ISSN: 2708-7069

AIBA Savar Journal

Volume-2 • Issue-1 • July-2021

An Academic Journal on Business Administration

Army Institute of Business Administration (AIBA) Savar
Savar Cantonment, Dhaka-1344, Bangladesh

AIBA Savar Journal
Editorial Advisory Committee

AIBA Savar Journal

Editorial Note

We are pleased to publish AIBA Savar Journal 2021 in the trying condition of Corona pandemic. There are total 7 research and review articles in this issue contributed by the faculty members, officers, and the students. The topics are on research, education and business.

Impact Factor (IF) has become a controversial issue among writers of research articles and publishers of academic journals. IF of a Journal in Year3 is equal to Total Citations in Year3 divided by Number of Publications in Year2 plus Publications in Year1. Besides statistical fallacy there remain issues of predatory publishers with fake IF and altimetrics. The first article is related to Journalology.

Corona Virus Disease 2019 (Covid 19) has put the formal education sector in discomfort situation. Author of the second article critically analyzed the effects and suggested remedial measures to cope up with Covid 19. The third article depicts augmented reality in e-shopping with Author's own innovation and design. The fourth article describes capital structure decision and performance of firms taking empirical evidence from nonbank financial institutions of Bangladesh.

Author of the fifth article talks about cooperative agriculture business referring the Cooperative Societies Act 2001. Universities zoom classes experience and experiment in Covid 19 is the research arena of the sixth article. The seventh article studied the differences between a traditional PhD (Doctor of Philosophy) and a professional doctoral degree like a DBA (Doctor of Business Administration). A physician or a surgeon is also addressed as a Doctor, but this accredited academic degree derived from Latin *docere*, 'to teach'. The author carried out a deliberate research on this highest academic degree.

Contents

AIBA Savar Journal

An Academic Journal on Business Administration Published by Army Institute of Business Administration (AIBA) Savar

Copyright

Published by

Army Institute of Business Administration (AIBA) Savar
Savar Cantonment, Dhaka-1344
Telephone: 02-7792731
Website: www.aibasavar.edu.bd

Correspondence

All correspondence should be addressed to the Editor-in-chief, AIBA Savar Journal, Army Institute of Business Administration (AIBA) Savar, Savar Cantonment, Dhaka-1344.
E-mail: journalinfo@aibasavar.edu.bd or journal.aibasavar@gmail.com

Cover Design

Editorial Board

Printed at

Army Printing Press

The views expressed in each of these articles are solely of individual authors. AIBA Authority, the Editor-in-Chief, and the Editorial Board do not bear any responsibility for the views expressed in the articles.

Journal Research Articles on Business: Use, Misuse, and Abuse of Statistics

Mohammad Quamruzzaman[1]

Abstract

Research is an umbrella term that covers all areas: business, scientific, social, historical, linguistic etc. And also research types: deductive, inductive, empirical, theoretical, pragmatic, qualitative, quantitative etc. Statistics helps to write journal research articles through use of data and information, and find out solutions to problems in the path of positivism, reductionism and constructivism. Problems arise in all 6 types of business with one or more 6 major line and support functions. Market research is for marketing line function of products: tangible goods and intangible services. Production and operation research is for quality production of tangible goods and intangible services in business as another line function. Researches on support functions like finance, accounts etc use statistics. Statistical tools are helpful in processing primary and secondary data and information manually and electronically. Triangulation, trilateration, analysis of variance (ANOVA), bell curve, chi square etc are statistical measures to quantify and qualify data and inputs for intended outputs for inferences, conclusions, and solutions. Research methodologies follow pragmatic, eclectic, or comprehensive approaches using statistical tools in varied degrees basing on needs and applicability. Journal articles should not possess unintelligible jargons and high sounding statistical tools when the business researches do not demand the same.

Key Words: Research, Statistics, Business, Qualitative, Data, Quantitative.

1.0 Introduction

Research is a regular affair of business and academia which entails systematic and creative work to increase the stock of knowledge. The word *research* comes from French '*recherche,*' meaning to go about seeking for an answer to a question, or a solution to a problem. This is in rigorous practice among all business organizations including not-for-

[1]Director General and Professor, AIBA Savar. A retired Major General, an MBA from IBA, University of Dhaka and a PhD (Fellow). Email: qzamanq@gmail.com

profit universities and institutions as *R&D*, an acronym of *Research and Development*. Research is part and parcel of teachers and students especially in higher and tertiary education institutes worldwide. Academia or education institutes spend lot of time and efforts educating on research, publishing journals with research articles. Methodology along with statistical tools ensures disciplining researchers' thought process by differentiating between qualitative and quantitative approaches or combining these two. Serendipity also adds to research. Major Ronald Ross' discovery on infectious malarial parasite - a vector female Anopheles mosquito borne disease is a typical example.

Research epistemology is a subject that studies research on research; how the research methodology to be carried out to reduce waste of time and resources on research itself. Research types: scientific, humanities, artistic, business, marketing, social, economic, etc differ from one another though basics remain the same. Business executives including academic researchers learn these tips in their undergraduate, graduate, and post-graduate programmes to solve important business problems and publish journal articles. The process is completed by: defining the problem, forming a hypothesis, gathering data, analyzing data, testing and interpreting, and reaching to conclusion for solutions. Procrastinations of time and abuse of funds and resources arise when statistical processes overshadow the main course of research process. Many online publishers commercialized this noble academic effort charging money from researchers and taxing on research efforts.

Right to Information Act 2009 and the Statistics Act 2013 make it a legal responsibility of the researchers to use right information and objective data. The Bangladesh Bureau of Statistics (BBS) under the Statistics and Informatics Division (SID) of Planning Ministry is an authentic source of data and information. Bangladesh Council of Science and Industrial Research (BCSIR) assist in carrying out business venture researches which was founded through BCSIR Act 2013. Knowledgeable writers decide how much they use own intellect, and borrow rest from others to make their papers or articles useful. Mere big reference lists or bibliographies do not make journal articles valuable. Taxila University Professor Koutilya or Chanakya Vishnugupta (371-283 BC) showed the criteria of valuable research writings in *Arthashastra*. The Official Secrets Act 1923 and such other legislations restrict generalized use of classified information in journals. Western researchers use Chattam House Rule in academia not naming and framing the source.

2.0 Literature Review

Greener (2008) brought the difference between business and scientific research in his book Business Research Methods. Research on science is specific and quantitative whereas research on business is broad and combination of quantitative and qualitative. Business is an umbrella term of many disciplines and it has multifarious functions of procurement, production, marketing, finance, accounting, and human resource management (HRM).

Lussier (2011) wrote that most business students complete research methods and statistics courses without a clear understanding of which statistical test to use, or when, or why. The author's approach effectively integrated research and statistics, beginning with research methodology and then guiding researchers in conducting their own statistical research, from the initial selection of the research topic through the finished research paper.

Belcher (2019) used unpretentious, contemporary, and witty prose that is simultaneously captivating and informative. Her book provided an interactive format and help writers develop a manuscript for submission from a pre-existing text such as a dissertation or thesis to a fresh business journal article. She discussed the requirements of statistical product and service solutions or statistical package for the social sciences (SPSS), and suggested tips for publishing research articles in internet or e-journals.

Sofa (1998) discussed the memories of renowned National Professor Abdur Razzaq of Dhaka University in Jaddaypi Amar Guru. Ahmed Sofa went to Professor Razzaq for his PhD on “The Growth of Middle Class in Bengal as It Influenced Its Literature, Society and Economics from 1800 to 1858.” The PhD interactions in 1970s with Professor Razzaq opened his inner eyes and he got prominence as a renowned intellectual and writer though his PhD certificate was never achieved. Abdur Razzaq too went to London School of Economics for PhD under Professor Harold Laski and came back without PhD after Laski had died in 1950. New Supervisor was no match to Razzaq’s intellectual standard.

3.0 Research Objective

My paper analyze and recommend how to prepare effective journal articles on business, how to go about using statistics as an assisting subject for business research articles in order to make those attractive to journal publishers as well as readers.

4.0 Methodology

Primary and secondary data and information have been collected from relevant individuals and sources. Numbers of hypothesis have been tested following quantitative and qualitative approaches. Diverse information has been analyzed and synthesized through percolations and triangulations for inferences and conclusions. Consequently, measures are recommended on the appropriate use of statistical tools for preparing journal research articles on business.

5.0 Findings and Analysis

5.1 Academic Journal

The scholarly research publications in universities and institutes create new knowledge in diverse academic disciplines. ‘Publish or perish’, ‘Publish and flourish’, etc, are career reminding slogans in higher education. Journal derives from Latin *diurnal* meaning day time alive activities. The first academic journal was *Journal des sçavans* (January 1665) in Paris by French writer and lawyer Danis de Sallo. *Postmodern Culture* was an electronic academic journal established in 1990 by Johns Hopkins University. 8 digits International Standard Serial Numbers (ISSN) are allotted for both print and e-journals that was introduced in 1976 by International Organization for Standardization (ISO) as ISO 3297. ISSN International Centre based in Paris coordinate the issuance of ISSN number after necessary communication with applicant universities and ISSN National Centres usually located in National Libraries.

Journal publishing is an academic activity by teachers to disseminate information of their research works to students and public for free. With the digital information systems, the scopes have expanded to include e-publishing. Elsevier, named after Lodewijk Elzevir (1542-1617), a Dutch Publishing Company acquired UK Publishing Company

Mendeley in 2013. It came under severe criticism for pay walled approach from open and free sharing system of research literatures. Stanford, Harvard, Duke, and California Universities singled out Elsevier's Journals as being disproportionately expensive. Dutch universities boycotted Elsevier to negotiate on open access policy. Scopus is Elsevier's abstract and citation database and they have been known to be involved in lobbying against open access to publicly funded research. Scopus is a bird, there is a peer-reviewed scientific journal Scopus: Journal of East Africa Ornithology since 1977.

Journal research articles go through double-blind peer-review before publication for quality standard. Journal ranking using Impact Factor (IF) became controversial and debatable issue in the academic World like that of ranking universities. Citation impacts or *bibliometrics* quantify the citation usage of scholarly articles at three levels: article level, author level, and journal level. Journal IF of an academic journal is a *scientometric* index that reflects the yearly average citations received from its past two years published articles. Journals with higher IF rank higher than that of those with lower ones. Open access and free journals are supposed to do better than non-open and paid journals. Automated citation indexing has changed the scenario. E-publishing business organizations are said to have made users, misusers and abusers of this complex issue with methodological shortcomings. The San Francisco Declaration on Research Assessment (DORA) agreed to halt the practice of so called IF to the merits of journals and articles for hiring, promotion, or funding decisions in universities.

5.2 Business Research

Business administration researchers write papers on 6 types of businesses: Sole Proprietorship, Partnerships, Companies, Cooperatives, Franchises, and Others. The relevant acts and ordinances are: the Trade Organization Ordinance 1961, the Partnerships Act 1932, the Companies Act 1994, the Cooperative Societies Act 2001, the Reciprocity Act 1943, the Societies Registration Act 1860 etc. Business research articles cover 6 major functions: Procurement and Supply, Production and Operation, Marketing and Sales, Finance and Budget, Accounts and Audit, and HRM. First 3 functions are Line functions, and rests 3 are Staff or Support functions in any business organization. Government organization (GO), Non GO (NGO), International GO (IGO), INGO, universities etc. belong to others (the 6th) type of business. French *recherché* means to search inquisitively for solutions to problems: quantitative and qualitative, positive and normative.

Writers need to be knowledgeable to present good business research articles individually or in group. The selected journal topics dictate research methods: qualitative, quantitative and mixed or pragmatic. Some research topics demand observational study whereas some demand empirical or experimental study. Researchers conduct literature review to know the trend of epistemology on certain disciplines. Publishers want bibliographic referencing in articles to maintain train of thoughts and gradual development for reaching to ultimate solutions. Plagiarisms defame efforts and credibility of researchers. Confident researchers follow own university reference and citation style instead of imitating others. Army Institute of Business Administration (AIBA) follows Bangladesh University of Professionals (BUP) style reference: Author(s), Year, Book, Publisher, and Place. There exist other styles: APA (American Psychological Association), AMA (American Medical Association), Oxford, Harvard, Vancouver, etc.

5.3 Statistics in Business

Statistics is from German *statistic,* data of States created after the Treaty of Westphalia (1648). It deals with data collection, data analysis, data interpretation, and data presentation or dissemination. In MBA and BBA programmes business mathematics, business statistics, econometrics, research methodology, and allied subjects are taught to conduct research on 6 core functions of all 6 businesses. It is difficult for learners to internalize statistics topics if STEM (Science, Technology, Engineering, and Mathematics) background is weak. Census is core topic in statistics which derived from Latin *cencere,* to estimate. Population (people or objects) census or estimation by counting and recording is an easy approach, but it is time and resource consuming. Sampling, on the other hand is an easier approach to estimate the characteristics of whole population taking a subset (sample) of it. Survey methodology studies the sampling of individual units from a population, and associated techniques of survey data collection. Errors occur when process of sampling replaces the process of census.

Data are a set of values of quantitative and qualitative variables or units of information about person(s) or materials; singular is *datum*. Raw data are processed for inference or conclusion to make new knowledge through observation and experimentation using statistics. Business statistics applies statistical methods in econometrics to analyze economic inputs and outputs. Microeconomics deals with business units whereas macroeconomics deals with aggregate businesses of States. Research articles on procurement and supply, production and operations, marketing and sales, finance and budgeting, accounting and auditing, HRM etc use statistical tools and tests. Numeric means, median, mode, and percentage assist in statistical literacy. Other statistical tools and tests are: Histogram, Bell Curve, Pie Chart, Standard Distribution, Hypothesis: Null and Alternative, Analysis of Variance (ANOVA), Chi-Square, Student's T, Linear Regression, Pearson's Correlation Coefficient, Mann-Whitney U, Kruskal-Wallis H, Shannon's Diversity Index, Tukey's Range, Cluster Analysis, Spearman's Hypothesis etc.

5.4 Use, Misuse, and Abuse

Journal research articles are written presentation for the benefits of general readers. Presentation skills demand acronym KISS: Keep It Short and Simple to arouse interests of readers. If the writers consider their articles to be for their examining professors then they miscalculate. Average readers are interested to know research findings; what new knowledge it provides. They are not at all enthusiastic about researchers' jargoned descriptions of qualitative or quantitative methods. Audiences get irritated with unsolicited technical acronyms and statistical formulas mentioned in business research articles. Dyscalculia or discomfort of comprehending algebraic expressions and geometric graphs disconnect readers when use of statistics is not relevant and prudent. Misuse and abuse of statistics take place if writers of articles try to impress journal editors and readers with high sounding statistical tools and tests. In most of the cases neither writers nor editors or readers understand what and why these are in the articles!

Popular saying goes, "There are three lies in the World: Lie, Damn Lie, and Statistics". It is unethical to term Statistics subject as a Lie epistemologically. Researchers and Research Guides are to be blamed, not the subject Statistics. The social, political, and academic malpractices created the phenomena of statistical lies. Variability in data, human biasness, censorship, ignorance, gaps, fallacies and paradoxes are to be considered contextually to make use of statistics reliable and authentic. Statistics epistemology or knowledge about statistics knowledge makes researchers' wisdom the key point for effective use of statistics to write beneficial and readers-friendly journal articles. Interview and insight of one knowledgeable person is better reference than surveying hundred ignorant individuals to make journal article valuable to readers.

Galileo (1564-1642) rejected thousand people's false opinion against his own conviction and insight to establish the truth, "The Sun does not move, the Earth rotates around the Sun". Writers should emphasize on end results in their articles, not narrate the process of journey. Doctoral programmes may be considered important for research in universities and institutes but the achieved degree may not be always an effective tool for quality teaching. PhD programmes concentrate on research works but not on teaching expertise as Sofa (1998) emphasized. Professor Razzaq besides his own Political Science department taught effectively in two other departments: Economics, and International Relations without having a PhD degree research.

