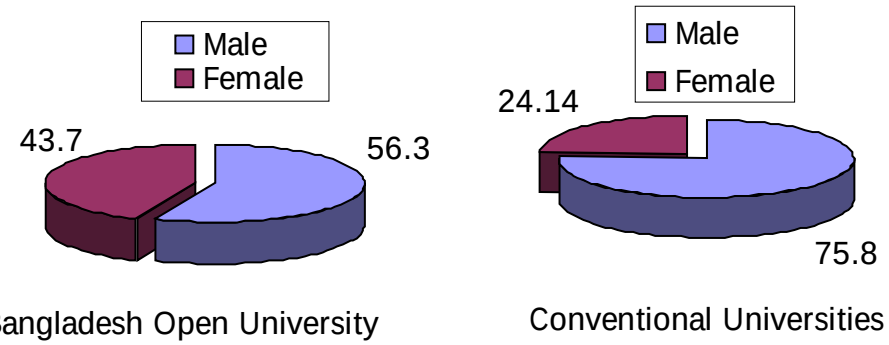

Fig. 3. Average male and female ratio in students of BOU and conventional universities.

Table: 1
Number of enrolled students in different academic programs under 6 schools of BOU in 2009

Name of School	Name of Program	Discipline/Subject	Student Numbers
Open School	SSC	General	122512
	HSC	General	70493
	BBS	Business	1048
School of Agriculture and Rural Development	B.Ag.Ed.	Agricultural Sciences	3062
	CLP	Animal Science	131
	CPFP	Fisheries	61
	DYDW	Youth Development	124
School of Social Science, Humanities and Languages	BA/BSS	Arts/Social Science	80,603
	CELP	Language	307
	CALP	Language	81
	BELT	Language	31
School of Education	M. Ed.	Pedagogy	1917
	B. Ed.	Pedagogy	3538
	C. Ed.	Pedagogy	1104
School of Business	PGDM /CIM	Management	238
	MBA	Management/Busine	646

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	CEMBA/ CEMPA	Management/Business	524
	BBA	Management/Business	2032
School of Science and Technology	DCSA	Computer Science	895
	B.Sc. Nurs.	Health Science	652

Source: Student Support Service Division, BOU. 1 Semester=6 months (see details at http://www.bou.edu.bd).

Cost-effectiveness of Quality Higher Education

An attractive aspect of BOU education is that annual government revenue allocated for each student is 25-200-fold less than those of conventional universities (Table 2). Opinion survey of students, teachers and employers revealed that curricula, course contents, evaluation system at BOU are comparable standard to the conventional face-to-face systems (Islam, Rahman & Rahman 2006, Islam 2008).

Number of students per teacher at BOU is several hundred folds higher than those of the conventional universities (Fig. 4). It revealed that distance education in Bangladesh is very cost-effective and thus demand of this alternative system is increasing very fast (Islam and Selim 2006; Islam 2007). The main reasons behind the cost-effectiveness of BOU programs are (i) it has access to any government and non-government infrastructures and resources without any cost or with nominal costs, and can engage specialists from any institution for tutoring with a small honorarium; and (ii) it broadcasts program free of cost through government-owned radio and TV channels (Islam 2008).