6.0 Conclusion

Journal research articles on business use, misuse and abuse statistics as seen in publications of various universities and institutions. "Publish and flourish" is a popular belief for getting promotions and prominence in academia. French *recherché* means to search deliberately for solutions to problems. Business comes from root word *busy* and addition of suffix *–ness.* It means to remain occupied with legal, ethical, environment friendly works for profit or not-for-profit. Monetary or barter exchanges of products take place between producers and consumers, sellers and buyers, suppliers and demanders. Products are tangible goods and intangible services produced in private and public sectors. 6 business types as per legislations are: Sole Proprietorship, Partnership, Company, Cooperative, Franchise, and Others or Not-for-Profit. Researches on 6 major functions of business entail: Procurement and Supply, Production and Operations, Marketing and Sales, Finance and Budget, Accounts and Audit, and HRM.

Business researchers look for solutions to problems relating all the 6 major Line and Support functions and publish the results in journals. Journal derives from Latin *diurnal* meaning day and alive activities. Journals are published quarterly, half yearly, or annually with specific ISSN. More the researches, more is the journal publications. Articles disseminate new knowledge to readers: fellow learners and faculty members of all disciplines in the university and institution. Quality research papers add positively in national and international ranking of universities. Research articles undergo double-blind peer reviews to get selection for publication in journals including e-journals. Citation and journal IF became a controversial issue in e-publishing where renowned universities and institutions have boycotted these illegal and unethical practices like DORA. Young faculty members and practitioners are frantically misusing and abusing statistics besides spending dollars to get their articles published in IF journals.

Journal research articles on business need to follow own country's legislations, societal practices, and statistics norms. Copying and imitating all foreign references and styles indicate xenomania and intellectual poverty. Avoiding own knowledge source, heritage, and culture is counterproductive to creating new knowledge. Our universities and institutes possess enriched faculty members and innumerable enthusiastic student-researchers to pursue diverse business research projects. Inferences, conclusions, and solutions of these business researches shall make home country journals affluent with valuable articles if use of statistics is prudent and relevant. Researchers need not to run after foreign country publishers who commercialized the free and open-ended academic publishing to paid and close-ended ones.

7.0 Recommendation

Writers of journal research articles on business should use statistical tools and tests understanding the contents and contexts of their selected topics. All algebraic formulas, geometric graphs, tables and charts may not be equally relevant and necessary in most of the business research areas. Misuse and abuse of these statistical tools and tests in journal articles disconnect readers from authors.

Authorities in universities and institutes should encourage own research methods and publications of journal articles with due weightage for promotion and prominence. This will definitely discourage the so called foreign IF journals' undue attractions. One cannot flourish leaving own Alma mater's journals and publications.

Business laws and ethics in own country will not be similar to foreign countries, thus researchers need to concentrate on own business practices. Referring Western authorships and styles all the times is neither prestigious nor benevolent. Richness of our own practices, heritages and styles need to be explored, established and referred.

References

Atwood, G (2007). Presentation Skills Training. ATD (Association for Talent Development) Printing Publishing. Virginia, USA.

Bangladesh Bureau of Statistics (BBS) (2020); Statistical Yearbook of Bangladesh. Bangladesh Government (BG) Press, Dhaka, Bangladesh.

Belcher, W L (2019): Writing Your Journal Article in Twelve Weeks: A Guide to Academic Publishing Success. SAGE Publications Inc, USA.

Bradbury, A (2006). Successful Presentation Skills. Kogan Page Publishing, Third Edition, London, UK.

Carnegie, Dale (1964); How to Win Friends and Influence People. Pocket Books, New York, USA.

Covey, Stephen R (2004); The 7 Habits of Highly Effective People – Powerful Lessons in Personal Change. Simon & Schuster, New York, USA.

Gerber, Michael E (2001); The E-Myth Revisited: Why Smallest Businesses Don't Work and What to Do about It. HarperCollins Publishers, New York, USA.

Gosset, W S (1908): Probable Error of a Correlation Coefficient (Pseudonym or Pen named Student's t-test). Journal Biometrika, Oxford University Press, UK.

Greener, S (2008): Business Research Methods. BookBoon Ventus Publishing ApS, Copenhagen, Denmark.

Huff, D (1954): How to Lie with Statistics. W W Norton & Company Publishing, New York, USA.

Internet Web Page (2021): http://bdlaws.minlaw.gov.bd/; Related Laws of Bangladesh. Retrieved in January 2021, Dhaka, Bangladesh.

Khan. Akbar A (2016). Friendly Fires, Humpty Dumpty Disorder, and Other Essays: Reflections On Economy and Governance in Bangladesh. The University Press Ltd, Dhaka, Bangladesh.

Kroehnert, G (1998). Basic Presentation Skills. McGraw-Hill Publishers and Printers, Queensland, Australia.

Lussier, R N (2011): Research Methods and Statistics for Business. Waveland Pr Inc, Massachussets, USA.

Rotondo, J, and Rotondo, M (2002). Presentation Skills for Managers. McGraw-Hill Publishing, New York. USA.

Smith, Adam (1778); An In quiry into the Nature and Causes of the Wealth of the Nations. Published by W Strahan and T Cadell; Glasgow, UK

Sofa, Ahmed. (1998). Jaddaypi Amar Guru (Memories of National Professor Abdur Razzaq); Mowla Brothers; Dhaka, Bangladesh.

Education during COVID-19 Era and Afterwards: The Changes We Need

S M Khaled Hossain[1]

Abstract

The COVID-19 pandemic has caused a serious havoc on education systems around the world, affecting almost 1.7 billion students in more than 191 countries. This disaster has inspired innovation within the education sector. The study is conducted with the aim to explore the unique opportunities created by the pandemic and propose possible changes to cope with the situation. The study identified three big changes in the education system that are needed during and post-COVID pandemic namely, changes in curriculum, changes in pedagogy, and changes in time and place of education. Finally, the study recommends competency and skilled-based education for effective learning of the students.

Key Words: COVID-19, Education, Curriculum, Pedagogy, Learning

1.0 Introduction

The COVID-19 pandemic has had an enormous and wide-spread effect on education, affecting most of the students around the world (UNICEF 2020; United Nations 2020). Educators and education programs all over the world were forced to adapt and innovate as a result of the pandemic's abrupt presence and subsequent educational institutions shut down. These rapid adjustments were taking place in response to the demands of the present situation. Many educational institutions have already started to provide their education virtually (Kamanetz 2020; Sun et al. 2020). As a result, it is apparent and widely acknowledged that "this pandemic has unleashed change and creativity in the education sector" (United Nations 2020). It is historically proved that pandemics have pushed people to break from tradition and reimagine their world as new one. COVID-19 pandemic is no exception. It's a doorway for connecting the past world with the new world. However, a massive change and innovation in the education sector need to be initiated in order to face the major social changes in the post COVID-19 world.

[1] Assistant Professor and PhD (Fellow), AIBA Savar. Email: khaled@aibasavar.edu.bd

As the pandemic is global and almost each and every educational institution affected by the crisis, so it is high time for all educators and students to reconsider about the education that will really require, rather than the rigid, out-of-date paradigm we're likely to hold up. Educators from all over the world have already proved that they could transform the world as a whole. When the educational institutions were decided to shut due to the pandemic the governments, policy makers and educators initiated virtual teaching and learning without much more preparation and planning (Kamanetz 2020; Sun et al. 2020). The current study aimed to review the impact of COVID-19 pandemic on global education and explore some possible changes that the education system may bring in order to make the students more competent and skilled in the corporate world during and after the pandemic.

2.0 Literature Review

This outbreak of COVID-19 pandemic has wreaked havoc on educational systems around the world, resulting in the closure of schools, universities, and colleges. According to UNESCO reporting, 191 countries have introduced nationwide closures and 5 have implemented local closures, affecting roughly 97.4% of the world's student population, or 1.723 billion students (Mustafa, 2020; World Bank Group, 2020; United Nations Educational, Scientific and Cultural Organization, 2020).

As Covid-19 has had an impact on global higher education, universities around the world have responded in a variety of ways to tackle the situation. Many Australian universities, such as Monash University and Victoria University, have temporarily suspended physical classes and developed online teaching and learning process. Simultaneously, universities such as the University of Queensland maintained face-to-face learning while implementing a physical distancing protocol that included online recordings (Crawford et al., 2020). Some prominent universities in the United States, such as Harvard University and MIT, have planned to go entirely on online education system. Just 5% (260 out of 5,300) of higher education institutions in the United States could move to online learning with limited on-campus presence, and most of the higher education institutions have already transitioned (Crawford et al., 2020). All academic activities in India were halted after the University Grants Commission's (UGC) announcement on March 19 and till now it continues.

The United Nations Department of Economic and Social Affairs (UN DESA) forecasts that Covid-19 will cause the world economy to collapse by nearly 1% by the end of 2020, whereas the International Labor Organization (ILO) forecasts a 5.3 million to 24.7 million rise in global unemployment, and the World Trade Organization (WTO) forecasts a 13 percent to 32 percent reduction in world trade (Tripathi and Amann, 2020). After the Covid-19 pandemic, shifts in student behaviour against the mode and choice of particular degree programs may have a major effect. According to the International Association of Universities (IAU, 2020), the Covid-19 has influenced international student mobility at 89 percent of Higher Educational Institutions. The nature of the effect varies from institution to institution, but it has mostly been negative. In terms of study, 80 percent of Higher Educational Institutions (HEIs) indicated that the Covid-19 pandemic has had an effect on their institutions' research. The most common effect of Covid-19 has been the termination or postponement of international travel (at 83 percent of HEIs) and scientific conferences (81 percent of HEIs). According to the IAU Global Survey, nearly 80% of respondents believe Covid-19 would have an effect on enrolment numbers for the coming academic year. Almost half of respondents (46%) believe the effect would be felt by both foreign and domestic students.

The COVID-19 pandemic has triggered the largest disruption of education systems in history throughout Bangladesh, affecting nearly 39 million students. Educational institutions of Bangladesh including schools, colleges and universities closure began on March 17, 2020, and are still ongoing (UNESCO, 2020). Bangladesh's government was swift to respond to the crisis and ensure that learning continued. By the first week of April 2020, the Ministry of Primary and Mass Education (MoPME) and the Ministry of Education (MoE) had implemented remote learning through pre-recorded classes broadcast on televised broadcasts and online platforms. Working groups have been formed by the MoPME to create learning material and carry out lessons through four platforms: television, mobile phones, radio, and internet (Hasan et al, 2020).

3.0 Methodology

The study basically reviewed the current literatures related with impact of COVID-19 on the global education system and tried to work out the possible changes in the education system that are required to tackle the situation. Both primary and secondary sources of data were for conducting the study. Primary data was basically collected from Focused Group Discussion with educators. 10 educators at school, college, and university levels were randomly selected for conducting the FGD. Secondary data sources include published articles, columns, and related websites. On the basis of conducted FGD, the study recommends some possible changes that may be taken into consideration by the education leaders for implementation.

4.0 Discussion

All academics or educators must take advantage of this catastrophe opportunity to advocate for major changes in almost each and every arena of education: what, how, where, who, and when to teach. To combat with the pandemic and bring positive changes in education field a radical transformation is required in the system of curriculum, teaching procedures, time, place of teaching and other related issues. The study proposes what this transition may look like based on research findings and opinions of target respondents.

4.1 Curriculum: What to Teach

The world is updating every day and now we are living in a globalized world. It is a well-established fact that the traditional valued skills and expertise will become less valuable in a future globalized world, while a new set of capabilities will become more dominant and crucial issue for sustaining (Barber et al., 2012; Florida, 2012; Wagner 2008; Pink 2006; Wagner and Dintersmith 2016). Muro et al. (2019) argued that traditional education systems like repetition, pattern-prediction, and recognition, memorization, or any skills related to processing, storing, and retrieving of information are in decline because of artificial intelligence and changes in related technologies. Future corporate world demands for contemporaneous skills such as creativity, critical thinking, curiosity, leadership, teamwork, networking, proactive attitude, global competence (Duckworth and Yeager, 2015; Zhao et al. 2019). It is important for humans to not compete with machines in the world of advanced technology if they are to survive. Rather, they must become more civilized and needs to be more creative, curious, and humane which distinguishes them from machines (Zhao 2018b, 2018c).

In the age of COVID-19 pandemic we are already experiencing that lifelong careers and conventional job paths will not static as it was for the earlier generations. The nature and ways of jobs and business will change rapidly in the future. However, the present education system doesn't produce remarkable knowledge or expertise that can be assured to encounter the unpredictable, uncertain, and ever-changing future. Therefore, the education system should be developed in such a way that will help the students in attaining basic practical skills to make them competent and good human beings. In order to respond to the future needs the following changes may be done:

First and foremost, the curriculum must assist students in improving new skills and expertise appropriate for the current frontier (Barber et al. 2012; Wagner and Dintersmith 2016; Wagner 2008). It should be designed in such a way that enables students to be innovative, proactive, and internationally competent in order to succeed in the technology-driven globalized world (Zhao 2012a, 2012b). Instead of relying solely on bookish knowledge, the curriculum should place a greater emphasis on improving students' capacities. It must also consider the social and emotional well-being of students. Furthermore, the curriculum must ensure that students acquire knowledge that is both internationally and environmentally related.

Second, the new curriculum should encourage the students to personalize it (Basham et al. 2016; Zhao 2012b, 2018c; Zhao and Tavangar 2016). In personalized learning, it is assumed that each student is unique and learns in different ways. Individual students' desires, wants, and skills, as well as the selection of the best learning style for each student, are therefore the main variables in the customized learning (Good and Brophy, 1990; Savery and Duffy, 1995). Personalized learning approaches have some possible benefits over conventional learning approaches and on-the-job preparation. Policymakers define personalized learning as "the forming of students' learning experiences and the curriculum content to represent the feedback and desires of students" (Theobald, 2013). Students are assumed to be able to understand how they learn, to own and guide their own learning, and to be co-designers of the curriculum and their learning environment. It also means that the level of learning is decided by the wants, interests, and capacities of the students. Although there are different forms of personalized learning in literature, the most popular form of personalized learning identified by the researchers is computer-based programs that respond to students' needs (Pane et al. 2015). The main theme is that curriculum should be developed in such a manner in which students can sticks their passions and strengths. This necessitates a dynamic curriculum that allows students to choose what they want to learn, as well as the ability for students to create their own learning path without much interference. As a result, the education system or curriculum should consist of a minimum set of basic knowledge and skills, required for all students to acquire the most fundamental competencies and learn the most common norms, ethics and values which will be helped them in building a prosperous nation. In the personalized curriculum system students may be also encouraged to be a co-developer of his / her curriculum that allows students to make decisions, suggest new learning material, and understand the ramifications of their actions. It also assists students in becoming owners of their own learning and developing lifelong learning habits.

Third, it is also significant to keep in mind that the curriculum is constantly changing. Although system level curriculum frameworks have to be developed, they must also accommodate changes in time and context. Any system-level curriculum should provide educators with the ability to contextualize and modify it as required. Then the learners will be ultimately benefitted from the curriculum system.

4.2 Pedagogy: How to Teach

COVID-19 pandemic forces students to shift from classroom learning to remote learning. Normally it is a question that what will be the pedagogy[1] in present scenario? So now it is high time for the students and learners to be more actively involved in their own learning strategy. Students should keep a more significant role in their own learning due to a number of reasons. First of all, students are from diverse backgrounds, with varying levels of capacities and interests that may or may not match with the curriculum that they all are expected to learn in

[1] **Pedagogy** is a term that refers to the method of how teachers teach, in theory and in practice. The word has Greek origin and breaks down into two parts: *pais* (litearlly, "of a child") and *agogos* ("leader"). Thus the word "pedagogy" refers to the act of leading a child.

the classroom. In this circumstances, teachers need to explore the classroom distinction considering students' needs, interests and capacities (Tomlinson 2014), and students need to cooperate with teachers to define their own learning strategies and learning environments (Zhao 2018c). Second, the recent trend toward personalized learning (Kallick and Zmuda 2017; Kallio and Halverson 2020) necessitates students taking a more active role in determining their own learning paths.

Nowadays students are much more active and tech-savvy. They each have their own set of strengths and weaknesses. They have different interests as well. As a result, educational institutions should begin to relax the rigorous curriculum with their own intellectuality. Instead of forcing all students to learn the same material, educational institutions could begin by encouraging students to choose parts of their curriculum. A certain levels of freedom may be given to the students for deciding about what they want to learn, how they want to learn, where they want to learn, and how they want to be evaluated (Zhao 2018c).

The current globalized world enables students to get access in online learning resources easily. As students have widespread access to online resources and experts during the pandemic, they no longer need constant and direct instruction from teachers. When students are empowered to take charge of their own learning and have access to resources and experts, the teacher's function will be changed (Zhao 2018a). Educators will not be the only source of learning for the students. Teachers may play other roles as curriculum coordinator, student counsellor, group organizer, motivator, or project coordinator for students' learning.

4.3 Organization: Where and When to Teach

Because of the COVID-19 pandemic, one of the most important unwritten rules of educational institutions has been changed that is: all students must be gathered in one place for taking education. The traditional learning place for the students was classrooms of educational institutions, with learning time usually limited to class routines. This culture has been changed due to the COVID-19 pandemic. It has required educators to learn how to teach from a distance away from their learners. Many teachers have also been able to reconsider the meaning of teaching and engage with students as a result of it. So it is high time to rethink both the teaching platform and time. As students have no scope to learn from the physical classroom so teachers may distribute them in the community. With technological help, they can communicate with others and this might have a noteworthy influence on their real-life learning. Students may also use various online resources to gain knowledge and they have the opportunity to take advocacy from experts anywhere from the world. This enables students to acquire knowledge from any place at any time.

As educational institutions are now seeking online teaching and learning due to pandemics so more effective models of online education should be developed in order to derive maximum benefits for both educators and learners. The more effective models of online education are the integration of both synchronous and asynchronous sessions. It is feasible to conduct research-based education rather than long time online teaching. Students follow guidance from online resources or synchronous meetings, perform research, find out the output individually or in small pairs, and present their findings in massive class synchronous meetings. Teachers may make lecture videos or find out the lecture videos from other sources and share them with the learners instead of lecturing to the whole class. Pandemic opens the door for us to make more global connections virtually. So teachers may encourage their students to build an international network virtually from where they can earn their required knowledge and expertise. Students may participate in a variety of learning communities that include people from all over the world, not only from their own institutions. Students may also take advantage of learning opportunities in remote locations offered by other organizations. Students may also develop their own learning environments by welcoming peers and mentors from different places as well.

5.0 Conclusion

As a result of a number of key factors, education will inevitably undergo significant changes over the next decade. More students are expected to move toward competency-based education, which focuses on acquiring specific skills and capacities that they require. Learning must become more customized and dependent on the abilities and desires of learners. In order to change teaching styles, educational institutions need to prioritize student autonomy, their passions, and interests. As a consequence of the COVID-19 pandemic educational institutions has a unique opportunity to positively and proactively improve their education systems. They should think about rearranging their schedules and teaching locations so that students can get more learning opportunities from different locations. It is also true that all students have do not have equal access to technology. The knowledge gap regarding using of technology is still a major problem all over the world. Necessary training should be given to both the students and teachers for attaining competency in using technology. Therefore, this study encourages educational leaders to restructure the entire education system in response to the current situation to make a more prosperous world.

References

Barber, M., Donnelly, K., & Rizvi, S. (2012). *Oceans of Innovation: The Atlantic, The Pacific, Global Leadership and the Future of Education*. Retrieved from: https://www.ippr.org/publications/oceans-of-innovation-the-atlantic-the-pacific-global-leadership-and-the-future-of-education

Basham, J. D., Hall, T. E., Carter, R. A., Jr., & Stahl, W. M. (2016). An operationalized understanding of personalized learning. *Journal of Special Education Technology, 31*(3), 126–136.

Crawford, J., Henderson, K. B., Rudolph, J., Malkawi, B., Glowatz, M., Burton, R., Magni, P. A., & Lam, S. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. Journal of Applied Learning & Teaching, 3(1), 1-20.

Florida, R. (2012). *The Rise of the Creative Class: Revisited* (2nd Ed.). New York: Basic Books.

Good, T. L., & Brophy, J. E. (1990). *Educational psychology: A realistic approach*. Longman/Addison Wesley Longman.

Hasan, K., Abdullah, M., Shovon, F., & Rahman, M. (2020). Shutting down educational institutions under government consideration. Retrieved 04 January, 2021, from https://www.dhakatribune.com/

bangladesh/2020/03/16/shutting-down-educational-institutions-under-government-consideration

Kallick, B., & Zmuda, A. (2017). *Students at the center: Personalized learning with habits of mind*. Alexandria, VA: ASCD.

Kallio, J. M., & Halverson, R. (2020). Distributed leadership for personalized learning. *Journal of Research on Technology in Education, 52*(3), 371–390.

Kamanetz, A. (2020, March 19). 'Panic-gogy': Teaching Online Classes during the Coronavirus Pandemic. *NPR.* Retrieved from https://www.npr.org/2020/03/19/817885991/panic-gogy-teaching-online-classes-during-the-coronavirus-pandemic

Muro, M., Whiton, J., & Maxim, R. (2019). *What jobs are affected by AI? Better-paid, better-educated workers face the most exposure*. Retrieved from: https://www.brookings.edu/research/what-jobs-are-affected-by-ai-better-paid-better-educated-workers-face-the-most-exposure/

Mustafa, N. M., & Selim, L. A. (2020). Characterisation of COVID-19 Pandemic in Paediatric Age Group: A Systematic Review. *Journal of Clinical Virology*, 104395.

Pane, J. F., Steiner, E. D., Baird, M. D., & Hamilton, L. S. (2015). *Continued Progress: Promising Evidence on Personalized Learning*. Santa Monica, CA: Rand Corporation.

Pink, D. H. (2006). *A Whole New Mind: Why Right-brainers will Rule the Future*. New York: Riverhead.

Savery, J. R., & Duffy, T. M. (1995). Problem based learning: An instructional model and its constructivist framework. *Educational technology*, *35*(5), 31-38.

Sun, L., Tang, Y., & Zuo, W. (2020). Coronavirus pushes education online. *Nature Materials, 19*(6), 687– 687.

Theobald, C. (2013). *Changing our behaviours as teachers in order to meet the needs of our culturally diverse students: a thesis presented in partial fulfilment of the requirements for the degree of master of education* *(teaching and learning) at massey university, new zealand* (Doctoral dissertation, Massey University).

Tomlinson, C. A. (2014). *Differentiated classroom: Responding to the needs of all learners*. Alexandria, VA: ASCD.

Tripathi, S. K., & Amann, W. C. (2020, May 4). COVID-19 and Higher Education: Learning to Unlearn to Create Education for the Future. UNITED NATIONS. Retrieved July 23, 2020, from https://academic impact.un.org/content/covid-19-and-higher education-learning-unlearn-create-education-future

UNESCO. (2020). Education: From disruption to recovery. Retrieved 25 January, 2021, from https://en.unesco.org/Covid19/ education response

UNICEF. (2020, August 24). 'What will a return to school during the COVID-19 pandemic look like?' *UNICEF.* Retrieved from https://www.unicef. org/coronavirus/what-will-return-school-during-covid-19-pandemic-look

United Nations. (2020, August). Policy Brief: Education during COVID-19 and beyond. *United Nations.* Retrieved from https://www.un. org/development/desa/dspd/wp-content/uploads/sites/22/2020/ 08/sg_policy_brief_covid-19_and_education_august_2020. pdf

Augmented Reality: An Effective Framework for Online Shopping from E-commerce Websites

Afzal Hossain[1]

Abstract

Augmented Reality is a mix of actual and virtual reality. On the spectrum between virtual reality, which creates immersive, computer-generated environments, and the real world, augmented reality is closer to the real world. A new type of e-commerce system and related techniques are presented in this paper that customers of this type of e-commerce could visually bring the products into their physical environment for interaction. The development and user study of this e-commerce system is provided. A new modeling method, which recovers 3D models directly from 2D photos without knowing camera information, is also presented to reduce the modeling cost of this new type of e-commerce. Also, an immersive AR environment with Graphics Processing Unit (GPU)-based occlusion is also presented to improve the rendering and usability of AR applications. By using these system AR shoppers can personalize shopping experience with immediate product comparisons, production procedures and special offers as they move throughout the store. It captures images via the built-in video camera on a user's smartphone or tablet and uses advanced image processing technologies to identify a product or row of items, can see the procedure of production of the product and all information about the product quickly and accurately.

Key Words: Augmented Reality (AR), Consumer, E-Commerce, Virtual Reality (VR), Online Shopping (OS).

1.0 Introduction

The concepts of VR and AR have been around for many years, but until recently were the stuff of science fiction novels. In the retail world, AR is an extremely exciting prospect for marketing and education. While in-store shopping accounts for 92 percent of retail volume, consumers are

[1]Assistant Professor and MPhil (Perusing), AIBA Savar. Email: afzal@aibasavar.edu.bd

expecting the same levels of personalization and customization that they do when they shop online; 58 percent of consumers want to get in-store product information and 19 percent of consumers are already browsing their mobile devices while in-store. Augmented Reality (AR) is an area of research that aims to enhance the real world by overlaying computer-generated data on top of it. Augmented Reality is a means of linking the real and virtual worlds by use of digital technology. Early Augmented Reality applications ran on stationary desktop computers and required the user to wear bulky head mounted displays (HMDs). However, the cost of these systems, and the technical expertise needed to use them has prevented widespread use. The rapid evolution of e-commerce has created a new sales channel for retailers that are giving brick and mortar stores a run for their money. Not only has e-commerce been profitable for business but also convenient and pleasing for consumers. Despite the opportunity intrinsic to online retail and shopping, there are also some daunting challenges that companies must overcome in order to successfully sell products online.

The primary drawback to online shopping is that many of the sensory elements that customers use to make their purchasing decisions are often lost. When shopping online, a customer cannot touch or feel an item, see how it works, or know how it will fit in their home. The loss of this interactivity and presence in the shopping experience leads to uncertain buyers and more abandoned carts. Additionally, shopping online inevitably involves a bit of guesswork from a consumer, which can lead to unsatisfied customers and company loss through increased return rates. These pain points are constantly being addressed with innovation in retail, but augmented reality is sure to be a true difference maker. Retail has always been about engaging experiences with the right delivery (time and place). The evolution of E-commerce shows past milestones that have addressed these same worries with enough efficiency to make online shopping a consistent revenue channel for brands and stores. Still, as the digital era matures in how personalized it has become consumers of all generations are expecting these experiences at the bare minimum. To continue this engaging experience in a way that provides value to both sides, augmented reality is helping shoppers visualize products they'd like to buy in the environment around them, in real-time. "61% of shoppers prefer to shop at stores that offer augmented reality, over ones that don't" – Retail Perceptions

While shopping online, a customer has to imagine and interpret what an item would feel like in their hands, or look like in their home. AR technology helps overcome this online buyer's challenge by transforming an imagination into a reality. A customer who can accurately see how any product will actually feel in their environment, at-scale, will be able to purchase with more certainty and satisfaction. "77% of shoppers want to use augmented reality to see product differences such as a change in color or style" – Retail Perceptions Before making a purchasing decision, customers often want to see various color selections and explore other modifications that might be available. Historically, customization options have been difficult for online retailers to convey to their consumers. Augmented reality makes it easy for consumers to explore their options and make personalized modifications while online shopping. With retailers who offer augmented reality, shoppers can change the color of furniture they're looking to buy to see how it looks in their home first. Both online shoppers and in-store customers wish that they could interact with a product to get a feel of how it works before heading to the cashier. Augmented reality is allowing shoppers to trigger animations to show how complex products like appliances or electronics work and function. The future of augmented reality in retail will consider augmented reality SDKs like Augment's SDK that allows retailers to leverage AR through their own, branded platforms. This is a very exciting field with constant innovation on the horizon, solving today's problems with the next platform of computing. Online retailers must realize that there is more to VR and AR than mere gaming. As futuristic as these "realities" feel, it's all old school again - the touch-and-try charm, just virtually!

Augment's SDK, in particular, is built to integrate seamlessly into the retailer's portal, allowing them to leverage product visualization to provide value to their shoppers while increasing conversions. Mobile commerce sales consumed 30% of all U.S. e-commerce sales in 2015. With AR working mainly through smartphones, this technology is expected to capitalize on the growing dominance of mobile commerce. Online retail opportunities continue to expand as more consumers begin their purchasing decisions through online portals. To remain competitive and profitable, it is no longer enough just to have an online presence. Your online shopping experience must now be personal and interactive to help ease buyer uncertainty and drive profit through consumer satisfaction. Augment, a leader in the augmented reality market, is active in aiding online retailers with our custom AR solutions.

2.0 Literature Review

This module consists of review of literature related with the impact of online marketing on consumers. Then it analyses the prevailing arguments in online marketing and factors affecting acceptance of online marketing. Further it provides a critique review of variegated studies related with online marketing. This is followed by highlighting the significance of augmented reality in enhancing shopping experience. The growing dependence of firms on e-commerce activities and the recent failure of a vast number of dot-com companies highlight the challenges of operating through virtual channels and also emphasize the need to better understand consumer behavior in online market channels in order to attract and withhold consumers (Acquisti, 2006). While carrying out all the functions of a traditional customer, in Internet shopping the customer is simultaneously a computer user as he or she interacts with a system, i.e., a commercial website. On the other hand, the physical store has been transformed into Web based stores that use networks and Internet technology for communications (Aarts et al. 2001) and transactions. In this sense, there seems to be an understanding that online shopping behavior is fundamentally different from that in conventional retail environment (Azuma, et al. 1997).

Product characteristic is a factor that influences the consumer's intention to purchase over the internet. Product characteristic can be tangible or intangible (Baillot, et al. 2001)., standardized or customized. In an online context, lower palpability of a product is caused by the inadequacy of physical contact and assistance in the shopping process. Consumer's intention to shop on the internet will be subsided when there is a need to seek advice from a salesperson regarding the considered product. Products such as furniture, car, and computers have the lower potential to be purchased by the consumer because it requires more personal knowledge and experience (Barsky, et al. 2006). Once the uncertainties consumers perceive about shopping through the web are scaled down, the environment still promises a high potential for selected consumer segments (Bay, H et al. 2006). Studies focus that tools such as the use of artificial shopping or augmented reality agents that work on behalf of consumers in the online market, are very valuable efforts enlightening the road for diminishing online shopping constraints. AR permits the user to see the real world, with virtual objects superimposed upon it or composited with the real world (Sielhorst et al. 2004). Hence, Augmented Reality supplements reality, rather than totally replacing it. That is AR complements the real world with virtual objects that appear to coexist in the same fields or space as the real world (Cheverest, et al. 2005). In an AR environment, conditions, and settings, the virtual furniture can be displayed and transformed in real-time on the screen, allowing the consumer to have an interactive experience with the virtual furniture in a real-world environment (Sutherland et al. 1968).

3.0 Research Objective

The main objective of the research work is to develop an effective framework for the customer to compile their online shopping using augmented reality from anywhere at any time.

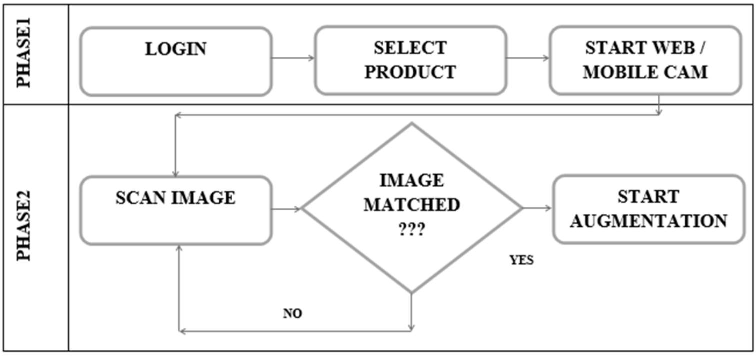
4.0 Methodology

Most of the aforementioned previous studies were not conducted in a real retail environment and were thus faced with the challenge of representing the application potential of AR to the subjects. A context for the evaluation and expectations of AR has been created by different scenarios or specific use cases.