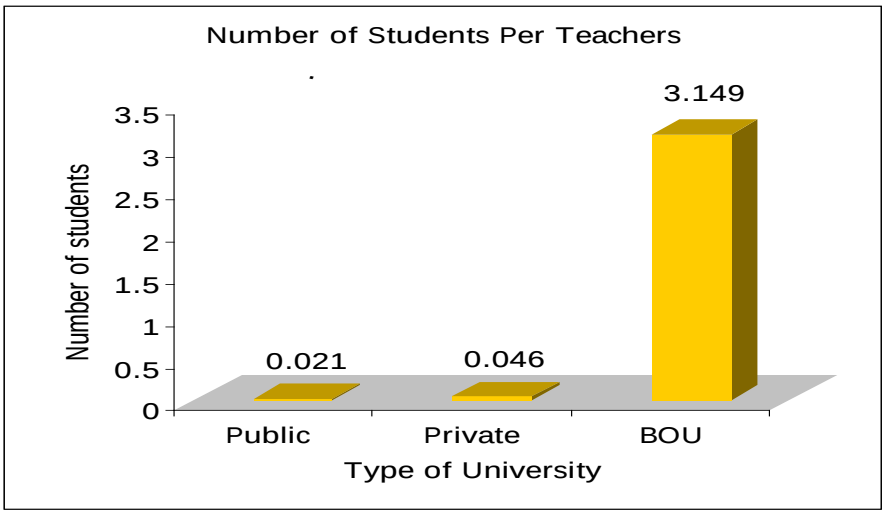

Figure: 4
Teacher-student ratio at BOU, public, and private universities.

At present, mobile phone users are increased up to 60 million, which is a clear reflection of the phenomenon of quick acceptance of modern ICTs by the people of Bangladesh.

Very high access and good networking of mobile phones covering all over the country are creates new opportunities for more advanced distance learning i.e., mobile learning. However, BOU is still using print, television, radio, audio-cassettes and occasional face-to-face tuition to teach its learners.

It has also been found that current facilities and approach in the tutorial canters are less flexible and not adequate for effectively teaching at a distance especially technical and science courses (Islam 2010). Survey of 500 BOU students under different programs revealed that more than 90% students have own mobile phone. Maximum (85%) students wish get information of registration, examination schedule, results of examination, and other essential communication through their mobile phones. More than 60% of their mobile phones have facilities for FM radio and 30% of students have direct or indirect access to the Internet facilities, which creates an opportunity for e-learning. On the other hand, conventional universities are yet to introduce electronic tools for instructions to their students, which are badly needed in Bangladesh. However, a modest progress has been started for admission of students through online process. Due to patronization of using electronic tools (ICTs) in every sphere of life for establishing a digital Bangladesh, conventional universities should take revolutionary steps to promote e-learning facilities for both on-campus and off-campus students.

Table: 2
Some important statistics of the public universities in Bangladesh (2008)

University	Student Number (x 1000)	Teacher Students Ratio	Male-Female Ratio of Students	Cost/ Students/ Year (Tk x 1000)	Income from own source (%)
Dhaka University	28.8	1 : 18	2 : 1	54.1	11
Rajshahi University	26.9	1 : 26	2.5 : 1	33.5	5
Bangladesh Agricultural University	4.6	1 : 9	2.3 : 1	163.8	2.6
Bangladesh University of Engineering & Technology	7.2	1 : 13	4.3 : 1	66.9	10
University of Chittagong	19.3	1 : 22	2.8 : 1	36.0	10.6
Jahangirnagar University	10.4	1 : 22	2 : 1	49.6	10.4
Shahjalal University of Science and Technology	7.9	1 : 21	3.5 : 1	27.1	16
Khulna University	4.4	1 : 14	3.5 : 1	43.9	*
Bangladesh Open University	290	1 : 3141	1.7 : 1	2.2	70.9
Chittagong University of Engineering & Technology	1.8	1 : 14	8 : 1	108.3	51.5
Rajshahi University of Engineering and Technology	1.8	1 : 13	9 : 1	45.1	*
Khulna University of Engineering and Technology	2.5	1 : 13	9 : 1	33.4	*
Dhaka University of Engineering and Technology	1.8	1 : 14	12 : 1	30.0	*
Islamic University	10.1	1 : 33	3.6 : 1	26.0	17.0