The data collection in this experimental field study provides evidence from real use cases. To investigate the acceptance and effects of the AR application, 100 randomly selected visitors to a highly frequented bookstore in the different area of city were asked to participate in the field study. For this purpose, the author collaborated with a leading AR development company and generated a fully functional AR application. To ensure that all of the participants were able to use the AR application irrespective whether they had a smart device with them or not all of them were given a Tablet-PC with the application installed. After a brief introduction on how to use the application, the participants from the treatment group applied the AR application within the framework of the information for popular best-sellers of their choice. Meanwhile, the subjects in the control group searched for information regarding books from the same category without any technical support. After completing the search for information, the participants were asked to fill in a questionnaire about their information behavior and their assessment of the product information offered by the retailer, as well as their demography.

5.0 Framework Design and Development

Figure 1. Framework of E-commerce using Augmented Reality



Source: Developed by the Author

The methodology of the research work divided into two phases' i.e phase-1 and Phse-2. In phase- 1, any customer need to login into the system. The customer has to enter his user name and password in order to get logged in. after login successfully into the system user / customer can select any product from different categories. For proper augmentation they need to start their web or mobile camera.

In phase-2, customer will scan image of the product which is into the e-commerce website. This captured image also compared with the original image which is stored in the database. Finally, it will start augmentation if image matched successfully otherwise it will rescan image.

An Augmented Reality e-commerce assistant system for furniture and other home décor commodities is designed to provide consumers with more realistic and practical product experiences and interactions. With the development of an Augmented Reality e-commerce portal, online consumers can bring a product into their own physical environment and even try out and visualize the product in their physical environment while shopping from their computers. Similar to the traditional e-commerce systems, our online shopping portal using

Augmented Reality requires the Internet as the elementary user interaction platform. In addition to this our Augmented Reality online shopping portal, also needs a camera to capture the consumer's physical environment and then integrate and blend it with virtual objects in real time. The modules used in this software are as follows:

Login: The Login module allows any customer to login to the system. The customer has to enter his user name and password in order to get logged in.

Registration: This module is for the users who do not have their account. Here user is allowed to create an account to login. The account creation is done by filling the registration form with user details such as name, phone, email etc.

Product: This module has information regarding the furniture and other home décor commodities such as its name, model, color, price information, its features etc. Only registered users can purchase the product.

Augmented Reality: This module displays items in real size by projecting a visual replica though the camera on a smart phone. One can reposition the items to any angle to view the furniture in one's home space. In order to use this feature user has to download an android application available on the site and also download and print the provided marker by pointing the camera towards the marker user can view the required model.

Filter: This module helps the customer to ease his search based on his budget or interest. The filter can be applied on different categories like model name, model number, color, price etc.

Cart: User can select any number of home décor products and add to the cart. One can also remove the products from the cart if one dislikes it later.

Payment: This module describes the payment done by the customer. The payment information can include information like the product purchased, quantity, and mode of payment (cash on delivery, net banking) etc.

5.1 Image Matching Algorithm

Algorithm 1 Iterative Enhancement

Input: Original image; Initial values of parameters;
Output: Enhanced image with high similarity
1: procedure Iterative Enhancement
2: initial θ, α, e;
3: repeat:
4: optimage←AWB-Defogging (optimage, θ, α);
5: acoimage←Morphology (acoimage, e);
6: CalGradient (θ, α, e);
7: SI ←CalSI();
8: until (SI > Threshold);
9: end procedure

Source: Developed by the Author

Fortunately, more and more augmented reality companies appear to enable the retailers to get their business to the next level. Let's take a closer look at some of them. Here we are putting some screenshot of our done works with an augmented reality software called LAYAR.

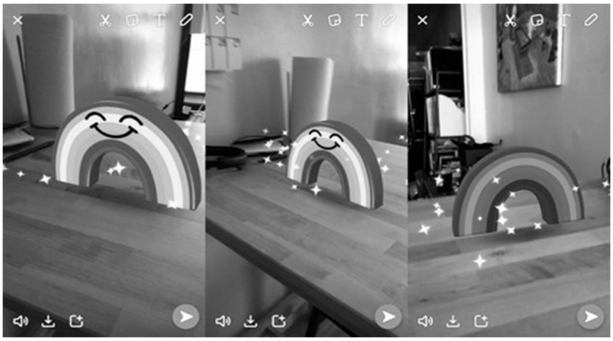


Figure 2: Scanning Marker Image

Figure 3: Showing all those Included Links

6.0 Results and Discussions

Here we have augmented 50 alibaba.com, 60 amazon.com and 70 ebay.com images for examine the success rate of these websites. Here is our result-

Table 6.0: Result Table

Ecommerce Website	Image Augmentation	Successful Augmentation	Failed Augmentation	Success Rate	Failure Rate
Alibaba.com	50	45	5	90%	10%
Amazon.com	60	50	10	83.33 %	16.67 %
e.bay.com	70	60	10	85.71 %	14.29 %

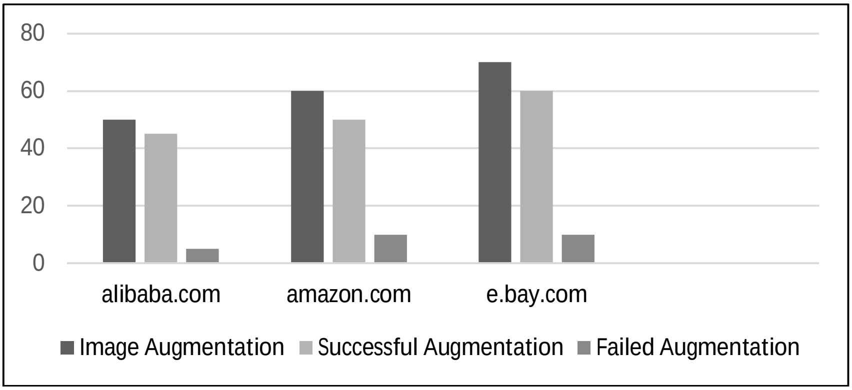


Figure 5: Success Rate and Failure Rate of Image Augmentation

Average rate of success: 86.35%
Average rate of Failure: 13.65%

Here we can see that alibaba.com's success rate is higher than the other website as they are the lead investor in smart car tech developer WayRay's $18 million Series B round, the startup announced.
In a prepared statement, Alibaba Group's senior investment director, Ethan Xie, said, "We believe there is huge potential in the development of leading-edge technology like augmented reality and its application to various industries, like WayRay's AR navigation system in the auto sector. The potential of augmented reality makes it an exciting and promising area."

So here we are seeing that the concern for developing augmented reality is very high and potential. Even their investment on this system is also higher than others. As they are the lead the lead company. That's why their success rate is higher than others.

And on average the total success rate is satisfied. And many development countries are trying to minimize the failure rate for their online shopping too.

7.0 Conclusion and Recommendations

A rapid evaluation of future e-commerce continues to shapes, which has been beneficial not only for business but also for gratifying for consumers. Augmented reality will have enormous impact in how customers buy products online. It is working on it to solve the dilemma with visualization and make it easy to see the product in real, in their actual environment for customers. While shopping online they will feel the product in their hand and even retailers offer, they can change the color, shape of furniture how it looks in their home first. Augmented reality is encouraging shoppers spending more time visualizing and transforming products in the real world, and there will be no doubts about their online purchases. We can see the significant growth of successful campaigns over the recent years. We anticipate new impressive campaigns in augmented reality retail and soon it will become a crucial and a vital tool in the marketing technology set.

Essentially, Augmented Reality offers a continuous immediate or backhanded perspective of buyer's quick surroundings changed or enhanced by PC produced data, for example, sound, video, designs or GPS information. With AR innovation, clients can utilize genuine spaces and even their bodies and faces to look at if such things as furniture, dress, and so on suit them. Along these lines, the significant advantage of AR is that it combines two universes, the computerized and the genuine ones.

AR high-techs help customers to visualize an item they want to buy by converting the imagination into reality. Furthermore, according to the up-to-date study, 61% of the consumers would rather buy things at e-shops that offer augmented reality, than at ones that don't. AR technology provides buyers with an opportunity to express their preferences when online shopping. Besides, as indicated by the recent research, 77% of consumers would like to use augmented reality to observe product diversities such as a change in color or style.

To feel confident during e-shopping, a customer needs to be able to observe an item and be aware of its functions. That is why plenty of e-store owners provide their customers with demo videos. Despite the fact that such instructional videos are really useful, augmented reality improves this method by supplying their clients with impressive-quality 3D holograms. As determined by the new study, 40% of the shoppers would be willing to pay more for an item if they could observe it via AR first. Offering evident advantage, AR technology has quickly conquered the market. Moreover, it's completely changed the way we shop. Nowadays to be noticed in this highly competitive world, there is the need for e-store changes such as using augmented reality technology. Brands like eBay, IKEA, and Alibaba have already integrated AR into their business, which let them achieve impressive results (according to the recent reports, IKEA app has been downloaded 8.5 million times).

References

Aarts E., Harwig R., and Schuurmans M., Ambient intelligence, The invisible future: the seamless integration of technology into everyday life, McGraw-Hill, New York, 2001

Acquisti, A. and Gross, R., Imagined Communities: Awareness, Information Sharing, and Privacy on the Facebook. PET 2006, LNCS 4258:36–58, 2006

Azuma, R.T., A Survey of Augmented Reality. Presence: Teleoperators and Virtual Environments 6, 4 (Aug 1997), 355–385, 1997

Baillot, Y., Brown D., and Julier S., Authoring of physical models using mobile computers. In Proc. of ISWC 2001, pages 39–46, 2001

Barsky E. and Purdon M., Introducing Web 2.0: social networking and social bookmarking for health librarians. Journal of the Medical Library Association 2006

Bay, H., Tuytelaars, T., and Van Gool, L., SURF: Speeded up robust features. In Proc. of the European Conference on Computer Vision, 2006

Burak, A. and Sharon, T., Usage patterns of FriendZone: mobile location-based community services. In Proc. MUM '04, vol. 83. ACM, New York, 93–100. 2004

Bevins, S., Brodie, M., & Brodie, E. (2005). A study of UK secondary school students' perceptions of science and engineering. In European Educational Research Association Annual Conference, Dublin, 7-10 September 2005.

Bjork, R. A. (1989). Retrieval inhibition as an adaptive mechanism in human memory. In H. L.

Roediger III, & F. I. M. Craik (Eds.), Varieties of memory & consciousness (pp. 309-330). Hillsdale, NJ: Erlbaum.

Burton, E. P., Frazier, W., Annetta, L., Lamb, R., Cheng, R., & Chmiel, M. (2011). Modeling Augmented Reality Games with Preservice. Jl. of Technology and Teacher Education, 19(3), 303-329.

Cerqueira, C. S., & Kirner, C. (2012). Developing Educational Applications with a Non-Programming Augmented Reality Authoring Tool. Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications (pp. 2816-2825).

Chang, G., Morreale, P., & Medicherla, P. (2011). Applications of Augmented Reality Systems in Education. Proceedings of Society for Information Technology & Teacher Education International Conference 2010, 1380-1385.

Coffin, C., Bostandjiev, S., Ford, J., & Hollerer, T. (2008). Enhancing Classroom and Distance Learning Through Augmented Reality.

Cook, M. P. (2006). Visual Representations in Science Education: The influence of prior Knowledge and Cognitive Load Theory on Instructional Design Principles. Sci. Ed., 90, 1073-1109. http://dx.doi.org/10.1002/sce.20164

Cheverest, K., et al., Exploring Bluetooth based mobile phone interaction with the Hermes photo display, MobileHCI05, 47–54, ACM, New York, 2005

Mizell D., Augmented Reality Applications in Aerospace, IEEE and ACM International Symposium on Augmented Reality (ISAR'00), 2000

Sutherland I., A head-mounted three-dimensional display. In Proc. of the Fall Joint Computer Conference. AFIPS Conference Proceedings, vol. 33. AFIPS, Arlington, VA., 757–764, 1968

Sielhorst T., Obst T., Burgkart R., Riener R., and Navab N., An augmented reality delivery Simulator for medical training. In International Workshop on Augmented Environments for Medical Imaging – MICCAI Satellite Workshop, 2004

Capital Structure Decision and Firms Performance: Evidence from Non-Bank Financial Institutions in Bangladesh

Kaniz Fatema[1], Nafiul Hasan[2]

Abstract

This paper researches the impact of capital design choices on firm execution utilizing an example of 20 recorded Non-Bank Financial Institutions on the Dhaka Stock Exchange for a time of five years. The examination analyzed the effect of STDTA, LTDTA, and TDTE (being the illustrative factors) on ROA and ROE, which addresses the reliant variable while controlling for size, substantial quality and Growth. The dataset was investigated utilizing relapse model and spellbinding factors. On the ROA model, the proportion of momentary obligation to add up to resource (STDTA) and complete obligation to add up to value (TD/TE) have huge adverse consequence on execution. The ROE model uncovered that momentary obligation to add up to resource (STDTA) and long haul obligation to add up to resource (LTDTA) have critical constructive outcome on ROE while all out obligation to add up to value (TD/TE) has huge adverse consequence. Firm size has huge constructive outcome in the two models (ROA and ROE). This suggests that, the incorporation of obligation (both present moment and long haul) in the capital design of a firm emphatically influence the value investors as far as firm execution while obligation holder may be influenced contrarily.

***Key Words**:* Capital Structure, Firms Performance, Non-Bank Financial Institutions, Profitability, Return on Equity

1.0 Introduction

The journey for firms to grow their exercises, boost their investor's riches and contend adequately in the business where they work can't be overemphasized. The going concern and the presentation of a firm depend on some significant factors, for example, qualified administration board, practical systems, accessibility of account, among others. Thusly, for firms to accomplish their objectives and goals, taking into insight their restricted assets, they essentially need to plan on the most proficient method to fund their exercises.

[1] Lecturer, AIBA Savar. Email: kaniz@aibasavar.edu.bd
[2] Senior Officer, BRAC Bank Limited, Dhaka. Email: nafiulhasan@outlook.com

The proverb - ' quid pro quo' which means something for something works in the realm of money. Each supplier of capital be it investors, bondholders or debenture holders are simply able to forfeit their asset with the assumption for accepting either profit or premium consequently. Subsequently, in taking financing choices, leaders need to set up the accessible wellsprings of account, the interest of the suppliers of such assets, its expense and advantages, the effect of those money alternatives on its general exercises, and above all the suitable blend of every single reachable asset.

Capital structure just alludes to the extent of obligation and value in the monetary system of a firm. In this manner, since capital construction is the combination of value and obligation, a firm might be all value (ungeared/unlevered); or a blend of value and obligation (equipped/turned). Experimental confirmations declare that organizations will choose the blend of obligation and value that boosts the worth of the firm (Modigliani and Miller, 1958). At the point when an association means to grow its ventures, the need to raise reserves is unavoidable, which may change its capital construction.

A fitting capital construction is a basic choice for any business association. The choice is significant not just on account of the need to augment gets back to different authoritative partners, yet in addition due to the effect of such choice has on the endurance of the business. Regardless of its hypothetical allure, analysts in corporate money are yet to concur on the ideal degree of capital design; just as the connection among influence and firm execution (Mykhailo, 2013). While a few examinations set up an adverse consequence, others keep up that a positive effect exists. Because of the opposing assessment of account financial experts on the topic, this investigation is set to investigate the effect of capital design choice of administrators on association's exhibition, return on both capital and resource used.

2.0 Literature Review

In light of the prior speculations, a few creators across the globe have made endeavor to discover the effect of capital design on company's exhibition.

In Kenya, Lucy (2014) explores the connection between capital construction and execution of non-monetary organizations. The examination utilized a logical non experimental research configuration utilizing an example of 42 non-monetary organizations in Nairobi Securities and Exchange for the time of 2006-2012. The examination uncovered that monetary influence had a genuinely huge negative relationship with execution. The examination suggested that chiefs of recorded non-monetary organizations ought to diminish the dependence on long haul obligation as a wellspring of money. Also in Nigeria, Osuji and Odita (2012) analyzes the effect of capital design on monetary execution of Nigerian firms utilizing an example of thirty nonfinancial firms recorded on the Nigerian Stock Exchange during the seven (7) year time span, from 2004 to 2014. Board information for the chose firms were ordered and examined utilizing the standard least squares as a technique for assessment. The aftereffect of their investigation showed that an association's capital design adversely affects the association's monetary presentation. Lawal et al. (2014) in their investigation of the impact of capital construction on association's exhibition among inspected firms in the Nigerian assembling industry, seen that capital design factors are contrarily identified with firms execution they anyway suggest that organizations should utilize a greater amount of value than obligation in financing their activity.

Mustafa and Osama (2013) additionally give proof from Jordon in their examination of the effect of capital construction and corporate execution on 76 Jordanian firms for the period 2001-2006 utilizing the various relapse model addressed by Ordinary Least Square (OLS) tracked down that capital design related adversely and genuinely with company's presentation. Their examination likewise uncovered that the effect of equipping on the presentation of profoundly outfitted and modest outfitted firms is irrelevant. Notwithstanding the prior, jumpers creators, Bokhtiar et al. (2014), Varun (2014), Onaolapo and Kajola (2010), Ebaid (2009), Shan and Khan (2007), Zeitan and Tian (2007), Haung and Song (2006), Deesomsak et al. (2004) and Gleason et al. (2000) have all inferred that capital design genuinely and contrarily sway company's presentation, utilizing the various approaches and nation information.

Then again in Pakistan, Mubeen and Kalsoom (2014) in their examination of the effect of capital construction on monetary execution and investors' abundance inspecting 155 firms in the Pakistan Textile Sector presumed that capital design decidedly sway firms monetary execution and investor's riches. Additionally, in Sri Lanka, Nirajini and Priya (2013) likewise explore the effect of capital construction on monetary execution. The investigation utilized connection and different relapse examination. Their discoveries uncovered that there is a positive connection between capital design and monetary execution and that capital construction fundamentally influences execution. Different creators have likewise presumed that capital construction mixedly affects association's presentation. (Zeitan and Tian, 2007).

Berger and Bonaccorsi (2006), in their investigation of the effect of capital design on association's presentation inferred that neither higher influence nor lower value capital proportion are associated with higher benefit productivity for all scope of information. Additionally, Phillips and Sipahioglu (2004) in their investigation of the effect of capital construction on company's exhibition utilizing the UK dwelling firms as test reasoned that there is non-critical connection between capital design and company's presentation.

3.0 Research Objectives

The objective of the research is to find out the effect of 'Capital Structure Decision and Firm Performance: Evidence from Non- Bank Financial Institutions in Bangladesh'. The specific objectives are:

- To give an overview of the capital structure decision
- To describe the changes in independent variables comparing to profitability ratios.

4.0 Methodology

The idea of this examination requests the utilization of quantitative exploration configuration including ex-post factor. The number of inhabitants in this examination includes all non-bank monetary foundations recorded on the Dhaka Stock Exchange (DSE) market, an example of 20 cited organizations were purposively chosen for this investigation. Information were extricated from reviewed yearly reports and records of recorded firms on the Dhaka Stock Exchange, which crossed somewhere in the range of 2012 and 2016. Assessment focused on post worldwide monetary emergency period in which information was accessible. To catch the effect of capital construction on firm execution, we indicate a model adjusting to the office hypothesis; as recently determined by Berger and di Patti (2006) just as Margaritis and

Psillaki. (2007, 2010) It depended with the understanding that supervisors have zero shareholding in the firm. Something else, supervisors will have no impetuses to take a low worth activities, as they boost their own abundance. Furthermore, we accept that administrators need to stay away from firm liquidation and don't really want to deliver profits to investors. The writing proposes numerous methods of estimating execution of the firm. Hammes and Chen (2004) utilized ROA as a proportion of firm execution, since the fundamental bookkeeping proportions are professed to be ill-advised markers of firm execution. Associatively, Ward and Price (2006), embraced return on value as a fitting proportion of execution, since it uncovers how much benefit an organization procured in contrast with the aggregate sum of investor value found on the asset report. A business that has an exceptional yield on value is bound to be one that is equipped for creating cash inside. Generally, the higher an organization's profit from value contrasted with its industry, the better.

Hence, we specified the following Models;

$$ROA_{it} = a + \beta_1 STD/TA_{it} + \beta_2 LTD/TA_{it} + \beta_3 D/E_{it} + \beta_4 GROWTH_{it} + \beta_5 SIZE_{it} + \mu it$$

$$ROEit = a + \beta_1 STD/TA_{it} + \beta_2 LTD/TA_{it} + \beta_3 D/E_{it} + \beta_4 GROWTH_{it} + \beta_5 SIZE_{it} + \mu it$$

In the model ROA indicates Return on Assets, ROE indicates Return on Equity, $\alpha 0$ is the constant, STD indicates Short term Debt, TA indicates Total Assets, LTD indicates Long Term Debt, D/E indicates Debt/ Equity, Growth indicates firms' growth, SIZE indicates firms' size and μit indicates error term.

4.1 Research Hypothesis

Based on the theoretical review made on last chapter and following the research considerations of formulate the research hypothesis. The hypothesis that will be tested in this research:

Hypothesis: There is a significant relationship between capital structure and firms performance

The relevant indicators for this study are the STD/TA, LTD/TA, D/E, Growth and Size of the companies, thus in order to make the statistical procedures these indicators must be represented by a measurable variable.

5.0 Analysis and Findings

Table 1: Descriptive Statistics

Components	N	Minimum	Maximum	Mean	Standard Deviation	Variance	Skewness	Kurtosis
ROA	100	-4.97	18.23	2.2637	3.88996	15.132	2.783	7.855
ROE	100	-67.68	43.39	7.7217	11.50085	132.270	-2.831	19.653
DE	100	.08	31.42	4.1775	4.24661	18.034	3.152	16.456
STDTA	100	.00	2.67	.2707	.30062	.090	5.335	40.773
LTDTA	100	.00	1.43	.4132	.23934	.057	.722	2.222
Size	100	3.47	4.90	4.1187	.30163	.091	.501	-.080
Growth	100	-.23	1.75	.2296	.28861	.083	3.109	13.342
Valid N	100							

Table 5.1 above showed the variables used in the study. Analysis indicated the average ROA is 2.2637, the minimum is -4.97, while the maximum is 18.23. The standard deviation is 3.88996. Relatively, ROE shows a mean value of 7.7217, the minimum is -67.68; maximum is 43.39 while the standard deviation is 11.50085. ROA and ROE showed different skewness while the variables are leptokurtic in nature. The negative minimum value is attributable to a firm with a loss in a period. This low performance can be traced to such factors as inadequacy of electricity, high interest rate and depreciation in exchange rate. The ratio of the STDTA shows a mean value of 0.2707 while Long Term Debt to Total Assets (LTDTA) has a mean value of 0.4132. Both STDTA and LTDTA indicated positive skewness and the variables are leptokurtic, that is, they are highly peaked. The ratio of debt/equity has the mean value of 4.1775, implying that the proportion of debts in the sampled firm is high; this is supported with the kurtosis value of 16.456; a leptokurtic variable.

On the average, firm’s size has an average value of 4.1187 with a minimum and maximum of 3.47 and 4.90 respectively. The size of the firms is positively skewed with a low kurtosis value of -0.080, which implied a platykurtic variable. Finally, the mean value of the firm‘s growth is .2296 with a minimum and maximum value of -.23 and 1.75 respectively. The skewness of the firm‘s growth is 3.109 which implied negative skewness while the kurtosis stood at 13.342 depicting a leptokurtic variable.

5.1 Regression Analysis

Here, Regression Analysis has been used to estimate relationship between selected independent (STD/TA, LTD/TA, D/E, Growth, Size) variables and dependent (ROA, ROE) variables.
With five independent variables the prediction of Y is expressed by the following equation:

$Y = a + \beta_1\, STD/TA + \beta_2\, LTD/TA + \beta_3\, D/E + \beta_4\, GROWTH + \beta_5\, Size + \varepsilon i$
Observations: 100, 5 years data of 20 companies are used.

Dependent Variable: ROA

Table 2: Model Summary of Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df 1	df2	Sig. F Change	Durbin Watson
1	.289a	.084	.035	3.82162	.084	1.714	5a	94	.139	1.072

Relationship among the Variables in Relative Terms

Multiple R: 0.289 - This is the correlation coefficient. It represents the degree of relationship. If the value is 1 that means perfect positive relationship. Here, 0.289 or 28.9% that indicates there is low degree of positive relationship exist among the variables of NBFI's in Bangladesh.

Explanatory Power of Independent Variables

R^2: 0.084 = It shows how much of the variance of "Y" is explained in the regression. Here, 0 .084 indicates 08.4% of variations of stock price are explained by the variation of number of STD/TA, LTD/TA, D/E, Growth, Size. This is very weak.

Adjusted R2: 0.035 = It should be always less than R Square. And here it is.

Table 3: ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	125.198	5	25.040	1.714	.139b
	Residual	1372.852	94	14.605		
	Total	1498.050	99			

This is the table that shows the output of the ANOVA analysis and whether there is a statistically significant difference between our group means. We can see that the significance value is 0.139, which is above 0.05. And therefore, there is less statistically significant difference in the mean length of time to complete the spreadsheet problem between the different courses taken. This is great to know, but we do not know which of the specific groups differed.

Table 4: Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.381	5.550		1.510	.134
	DE	-.030	.107	-.032	-.277	.782
	STDTA	-1.097	1.372	-.085	-.800	.426
	LTDTA	-3.629	1.730	-.223	-2.098	.039
	Size	-.960	1.411	-.074	-.680	.498
	Growth	-1.056	1.426	-.078	-.741	.461

Interpretation of Coefficient

The regression model is like this

$$Y = a + \beta1*STD/TA + \beta2*LTD/TA + \beta3*D/E + \beta4*GROWTH + \beta5*Size + \varepsilon i$$

Here, Y = ROA (Return on Asset)

a = Constant

Y = 8.381-1.097*STD/TA–3.629*LTD/TA-0.030*D/E-.056* Growth-.960*Size

The equation indicates that everything is negative when the firm's return on asset is increasing which here showing an inverse relation. It says when ROA is increasing the other indicator are going down in amount and vice versa.

Relationship among the Variables in Relative Terms

The relationship among the variables in relative terms can be estimated with the help of coefficient of correlation. Here, r = .289 indicates that there is a low degree of positive relationship among the variables of NBFI's in Bangladesh.

Explanatory Power of Independent Variables

The explanatory power of independent variable can be assessed with the help of coefficient of determination (r2). Here r2 .084 indicates that 8.4% of the total firms performance can be determined by the variables of NBFI's in Bangladesh.

Influencing Power of Independent Variables

The influencing power of independent variable can be assessed with the help of Standardized Coefficients (β).

Here,

β DE	=	-0.032
β STD/TA	=	-0.085
β LTD/TA	=	-0.223
β Size	=	-0.074
β Growth	=	-0.078

So, it is evident that the independent variables have less influence on changing the dependent one for NBFI's in Bangladesh.

Model Fitness

From the ANOVA table, it is evident that the results are statistically insignificant because they are statistically significant at .139 or 13.9% level which is higher than that of 0.05 or 5% level.

Measuring the Significance of Coefficients

In the output above we see t values are given for each of the variables. Besides this significance level for each *t* value are given in the model as well. And from the coefficient table it is evident that these are statistically insignificant as the significant level of DE, STD/TA, Size, Growth are 0.782, 0.426, 0.498, 0.461 which are higher than 0.05 or 5%

level. When only LTD/TA has the value lower than the stated one, 0.039 or 3.9%. Here for ROA the hypothesis is not accepted.

Dependent Variable: ROE

Table 5: Model Summary of Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin Watson
1	.419a	.176	.132	10.71471	.176	4.012	5a	94	.002	.980

a. Predictors: (Constant), Growth, Size, LTDTA, STDTA, DE. Dependent Variable: ROE

Relationship among the Variables in Relative Terms

Multiple R: 0.419 - This is the correlation coefficient. It represents the degree of relationship. If the value is 1 that means perfect positive relationship. Here, 0.419 or 41.9% that indicates there is moderate degree of positive relationship exist among the variables of NBFI's in Bangladesh.

Explanatory Power of Independent Variables

R2: 0.176 = It shows how much of the variance of "Y" is explained in the regression. Here, 0 .176 indicates 17.6% of variations of stock price are explained by the variation of number of STD/TA, LTD/TA, D/E, Growth, Size. This is weak.

Adjusted R2: 0.132 = It should be always less than R Square. And here it is.

Table 6: ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2303.018	5	460.604	4.102	.002b
	Residual	10791.664	94	114.805		
	Total	13094.682	99			

a. Dependent Variable: ROE b. Predictors: (Constant), Growth, Size, LTDTA, STDTA, DE

This is the table that shows the output of the ANOVA analysis and whether there is a statistically significant difference between our group means. We can see that the significance value is 0.002, which is below 0.05. And therefore, there is statistically significant difference in the mean length of time to complete the spreadsheet problem between the different courses taken. This is great to know, but we do not know which of the specific groups differed.

Table 7: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-16.217	15.560		-1.042	.300
	DE	-.677	.300	-.250	-2.253	.027
	STDTA	4.400	3.846	.115	1.144	.256
	LTDTA	-4.250	4.849	-.088	-.876	.383
	Size	7.252	3.956	.190	1.833	.070
	Growth	-11.055	3.998	-.277	-2.765	.007

Interpretation of Coefficient

The regression model is like this

$Y = a + \beta1{*}STD/TA + \beta2{*}LTD/TA + \beta3{*}D/E + \beta4{*}GROWTH + \beta5{*}Size + \varepsilon i$

Here, Y = ROE (Return on Equity)

a = Constant

Y = -16.217 + 4.40* STD/TA - 4.25* LTD/TA - 0.677*D/E - 11.05*Growth + 7.252*Size

The equation indicates that variable are both in positive and negative. It says when ROE is increasing the other indicator are going down in amount and vice versa except STD/TA & Size.

Relationship among the Variables in Relative Terms

The relationship among the variables in relative terms can be estimated with the help of coefficient of correlation. Here, r = .419 indicates that there is a moderate degree of positive relationship among the variables of NBFI's in Bangladesh.

Explanatory Power of Independent Variables

The explanatory power of independent variable can be assessed with the help of coefficient of determination (r2). Here r2 .176 indicates that 17.6% of the total firms performance can be determined by the variables of NBFI's in Bangladesh.

Influencing Power of Independent variables

The influencing power of independent variable can be assessed with the help of Standardized Coefficients (β).

Here,
β DE = -0.250
β STD/TA = 0.115
β LTD/TA = -0.088
β Size = 0.190
β Growth = -0.277

So, it is evident that the independent variables have influence on changing the dependent one when some have negative values for NBFI's in Bangladesh.

Model Fitness

From the ANOVA table, it is evident that the results are statistically insignificant because they are statistically significant at .002 or 2.0% level which is higher than that of 0.05 or 5% level

Measuring the Significance of Coefficients

In the output above we see t values are given for each of the variables. Besides this significance level for each *t* value are given in the model as well. And from the coefficient table it is evident that these are statistically little significant as the significant level of STD/TA, LTD/TA, Size, are 0.256, 0.383, 0.070, which are higher than 0.05 or 5% level. When only has the value lower than the stated one is D/E and Growth respectively, 0.027, 0.007. Here the hypothesis is accepted.

6.0 Conclusion and Recommendations

Capital structure stays perhaps the most argumentative issues in money writing. This is anyway a resultant impact of the unique finishes of different hypothetical and observational entries on the topic. This paper inspects the effect of capital design choice on monetary execution utilizing an example of twenty non-bank monetary firms in Bangladesh somewhere in the range of 2015 and 2019. The examination looks to fill the hole in the current literary works by consolidating both value based and naira-based execution factors to determine how significant influence is on association's presentation. Furthermore, the investigation likewise assesses the legitimacy of office hypothesis in the Bangladesh setting. The outcome demonstrates that presentation estimated by ROE is respectably emphatically impacted by influence, while ROA communication with influence shows negative relationship.