BSMR Agricultural University	0.5	1 : 7	1.7 : 1	271.8	42.9
Bangabandhu Sheikh Mujib Medical University	1.1	1 : 3	1.7 : 1	175.5	*
HMD University of Science and Technology	1.5	1 : 11	1.9 : 1	101.5	24.9
M. Bhasani University of Science & Technology	1.4	1 : 22	3.3 : 1	70.2	53.7
Sher-e-Bangla Agricultural University	1.5	1 : 12	2 : 1	54.3	*
Patuakhali University of Science and Technology	1.4	1 : 12	3.3 : 1	80.8	35.1
Noakhali Science and Technology University	0.5	1:18	2.8 : 1	66.4	38.9
Jogannath University	25.9	1:73	5.3 : 1	45.4	15.0
Comilla University	0.6	1:26	2.4 : 1	14.7	*
National Poet Kazi Nazrul University	0.5	1:14	1.8 : 1	20.5	24.4
Chittagong Veterinary & Animal Science University	0.3	1:5	3.3 : 1	121.3	2.5
Sylhet Agricultural University	0.5	1:9	4.2 : 1	66.0	19.4
Bangladesh University of Professionals	1	1 : 6	8.3 : 1	-	-
Begum Rokeya University	0.3	-	2.8	-	-
National University	939.7	1 : 7	1.4 : 1	1.12	-

Adapted from the 35th Annual Report of Bangladesh University Grants Commission (UGC) 2008. *Actual expenditure was lower than the grants approved by UGC.

Success Rate in Higher Education

Obviously, face-to-face instructions in the classroom are known as the best teaching practices which allow more room for interactions between learners and teacher. Therefore, rate of success in face-to-face teaching is always high. BOU evaluation system is very strict and exactly similar to conventional universities (Islam 2010) (Figure: 5).

Analysis of examination results revealed that, average passing rate in the examination of students at conventional public universities ranged from 80-95%, while in BOU the passing rate was 45-60% (Figure: 6). The reasons behind this low passing rate in distant students are:

- **maximum number of them are involved in service or engaged themselves for other income generating activity;**
- **lack of close contact, motivation and supports from the instructors;**
- **lack of peer-group interactions;**
- **personal financial constraints; and**
- **delay of the processing and publication of examination results (Islam 2007, 2008, 2010).**

The professional affiliation of BOU students is very diverse from top-ranked government officials to bottom level workers or unemployed youths or house-wives.

Number of rural students is higher than the urban. Most of the students opined that BOU should take appropriate measures to introduce more flexible tools for facilitating e-learning and publish results of examinations within the academic calendar. Figure: 5. High rate of female participation in the semester-end examination of Bachelor of Arts/Bachelor of Social Science program.

RECOMMENDATIONS FOR SCALING UP HIGHER EDUCATION IN BANGLADESH

The growth of demand in higher education is increasing very fast in Bangladesh. A lion share of the Government budget is spent for the compulsory primary and secondary education. Therefore, we need to think seriously how we can accommodate growing number of students for quality higher education.

Failure to offer them facilities for quality education, the development processes of the country will be jeopardized. Due to rapid expansion in Bangladesh, all conventional public and private universities should take immediate necessary steps to open their doors for the distant learners as did by other world leading universities such as Harvard, Cambridge, Stanford, London, MIT and so on.

Considering the availability and access to ICTs, these universities may introduce distance education through online or in combination with printed modules, occasional face-to-face instructions and ICT-mediated blended electronic learning (e-learning). Online education is established worldwide and providing better access to education for many, and many more will benefit from this increased access in the coming years (Mayadas, Bourne & Bacsich 2009).

Without such a revolutionary approach, the dream for the development of a knowledge-based 'digital Bangladesh' would hardly be achieved by the year 2021. I think it is also right time for Bangladesh to promote digital learning from primary to university level because education is the pre-requisite for any transformation in the society.

Furthermore, at this digital age on-campus students should also be exposed to enough electronic educational resources for better equipped with ICTs and get flexibility in their learning process. In a recent report, Sir John Daniel opined that in a decade or two, most university and college students will be in the developing countries and this will redefine the history-old norms in higher education (Daniel 2009).