This suggests that, the incorporation of obligation (both present moment and long haul) in the capital construction of a firm decidedly influence the value investors as far as firm execution while obligation holder may be influenced contrarily. The outcomes demonstrate that proprietors as chief advantage imperceptibly from influence while the executives' (agent's) proportion of execution regarding proprietors (head) capital connects generously with influence. Verifiably, capital design of firm's way of monetary execution (proportions of specialists) than the genuine abundance of proprietors utilizing Bangladeshi information. These discoveries loan confidence to the office hypothesis, yet contrast the finish of Varun (2014) who examined the Indian firms and infers that influence contrarily affects company's exhibition, notwithstanding, it is reliable with Mubeen and Kalsoom (2014) which demonstrated capital construction to emphatically affect both firm execution and investors abundance utilizing Pakistan information.

The aftereffects of this exact investigation propose that a portion of the bits of knowledge from present day capital construction speculations are pertinent to Bangladesh in that specific firm-explicit variables that are important for clarifying capital design and corporate execution in the created economy are additionally significant in Bangladesh. The failure of the Capital Market may have by implication impact the result of this investigation. This is on the grounds that the capital construction hypothesis conceived corporate security (long haul obligation) to be considerably used than currency market based momentary obligation in light of the fact that the previous is thought to be less expensive than the last mentioned, along these lines, more advantages to build to proprietors from its use. The Bangladeshi Capital market needs changes that will guarantee decrease in its failure and high instability, just as improved straightforwardness. In this way, guaranteeing that performing firms can rise required assets at moderate organization cost.

References

Bokhtiar, H.; Mainul, A.F.; Afzalur, R. & Nurul, A. (2014). Influence of capital structure on firm performance: evidence from Bangladesh. *International Journal of Business and Management,* 9(5), pp. 1883 – 3850.

Deesomsak, R.; Paudyal, K. & Pescetto, G. (2004). The Determinants of Capital Structure: Evidence from the Asia Pacific Region. *Journal of Multinational Financial Management,* 14, pp. 387 – 405.

Ebaid, I.E. (2009). The Impact of Capital-Stucture Choice on Firm Performance: Empirical Evidence from Egypt. *The Journal of Risk Finance,* 10(5), pp. 477-487.

Huang, G. & Song, F.M. (2006). The Determinants of Capital Structure: Evidence from China. *China Economic Review,* 17, pp. 14 -36.

Jalim, M. &Yadar, R. (2012). Capital structure and firm performance: evidence from Malaysian Listed Companies. *Procedia – Social and Behavioural Sciences*, 65, pp. 156 - 166.

Lawal, B.A.; Edwin, T.K.; Monica, W.K. & Adisa, M.K. (2014). Effects of capital structure on firm's performance: empirical study of manufacturing companies in Nigeria. *Journal of Finance and Investment Analysis,* 3(4), pp. 2241 – 0998.

Lucy, W.M. (2014). Relationship between capital structure and performance of non-financial companies listed in the Nairobi Securities Exchange, Kenya. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics,* 1(1), pp. 2331 – 3162.

Modigliani, F. & Miller, M. (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review,* 48, pp. 261 – 297.

Mubeen, M. & Kalsoom, A. (2014). Impact of capital structure on firms' financial performance and shareholders wealth: Textile Sector of Pakistan. *International Journal of Learning and Development,* 4(12), pp. 2164 – 4063.

Mustafa, M.S. & Osama, S.H. (2013). Capital Structure and corporate performance empirical study on the public Jordanian shareholding firms listed in the Amman Stock Market. *European Scientific Journal,* 8(22), pp. 1857 – 7881.

Mykhailo, I. (2013). The Impact of capital structure on firm performance: evidence from Ukraine. *A thesis submitted to Kyiv School Economist.*

Nirajini, A. & Priya, K.B. (2013). Impact of capital structure on financial performance of the listed trading companies in Sri Lanka. *International Journal of Scientific and Research Publications,* 3(5), pp. 2250 – 3153.

Osuji, C.C. & Odita, A. (2012). Impact of capital structure on the financial performance of Nigerian firms. *Arabian Journal of Business and Management Review* (OMAN Chapter), 1(12).

Richard O A, Luqman S O & Joshua D O (2017) Capital Structure Decision and Firm Performance: Evidence from Non-Financial Firms in Nigeria. *Œconomica*, Vol 13, No 6.

Shan, A. & Khan, S. (2007). Determinants of Capital Structure: Evidence from Pakistani Panel Data I*nternational Review of Business Research Papers,* 3(4), pp. 265-282.

Exploring the Performance of Agricultural Cooperative Society: A Study in Shekher Bazar, Khilgaon Area

Md Muzahidul Islam[1]

Abstract

Farmers are the backbone for a nation's food security. Agricultural cooperatives were established to help farmers in the process of producing and marketing their agricultural outputs to have more production, profit and equity. Though the impact of agricultural society is not known for sure. This study was quantitative in nature and a total number of 100 farmers were interviewed in accordance with convenience sampling to identify the impact of agricultural cooperative society. Frequency distribution and factor analysis were used to analyze the data. Research findings suggest that members of the agricultural co-operative society receive help in the form of credit facility, better agricultural inputs (seeds, fertilizer), training facility, fair market price and decrease in production cost. Despite such benefits agricultural co-operatives still lacks professionalism in many aspects of their operations.

Key Words: Agricultural Cooperatives, Performance, Developing Country, Bangladesh.

1.0 Introduction

Agricultural Cooperatives have always been of great significance to the Governments of the People's Republic of Bangladesh and it is also included in the country's National Agriculture Policy. (National Agriculture Policy, 1999). It has been stated here that the government will support the formation of agricultural cooperatives that are dedicated to help farmers in the process of producing and marketing their agricultural outputs to have more production, profit and equity.

Such agricultural cooperatives are formed to provide farmers with economic benefits that they cannot achieve working alone and thus leading to greater profit share for farmers (GF Ortmann & RP King,

[1] Lecturer, AIBA Savar. Email: muzahid@aibasavar.edu.bd

2007). Some of the benefits are acquiring farming inputs and necessary information related to agricultural industry with efficiency to gain competitive advantage, having access to various kinds of financial assistance from the cooperatives, increasing bargaining power of farmers, gaining from emerging market opportunities, marketing their produce to customers with greater profit margins and accessing markets that otherwise could not be reached by the farmers easily.

But, agricultural cooperatives are not always only correlated to success but also see frequent failures in developing countries because of the challenges the members face as being part of such organizational framework. (John O'Connor, 2004). The challenges may include shortage of capital in the agricultural cooperative that hampers the farmer's access to finance from the organization, lack of efficiency in operational management leading to less support in form of training, farming input and such, delays in receiving financial returns and profits for the produce the farmers sell through the cooperative, and finally the "politics" prevailing in the agricultural cooperatives related to election of farmers for achieving different designations.

In developing and agricultural countries as Bangladesh, agricultural cooperatives can play an imperative role in ensuring the rights and economic solvency of the farmers (ABM Siddique, 2015). But, to gain success through agricultural cooperatives it is necessary to carefully overcome the challenges that such organizations face. Therefore, it is vital to identify the types of assistance given to agricultural co-operatives members and the challenges agricultural co-operatives face in the context of Bangladesh.

2.0 Literature Review

Human being has to depend on agriculture for its own existence as a country's food security depends on its agricultural sector (GF Ortmann, & RP King, 2007). Farmers are the heart of this agricultural sector and therefore, farming is one of the most important occupations around the world (Siddig El Tayeb Muneer, 1989). Without helping farmers to grow it won't be possible to grow any country's economy (GF Ortmann, & RP King, 2007). Though they make such important contribution, they are being most deprived in case of the benefit or profit that they are supposed to get in return (National Cooperative Business Association, 2005). There should be an established framework or organizational model to eradicate such injustice and to ensure that farmers get the fair price they deserve for their produce.

Agricultural cooperative can be such useful framework as it is an autonomous association with the help of which farmers can unite voluntarily so that they can meet their common economic, social and cultural needs by engaging in a jointly owned and democratically controlled business (Juan David Gutiérrez Rodríguez, 2011). In 19thcentury, difficult social and economic situation bought about the presence of such agricultural cooperatives (GF Ortmann, & RP King, 2007). Now, it is important to understand that if by being part of such cooperatives, farmers can expect to solve problems like absolute power of middlemen that results in low profit margin and farmers' low bargaining powers.

If we look into history, cooperatives have long connection with poor, have ability to support sustainable change & contribute to their interest (Birchall & Simmons, 2009). Also, by improving the bargaining power as well as creating economies of scale, cooperatives make market a suitable place for poor people and thus bringing more equitable growth (Gicheru, 2012). Here, isolated farmers can be gathered into such organizational framework to allow themselves to avail greater benefits from the marketplace (Birchall& Simmons, 2009). Therefore, to increase the bargaining power of the farmers and restore their position in the marketplace, agricultural cooperatives can be formed by its members that will also help them in providing goods and services at an affordable price (National Cooperative Business Association, 2005). Cooperatives provide a great way for farmers to capture economic benefits through horizontal integration (Joint production) & vertical integration (Joint marketing) (Tendler, 1983). It is also a great source for rendering intangible benefits like increased skill for action and political capacities (Arango et al., 2005). Consequently, it can be expected that farmers may benefit from better prices as well as other market opportunities by creating proper forms of agricultural cooperatives.

A proper agricultural cooperative's main theme is to assist the members to gain economic sufficiency through the creation of a bigger community which will increase their bargaining power in the marketplace (Barratt, 1989). It promotes the participation of its members in the economic development and social well-being and as stated by the Department of Agriculture, Fisheries and Forest of Bangladesh (2010), it serves its members by:

- Increased bargaining power as the members are organized in one place.
- Access to broader market opportunities.
- Reduced production cost as they buy in larger quantities.

Co-operatives do provide its members some additional facilities like access to credit which enables them to start their self-employment by opening their small retail shop or through keeping livestock (Birchall and Simmons, 2009). Agricultural co-operatives also work towards improving the literacy rate of its members by teaching them about various market related factors which will help to build a strong community base (Chambo (2009); Wanyama, Develtere, & Pollet (2008)). There are a number of appropriate and successful forms of agricultural cooperatives around the developing world as well as in developed world. Cooperatives in Brazil, Argentina, and India have portrayed long term success in processing and marketing vegetables, milk, sugar and oil seeds (Hoyt, 1989). So, such existing model of agricultural cooperatives can be established in Bangladesh too that may result in similar success for our farmers. It is more reasonable for Bangladesh because there is a widespread interest in developing countries to create such cooperatives in agribusiness which also has altered the way products being transferred from farm level to consumer (Reardon, et al, 2003). When the government doesn’t facilitate the required mechanism & fails to uphold the statuses of the small scale farmers, these co-operatives can come to the rescue of this root level farmers (Develtere, Pollet, &Wanyama, (2007); OCDC and USAID (2009); Wanyama, Develtere, & Pollet(2008)). Thus, it can be assumed that it is high time to initiate the cooperative marketing societies in Bangladesh as such framework is very much suitable in developing countries like ours where government alone cannot provide solution to all the problems of different communities in different sectors including agriculture.

In Bangladesh there is growing interest among the farmers to build up such co-operative community which will enable them to gain better market opportunities (Food and Agricultural Organization, 2014). Farmers from different sectors are trying to join forces in order to get access to the market on a greater basis. Although most of them still do not have required awareness about the concept and how it works. About 88% of the farmers are dependent on middleman for distribution of their products & 94% of them didn't receive fair prices because of them (ABM Siddique, 2015). Here, it can be implied that as farmers are mostly working in distance from their end-consumers, there is a long supply chain existing between them and so farmers are dependent on the middlemen so that their produce can reach to the end-consumers. Also, it has been said that farmers are not getting fare prices as these middlemen buy the produce at the least price from the farmers and sell the same produce in the market to the end-consumers at the highest price. Therefore, it is the middlemen who are reaping the benefits of rising food prices and the farmers are not even getting the fare price in exchange for their hard work. In order to improve the standard of living of farmers there is questionably no other better way than organizing farmers into cooperatives where they will have more power to take control over the many market factors.

3.0 Objectives

Agricultural co-operatives play a vital role in creating not only economic benefits, but also develop its members on the basis of capability, leadership and other required skills (Birchall, 2003). Above discussion leads to the selection of two our broad objectives for this study.

1. To identify the types of assistance given to agricultural co-operatives members in terms of funds, skills, technical support and information.
2. To understand the challenges agricultural co-operatives, face.

4.0 Methodology

Descriptive research was conducted to gain further insights and the comprehension of the problem situation confronting this topic. Descriptive research thoroughly portrays the situation, problem, and phenomenon, gives insights about the living situations of a community and describes approach towards an issue (Kumar, 2005). Quantitative research was used to quantify the data to do some statistical analysis (Maren Elise Bachke, 2009). To find out the description of agricultural co-operative market and the characteristics along with market opportunities, a structured questionnaire was originated to a given sample of population to discover specification insights from respondents (International Food Policy Research Institute, 2010). One on one interviews were passed out with farmers to allow themselves to provide more expressive views and give authentic responses without the prior influence of others (De Vos, 1998). Primary data have been collected through a questionnaire method from Shekher bazar, Khilgao.

4.1 Sampling

Farmers were the target sample for this study. To collect data, convenience sampling has been used. Accepting e=9.75% error, confidence level z= 95%, p=.50 and q=.50 the sample size has been determined as follows:

Sample size $n = 1.96^2*(.50*.50) / .0975^2 = 102$.

For the analysis of the data collected through questionnaire, Statistical Package of Social Science version (SPSS) 16 has been used**.** For data analysis frequency distribution and factor analysis was used.

5.0 Data Analysis: Frequency Distribution

5.1 Demographic Characteristics of the Respondents

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	88	86.3	86.3	86.3
	Female	14	13.7	13.7	100.0
	Total	102	100.0	100.0	

Within the sample size of 102 a significant no. of male around 88 is related with agricultural activities whereas, only a very few females accounted 14 is involved which reflects our agricultural activities are mostly male generated.

Age

		Frequency	Percent	Valid Percent	CP
Valid	15-25	4	3.9	3.9	3.9
	26-35	9	8.8	8.8	12.7
	36-45	33	32.3	32.3	45.0
	46-55	33	32.4	32.4	77.4
	56+	23	22.5	22.5	99.9
	Total	102	100.0	100.0	

In accordance with sample size it seems a substantial amount of middle age group is related to agricultural base. Here the middle age cluster is 2 & both are representative of same frequency of 33.

Income

		Frequency	Percent	Valid Percent	CP
Valid	<25000	46	45.1	45.1	45.1
	26000-35000	32	31.4	31.4	76.5
	36000-45000	18	17.6	17.6	94.1
	46000-55000	4	3.9	3.9	98.0
	56000+	2	2.0	2.0	100.0
	Total	102	100.0	100.0	

At this point income signifies 46 no. of sample which is near about half of our sample generates a low level of money numbered <25000 which may a cause of their low living standard.

Land Size

		Frequency	Percent	Valid Percent	CP
Valid	<1	2	2.0	2.0	2.0
	1-3	81	79.4	79.4	81.4
	>3	19	18.6	18.6	100.0
	Total	102	100.0	100.0	

In case of land size 81sample among 102sample owned 1-3 bigha agricultural land. People have their own land but the quantity of land rationally insignificant to produce significant amount earnings.

Increase Income Level

		Frequency	Percent	Valid Percent	CP
Valid	Yes	92	90.2	90.2	90.2
	No	10	9.8	9.8	100.0
	Total	102	100.0	100.0	

An extensive no. of sample of 92 within the sample of 102 believes their income rises by participating in a cooperative society.

Increases Customers

		Frequency	Percent	Valid Percent	CP
Valid	Yes	83	81.4	81.4	81.4
	No	19	18.6	18.6	100.0
	Total	102	100.0	100.0	

A wide-ranging sample of 83 indicates the no. of their customer increases by adding up to cooperative society.

Decreases Production Cost

		Frequency	Percent	Valid Percent	CP
Valid	Yes	94	92.2	92.2	92.2
	No	8	7.8	7.8	100.0
	Total	102	100.0	100.0	

Working in association with agricultural cooperative society decreases the production cost that's what 94 sample truly believes within 102 sample of this study.

Availability of Agricultural Inputs

		Frequency	Percent	Valid Percent	CP
Valid	Yes	96	94.1	94.1	94.1
	No	6	5.9	5.9	100.0
	Total	102	100.0	100.0	

Within 102 sample size 96 was agreed positively that availability of agricultural input such as seeds, fertilizers & capital grows while connecting them in cooperative society.

Training Facility

		Frequency	Percent	Valid Percent	CP
Valid	Yes	100	98.0	98.0	98.0
	No	2	2.0	2.0	100.0
	Total	102	100.0	100.0	

Entire scenario talks about the same thing that; cooperative society affiliates them by proving proper training.

Loan Facility

		Frequency	Percent	Valid Percent	CP
Valid	Yes	95	93.1	93.1	93.1
	No	7	6.9	6.9	100.0
	Total	102	100.0	100.0	

At this point around 93% of sample size states that, by involving into cooperative society it's easier to get financial facilities like loan than before.

Assurance of Right Price

		Frequency	Percent	Valid Percent	CP
Valid	Yes	86	84.3	84.3	84.3
	No	16	15.7	15.7	100.0
	Total	102	100.0	100.0	

Assurance of getting a fair price is core of the cooperative society that what 84.3% of our sample size have faith in.

Fast Payment

		Frequency	Percent	Valid Percent	CP
Valid	Yes	34	33.3	33.3	33.3
	No	68	66.7	66.7	100.0
	Total	102	100.0	100.0	

Sampled people show dissatisfaction in terms of payment getting. A massive no. of 66.7% says it's not that prompt what they desire for.

5.2 Factor Analysis

In this study 9 variables have been taken into consideration. The variables derived from reviewing the literature on related subject matter. And for the factor analysis to be appropriate, the variables must have to be correlated. These variables are as follows:

V1- Increase of Income, **V2-** Increase of Customer, **V3-** Decrease of Production Cost, **V4-** Availability of Agricultural Inputs, **V5-** Training

Facility, **V6-** Loan Facility, **V7-** Assurance of Right Price, **V8-** Fast Payment, **V9-** Happy to be a part of Cooperative Community

KMO and Barlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.724
Bartlett's Test of Sphericity	Approx. Chi-Square	269.407
	Df	28
	Sig.	.000

Consequently, form the above table; it is apparent that factor analysis is appropriate. Here, the KMO value is .724, which is between .5 and 1.0, and the approximate chi-square statistics is 269.407 with 28 degrees of freedom, which is significant at the .000 level. Therefore, the null hypothesis can be rejected and the alternative hypothesis that all the variables are inter-correlated to each other can be accepted. To analyze the variables ranging from V1 to V10, factor analysis has been used for data reduction. This analysis divulges the most important factors that contribute to measure the effectiveness of Cooperative Society.

Total Variance Experienced

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.39	42.408	42.408	3.39	42.408	42.408
2	1.29	16.202	58.609	1.29	16.202	58.609
3	1.08	13.495	72.104	1.08	13.495	72.104
4	.609	7.616	79.720	-	-	-
5	.546	6.826	86.546	-	-	-
6	.441	5.517	92.063	-	-	-
7	.419	5.236	97.299	-	-	-
8	.216	2.701	100.000	-	-	-

Extraction Method: Principal Component Analysis:

From the above table, only 3 factors have been extracted, as cumulative percentage is greater than 70% at this point and eigenvalue is greater than 1.0 (it is recommended that factors with eigenvalues greater than

1.0 should be retained) that indicates the adequacy of the analysis using derived factors.

Component Matrix

	Component		
	1	2	3
Increased_Income	.730	-.116	-.263
Increase_of_Customer	.684	-.315	.172
Decrease_Production_Cost	.849	-.154	-.085
Availability_of_Agricultural_Inputs	.762	.363	-.020
Training_Facility	.677	.463	-.043
Loan_Facility	.104	.733	.579
Assurance_of_Right_Price	.773	-.207	.010
Fast_Payment	.154	-.483	.797
Extraction Method: Principal Component Analysis.			

The extracted 3 factors can be interpreted in terms of the variables that load high co-efficiecients. From the rotated component matrix table, factor 1 has high coefficients for Increased Income (.730), Increase of Customers (.684), Decrease of Production Cost (.849), Availability of Agricultural Inputs (.762) and Training Facility (.677). Thus, factor 1 can be entitled as “Basic Cooperative Community Framework”. Factor 2 has high coefficients for Loan Facility (.733). Thus, factor 2 can be recognized as “Credit Option”. Factor 3 has high coefficients for Fast Payment (.797). Therefore, this factor can be named as “Payment Option”.

6.0 Findings

Farmers do get benefitted from the agricultural co-operative society. From this data analysis it has been found that farmers who are active member of an agricultural co-operative society do get benefits in severe forms ranging from credit facility, training facility, availability of agricultural inputs (seeds, fertilizer etc.), and fair market price. Though they are not satisfied with some of the activities of agricultural co-operatives, many of them are utterly happy to have such system in place to have a better grasp of the market. While data collection helped to identify specific benefits that farmers receive from the co-operatives, interviewing them in face to face revealed other interesting insights also.

Members of the agricultural co-operative society receives help in the form of credit facility, better agricultural inputs (seeds, fertilizer), training facility, fair market price and decrease in production cost. Farmers are now being able to get information about what to do during both pre and post-harvest season. Due to the training facility received by the farmers from agricultural co-operative society they are now being more accustomed with scientific farming method.

Despite its huge potential agricultural co-operative members do face some short comings mainly due to its operating style. Farmers were complaining that they do not get the fund immediately. Another very important problem that they point out was that lack of awareness about such co-operatives among farmers. Another problem that was pointed out by them was lack of trust among the members of the co-operatives, lack of accountability within the organizational framework. They are not organized in the institutional level in order to give them more bargaining power at the national level. Members were complaining about the problem they face while accessing up to date information about frequent weather changes, and also about the new development in the agricultural sector. They also want govt. to support such agricultural co-operatives to help them grow in the national level.

7.0 Conclusion and Recommendations

There is no doubt about the impact agricultural co-operative can have to its member but it needs to take care some of its deficiencies in order to serve its member more effectively. As the members were complaining about the effective operations of the organization, it should devote its concentration on how to increase its operational efficiency. Since, there is lack of awareness among the farmer about the agricultural co-operative; they should immediately design campaigns to build awareness among the farmers. In this case, farmers they themselves can be of good help. If the member farmers of the co-operative educate other farmers about the benefit of agricultural co-operative, then it would be an easy task to administer the awareness.

This study points out that agricultural co-operatives provide various types of assistance to its members. It shows that there is positive relationship when farmers get themselves involved with agricultural co-operatives and their performance. Despite some of its short comings the future of agricultural co-operatives is very bright considering the types of service they render to its member. In order to make it a more useful model govt. should come up to provide assistance so that it can have a sustainable base. If it's possible to administer the system nationwide then it will certainly help Bangladesh's economic development while at the same time securing country's food security.

References

Asiimwe, G. and Nahamya.K. W. (2006). Challenges of Cooperative Institutions in the Post-Colonial Transformation of Uganda, Nurru Publications Ltd.

Australian Centre for International Agricultural Research. 2004. Gov.au. [ONLINE] Available at: http://aciar.gov.au/files/node/530/tr53.pdf. [Accessed 8 March 2021].

Actionaid.org. 2013.Action aid. [ONLINE] Available at: http://www.actionaid.org/sites/files/actionaid/cooperatives_report.pdf. [Accessed 24 February 2021].

ABM Siddique. 2015. Global journals.org. [ONLINE] Available at: https://globaljournals.org/GJMBR_Volume15/7-The-Role-of-Cooperative.pdf. [Accessed 8 March 2021]

Bingen, J., A. Serrano, and J. Howard. "Linking farmers to markets: different approaches to human capital development." Food Policy 28(2003): 405-419.

Cropp R & Ingalsbe G (1989). Structure and scope of agricultural cooperatives. In Cooperatives in Agriculture, ed. D. Cobia, New Jersey, USA: Prentice-Hall, Inc., 35-67.

Cook, M. L., and C. Ilipoulos. Ill-defined Property Rights in Collective Action: the case of US Agricultural Cooperatives. Institutions, Contracts and Organizations: Perspectives from New Institutional Economics. Edited by C. Ménard. Cheltenham: Edward Elgar, 2000.

Coopscanada. 2014. Coopscanda.coop. [ONLINE] Available at: http://www.coopscanada.coop/assets/firefly/files/files/Research/PP_evaluation_2014/Liturature_Review.pdf. [Accessed 25 February 2021].

Fulton M (1995). The future of Canadian agricultural cooperatives: A property rights approach. American Journal of Agricultural Economics 77(5):1144-1152.

Iowa State University. 1989. Istate.edu. [ONLINE] Available at: http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=10070&context=rtd. [Accessed 25 February 2021].

Maren Elise Bachke. 2013. Umb.no. [ONLINE] Available at: http://www.umb.no/statisk/ncde-2009/maren_e_bachke.pdf. [Accessed 25 February 2021].

Ministry of Agriculture. 1999. Portal.gov.bd. [ONLINE] Available at: http://dae.portal.gov.bd/sites/default/files/files/dae.portal.gov.bd/page/dd7d2be1_aeef_452f_9774_8c23462ab73a/NAP.pdf. [Accessed 8 March 2021].

GF Ortmann & RP King. 2007. http://ageconsearch.umn.edu. [ONLINE] Available at: http://ageconsearch.umn.edu/bitstream/10129/1/46010040.pdf. [Accessed 25 February 2021].

Rhodes VJ (1995). Cooperative enterprise and organization theory: An appraisal. Journal of Cooperatives 10:87-91.

Sykuta, M. E., and M. L. Cook. "A New Institutional Economics Approach to Contracts and Cooperatives." American Journal of Agricultural Economics 83, 5(2001): 1273-1279.

Sexton RJ (1984). Perspectives on the development of the economic theory of cooperatives. Canadian Journal of Agricultural Economics 32(2):423-436.

Preventive Behavior and Technology Anxiety: The Impact of Zoom Application on University Education

Dr Md Nahin Hossain[1], Dr Md Abul Khayer[2]

Abstract

This study seeks to explore the role of preventive behaviors and technology anxiety on the Zoom adoption intention of students during the time of Covid-19 pandemic. This study was quantitative in nature and structural equation modelling tools employed to analyze the data. A total number of 350 respondents have been confirmed for the study with the approach of convenience sampling. Structured questionnaire has distributed to collect detail information. The results of the study revealed that preventive behaviors, technology anxiety along with performance expectancy and effort expectancy mostly influence students' adoption behavior.

Key Words: Zoom application, Continuous intention, Perceived usefulness, E-learning, Distance education

1.0 Introduction

Universities and colleges have dictated much of their effort to build up a group of virtual teaching environment supported by necessary resources and platforms. In fact, they are striving to achieve certain successful results. However, the spread of COVID-19 has left these institutions in a predicament. It has led to create mass awareness to prevent the diseases, such as wearing mask, washing hands, maintaining proper social distance, doing test and taking vaccine among students all over the world. Preventive behaviors positively affect the psychological status of students and lead to develop confidence and mental strength. However, the pandemic nature of COVID-19 has even worsened the situation leading to psychosocial challenges, such as loss and discrimination (Ahorsu et al., 2020; Pappas, Kiriaze, Giannakis, &

[1] Lecturer, AIBA Savar. E-mail: md.nahinhossainsaad@yahoo.com
[2]Associate Professor. Dept. of International Business. University of Dhaka. E-mail: akhayer@du.ac.bd.

Falagas, 2009). Preventive behavior has influenced the educational institutions come up with the old ideas in new form of actions with the help of innovative technology (Machů & Morysová, 2016). Based on the previous supposition, it seems that preventive behaviors may extend its effect to influence the adoption of technology during COVID-19 pandemic when most schools, colleges and universities have started implementing distance learning to lessen the dangerous and malicious effects of Coronavirus.

Recently most of the universities and colleges have faced certain challenges regarding teachers' knowledge and adoption of technology, students' understanding and the lack of transferring classroom teaching into virtual classes (Chen & Jang, 2010; Liu, Geertshuis, & Grainger, 2020). The previous studies have shown that the process of adoption itself is not an easy task. Because it influences many aspects, such as learning new skills, context and strategy. Though many researchers in the previous studies have covered technology adoption, it is believed that the adoption of Zoom application to continue education activities, in this Covid-19 pandemic need to be investigated. A key extra feature that radically improve the learning environment is that people have developed Preventive behavior to control the spread of COVID-19 (Lemke & Silverman, 2020) which put the colleges and universities under the pressure of accounting for two important issues simultaneously: choosing an effective e-learning tool and reducing the technology anxiety. This kind of anxiety creates obstacle to adopt new technology. Many students and teachers face anxiety to adopt new technology. For example, students are regularly confused about their submitted exam script online.

Hence, the current study investigates the importance of choosing an effective and suitable technology that satisfy learners' preventive behavior during the educational process and reduce technology anxiety by increasing trust. The originality of the current research lies in the fact that prevention and technology anxiety were added as external factors to the established UTAUT (Unified Theory of Acceptance and Use of Technology) model along with the novelty of both the Covid-19 situation and the Zoom application that have been also addressed. Therefore, it is believed that this study will bring new technological and educational insights for both teachers and application developers (Bhattacherjee & Premkumar, 2004; Huang, Teo, & Zhou, 2020). The research findings will provide new avenue to implement and develop technologies in the time of social distancing.

2.0 Literature Review

Previous adoption studies have focused on different forms of fear emotion. Anxiety, for instance, is considered a crucial factor in many research studies that tackle the adoption of technology and anxiety. Part of the educational sector, anxiety is an outstanding factor that affects students adoption of technology. In addition to anxiety, the lack of skills and experience may add to the lack of interest in the usage of technology. Another distinguished factor is the fear of the technology itself, which works with the anxiety and literacy to decrease the chances of adopting technology properly. Therefore, teachers and educators should pay attention to the psychological aspect and prepare students to be ready to accept the technology. The lack of preparedness and technical readiness is another causal of fear within the educational sector and both of them have a negative influence on the adoption of technology (Mac Callum & Jeffrey, 2014; Nchunge et al., 2012; Thatcher & Perrewe, 2002). Educational sector is not an exception and other domains also show fear of technology adoption.

In light of the rapid spread of COVID-19, the universities and colleges found themselves under the pressure of building up a safe teaching environment where the internet was the main facilitator. However, choosing the best e-learning platform with effective pedagogies has been regarded as a Crucial challenge (Kumar, Gupta, & Srivastava, 2020) . Therefore, this study tries to pave the way to the innovative element of fear from COVID-19 within a specific technology, which is Zoom to pinpoint the groundbreaking effect of preventive behaviors from the disease in a selected educational environment. This study implemented the Unified Theory of Adoption model that focus on technology adoptions because of its statistical accuracy in the research (Baby & Kannammal, 2020). The paper is intended to implement a variant of the Unified Theory of adoption and introduce an external factor to the model that will support the research questions and hypotheses. The inclusion of the Predictive behaviors and Technology anxiety sets our model apart from other previous studies and contributes to the originality of the paper (Preiser, Van Zyl, & Dramowski, 2020).

3.0 Research Questions

According to the previous discussion from the literature review, the research gap is identified as the limited investigation on students' psychological states (preventive behavior and technology anxiety) on the Zoom adoption intention. Therefore, the purpose of this study is to explore answer of the following research questions.

- How preventive behaviour influence students' to adopt zoom applications for learning during the time of pandemic?
- What is the influence of technology anxiety on zoom adoption intention of students'?
- How preventive behaviour creates impact on effort expectancy of Zoom applications?