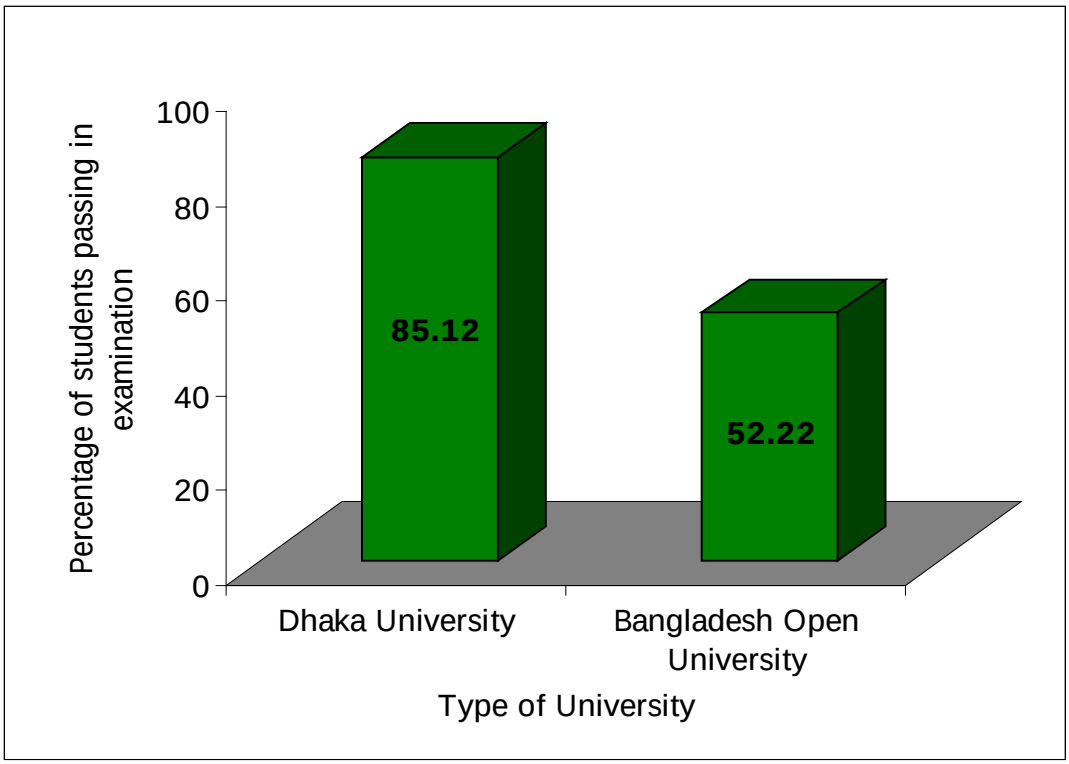

Figure: 6
Percentage of passing of students in the examination in BOU and a public (Dhaka University) university.

CONCLUSION

Starting with the objective of a significantly lower price point and using technology and good management to achieve it with a quality academic program is still a revolutionary concept in education (Daniel 2009). However, in addition to secondary and higher secondary education, BOU has increased tremendous access to cost-effective, equitable, and flexible higher education in Bangladesh.

The curricula, course materials and evaluation system of BOU seem comparable to the conventional ones and thus certificates/diploma/degree awarded by BOU is accepted everywhere. It accommodates approx. 0.3 million students which is higher than total enrollment of all public universities. However, BOU should not forget the valuable statement which was given by Sir John Daniel, "Can we have quantity with quality. It is the right time for BOU to introduce more flexible e-learning using modern ICTs including mobile phone in combination with current delivery methods.

To scale up quality of higher education for all, conventional universities should also take initiative to introduce academic programs through distance mode in parallel to their history-old face-to-face instructions in the classroom.

To develop a knowledge-based envisioned 'digital Bangladesh' by the year 2021, we need to realize the power of digital learning and take a prompt action accordingly.

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