4.0 Theoretical Framework and Hypothesis

The theoretical basis of deriving the hypotheses are presented in the following section. The Unified Theory of Acceptance and Use of Technology (UTAUT) model employed as the theoretical backbone of this study. This framework gained its popularity in examining technology acceptance since its launch in the early 2000s (Venkatesh & Thong, 2011). However, a review of the literature suggests that researchers have trust on the UTAUT has been predominantly employed in studies to discuss technology Use (User Perspective) and non-user perspective have mainly been missed out. Hence, the proposed research relies on these following hypothesis to test the fitness of the model and consider the impact of Covid-19 no technology adoption (Khechine & Lakhal, 2018). The proposed research model illustrated in Figure 1.

4.1 Performance Expectancy (PE) and Effort Expectancy (EE)

The validation of an external factor on personal belief is one of the fixed goals that UTAUT model tends to measure. It is, therefore, the most powerful model that can explain how individuals tend to accept technology especially within the educational institutions. This theory considers performance expectancy (PE) and Effort Expectancy (EE) as the common dominant element that can measure two different perceptions. This fact can affect directly users' behavioral intention (BI).

Accordingly, attention should be paid to PE as it is used as a tool to measure the degree to which an individual tends to evaluate technology as a useful tool and likely to accept or adopt that technology. EE, on the other hand, refers to the degree to which an individual believes that using technology is attainable and easy to manage (Davis, Bagozzi, & Warshaw, 1992). Based on the previous assumption, when users perceive technology to be easy to use, they will be more likely to have positive attitudes towards that technology; hence, the users' perceptions of its usefulness are evident. Similarly, when users perceive technology as useful, they will be more likely to have a positive attitude to adopt technology. To apply the previous assumptions to the current model, the following hypotheses are proposed:

H1: Performance Expectancy (PE) would predict the intention of using Zoom Application.
H2: Effort Expectancy (EE) would predict the intention of using Zoom Application (ZA).
H3: Effort Expectancy (EE) would predict the Performance Expectancy (PE).

4.2. Social Influence (SI)

Social Influence (SI) is considered as a tool to measure individuals' perception that the availability of other individuals who share the same attitude will or will not perform the same behavior towards technology. SI has strengthened this conceptual model socially as it enables to account users' behaviors among a group (Ajzen & Fishbein, 1975). The effect of SI on behavioral intention; specifically on behavioral intention is widespread (Eckhardt, Laumer, & Weitzel, 2009; Venkatesh & Thong, 2011; Wong & Teo, 2013). Because, every person belongs to certain group. An educated and social people like to collect information and comment from his/her groups before purchasing a product or service. It is an established phenomenon than a child learn from its surrounding. Thus, students and teachers behavior as a social being will have some influence from society to adopt new form of learning (Huang et al., 2020). The hypothesis that can be formed is that;

H4: Social Influence (SI) would predict the intention of using Zoom applications.

4.3. Preventive Behavior (PB)

A novel coronavirus disease has started to appear in December 2019 and was found first in China.
Then, it eventually spread all over the world. Based on recent studies, it has been shown that the most common reaction that is deeply-perceived during this period is the feeling of fear. Fear scores the highest in the scale of Health Anxiety Inventory (HAI) (Nicomedes & Avila, 2020).

However, the studies have claimed that the feeling of fear positively developed Preventive behaviors among the educated community. It is found that people are highly engaged in preventive behaviours, particularly avoidance of public transportation and frequent handwashing. Previous studies about the SARS demonstrated that those who contacted the infected people felt fear, angry, sad, and guilty because of the possibility of catching the disease (Brooks et al., 2020). Thus, it is definite that students and teachers will adopt zoom application to satisfy their preventive behaviors. The current study has intended to investigate the relation between technology adoption using and the external factor of Perceived Fear (PF). Therefore, this study is an attempt to overcome the limitations of previous study using UTAUT model, which is an implementation of external factors that are context specific (Kumar et al., 2020; Lemke & Silverman, 2020), by exploring the effect of preventive behaviors (PF) on this model, namely: PE and EE. Based on this assumption, it is hypothesized that:

H5: Preventive Behavior (PB) would predict the intention of using Zoom Application (ZA).
H6: Preventive Behavior (PB) would predict the Effort Expectancy (EE).

4.4. Technology Anxiety (TA)

The long-standing debate about the association between Anxiety and technology acceptance has brought to light in the recent IS acceptance studies. Further, many scholars including Venkatesh et al. (2003) has recognized the significance of anxiety in determining an individual's response to new technologies. Thus, the variable "technology anxiety" is proposed as a determinant of lecturer's VLE adoption intention. This study aims to test the hindering effect of technology anxiety on lecturer's beliefs namely, performance expectancy (Celik, 2016) and effort expectancy (Abdullah et al., 2016; Celik, 2016; Peng, 2019). Therefore, the following hypotheses are proposed;

H7: Technology Anxiety (AX) has a direct negative influence on behavioral intention to use VLE.

4.5. Facilitating Conditions (FC)

FC refers to an individual's perception of the support and infrastructure facilities available to him to use the VLE system (Venkatesh et al., 2003). In original UTAUT findings, FC to BI relationship was not verified. However, it was proven in UTAUT2 by Venkatesh et al. (2012) and confirmed by many other studies (El-Masri and Tarhini, 2017; Holzmann et al., 2018; Maican et al., 2019). Further, Gamage and Fernando (2012) stated that, all state universities in the country are equipped with network and infrastructure to facilitate eLearning. Therefore, we hypothesize that;

H8: Facilitating Conditions (FC) has a direct positive influence on behavioral intention to use Zoom applications.

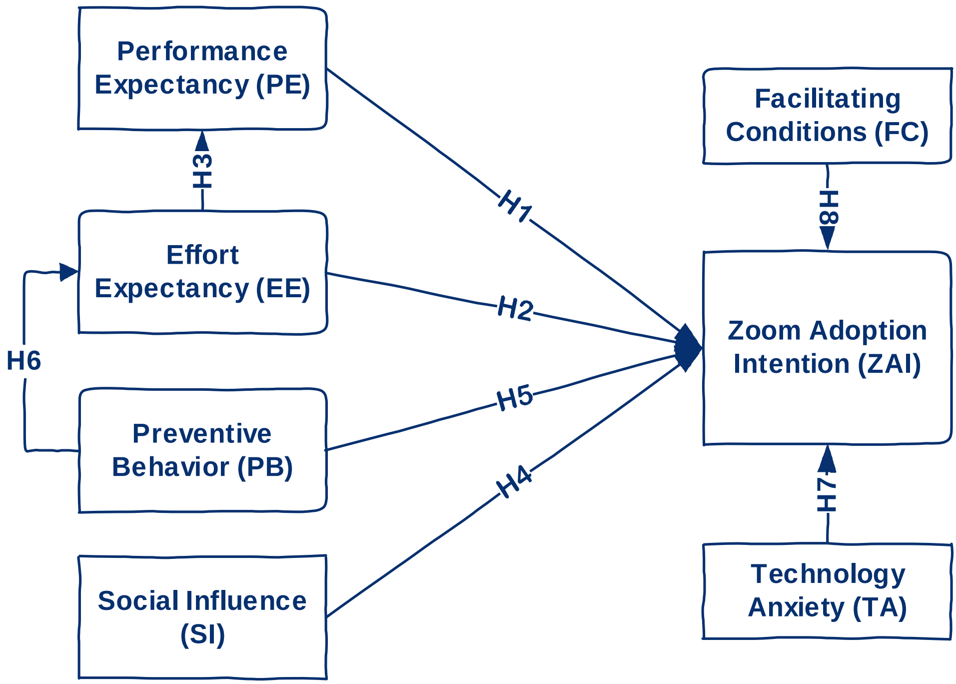


Figure 1: Conceptual Model of the Study

5. Methodology

5.1. Context and Subjects

The students who were studying at the private university of Bangladesh participated in this study. Online surveys were used to collect recent data between May and June 2020. There was no compensation given to the participants who volunteered to fill out the surveys. This research collects the data by employing the convenience sampling approach. The survey was appropriately filled by 350 students in total out of 400 surveys circulated, having 90% of the response rate. Among these 190 were males and 160 females. The detailed information regarding the respondents can be seen.

Table 1: Demographic Features of the Students

Variables	Respondents Number	Percent
Gender:		
Male	190	54
Female	160	46
Age:		
18-21		17
22-25		40
25-30		43
Education Level:		
Diploma	49	14
Bachelor	147	42
Masters	154	44

5.2. Study Instrument

The measurement Instrument entailed two sections, the first section covered respondents' profile and demographics (i.e. age, gender and so on), while the second segment was designed to capture respondents' perceptions about Zoom applications. To operationalize the questionnaire original UTAUT scale, (Venkatesh et al., 2003) and measures of technology anxiety scale and preventive behavior (Saadé and Kira, 2009) was employed. The questionnaire included five independent constructs (PE, EE, SI, FC, AX and PB) measuring behavioral intention towards Zoom adoption intention (ZAI) which measured in a five point (1-7) Likert scale. A pilot study was conducted to measure the reliability of the questionnaire items before carrying out the final survey. 50 students were randomly chosen from the target population to carry out this study.

6. Analysis and Findings

6.1. Data Analysis

The partial least squares-structural equation modeling (PLS-SEM) is employed by this study via SmartPLS 3.5 tool (Ringle et al., 2015). As the PLS-SEM gives simultaneous assessment for measurement as well as structural model, which yields more results that are precise. Hence, the PLS-SEM is used in this study (Barclay et al., 1995).

6.2. Measurement Model Assessment

The testing of the reliability and validity helps to analyze the measurement model (Hair Jr et al., 2016). The Cronbach's alpha and composite reliability (CR) measures were employed to test the reliability ≥0.70 are the suggested values for all of these measures (Hair Jr et al., 2016). The values of both measures are believed to be satisfactory; and hence, the reliability is established as per the results in Table 2. Evaluation of the convergent and discriminant validities is recommended by (Hair Jr et al., 2016) keeping validity testing in mind. The testing of average variance extracted (AVE) and factor loadings was done for convergent validity. The values of AVE should be ≥0.50 should be the values of AVE (Fornell & Larcker, 1981), while ≥0.70 should be the values of factor loadings (Hair et al., 2010). According to the results in Table 2, the convergent validity is confirmed as the values of both measures were true. To understand the discriminant validity the "Heterotrait- Monotrait ratio (HTMT)" of correlations was recommended by (Henseler et al., 2015). < 0.85 should be the values of HTMT. According to the readings in Table 3, the discriminant validity is confirmed, as all the values were true.

Table 2: Construct Reliability and Validity

Constructs/ Variables	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Performance Expectancy (PE)	0.880	0.880	0.880	0.710
Effort Expectancy (EE)	0.836	0.841	0.837	0.633
Preventive Behavior (PB)	0.857	0.864	0.859	0.604
Social Influence (SI)	0.768	0.769	0.767	0.523
Facilitating Condition (FC)	0.688	0.726	0.703	0.548
Technology Anxiety (TA)	0.830	0.836	0.831	0.622
Zoom Adoption Intention (ZAI)	0.853	0.855	0.853	0.593

Table 3: Heterotrait - Monotrait Ratio (HTMT)

	PE	EE	PB	SI	FC	TA	ZAI
PE							
EE	0.889						
PB	0.953	0.890					
SI	0.544	0.632	0.630				
FC	0.802	0.877	0.860	0.952			
TA	0.759	0.785	0.862	0.687	0.876		
ZAI	0.925	0.770	0.862	0.639	0.779	0.650	

6.3. Hypotheses Testing and Coefficient of Determination

The structural equation modeling (SEM) approach (Fred D Davis et al., 1992) was used to test the aforementioned eight hypotheses together. Based on the data analysis hypotheses H1, H2, H3, H4, H5, H6, H7, and H8 were supported by the empirical data. The results showed that adoption of Zoom application significantly influenced by performance expectancy (PE) ($\beta = 0.307$, $P < 0.001$), Effort expectancy (EU) ($\beta = 0.441$, P

< 0.001), Social influence (SI) (β = 0.281, P < 0.001), and preventive behavior (PB) (β = 0.302, P<0.001) supporting hypothesis H1, H2, H4, and H5 respectively. Effort Expectancy (EE) was determined to be significant in affecting Performance Expectancy (PE) (β = 0.296, P < 0.001), and preventive behavior (PB) shows significant influence on effort expectancy (β = 0.250, P < 0.05) that supports hypothesis H3 and H6 respectively. Finally, preventive behavior (PB) (β = 0.302, P < 0.001) and technology anxiety (β = 0.398, P < 0.05) along with facilitating conditions (β = 0.387, P < 0.001) have significant effects on students and teachers zoom adoption intention; hence H5, H7 and H8 are supported (Tables 4).

Table 4: Summary of Hypothesis Test

Hypothetical Relationship path	No.	Original Sample (β)	Sample Mean (M)	T Statistics (|O/STDEV|)	P Values
Performance Expectancy -> Zoom Adoption	H1	0.307	0.410	2.59	**0.000**
Effort Expectancy -> Zoom adoption	H2	0.441	0.739	4.14	**0.000**
Effort Expectancy-> Performance Expectancy	H3	0.296	0.492	1.99	**0.000**
Social Influence -> Zoom Adoption	H4	0.281	0.287	4.42	**0.000**
Preventive Behavior -> Zoom Adoption	H5	0.302	0.398	6.68	**0.000**
Preventive Behavior -> Effort Expectancy	H6	0.475	0.675	5.69	**0.000**
Technology Anxiety -> Zoom adoption	H7	0.398	0.495	5.22	**0.000**
Facilitating Condition-> Zoom adoption	H8	0.387	0.339	2.67	**0.000**

7. Discussion

Recent studies are investigating the effect of coronavirus pandemic on modern technology, especially the ones that are related to teaching and learning. Technology has proven to be a useful tool and a captive road. In fact, it has achieved a kind of victory over the disease itself and paves the way to a new approach in teaching and learning (Kumar et al., 2020). The present study focuses on the effect of COVID-19 on the teaching process via Zoom application. The model of the study puts more emphasis on the preventive behavior factor (PB), which has an extraordinary effect on measuring the influence of COVID-19 over a group of teachers and students. Similarly, technology anxiety also play a pivotal role on shaping their behavioral intentions to adopt. In addition, there is an interest to investigate the effect of the pandemic not only on zoom application but also on other technologies for teaching and learning during this pandemic. Therefore, this is study open an avenue to fill this gap and unlocks the door to future work.

For the first three hypotheses, the focus was on the factors of Performance expectancy and Effort expectancy. The hypotheses seem to be consistent with previous studies, that is, the fact that its user-friendly features govern better performance experience of Zoom applications. These findings are agreed upon by much prior research where colleges and universities were encouraged to focus on the factors of usefulness and easy to use (Martín-García et al., 2019; Rafique et al., 2020). For the fourth hypothesis, where Social Influence factor have shown that friends, family and peer's opinions have an effective role to adopt new technologies. This result is very much consistent with emergency context in the society. People advise others to adopt new technology to ensure security over any other factors and it has significant impact over behavioral intention (Knabe, 2012; Nadlifatin et al., 2020). Similarly, facilitating conditions also shows relative importance on zoom adoption intention. Because adoption of Zoom application requires electronic gadgets (smart phone, laptop, computer), strong internet connectivity and minimum infrastructural development. This external factor has strong impact over users' behavior. After all, poor internet connectivity develop frustration among the online participant on the Zoom platform. Apart from the above factors, the hypotheses of Preventive behavior (PB) have strong influence in the context of social distancing. Covid-19 changes the regular pattern of education where teachers and students come together to share their knowledge. Education sector is one of the main sector that is severely affected by this pandemic. Therefore, education specialist encourages technology adoption among teachers and students. Technologies in the education have created lots opportunities for teachers, universities and adult learners. The development of Massive open online course, learning management system software and finally Zoom and Google meet Applications creates virtual learning environment and community. This helps participants (teachers and students) to ensure preventive behavior and at the same time ensure attachment with the community in virtual environment. Therefore, the findings suggested that the novelty of this factor seems to be unique and it lies behind the innovation of the study.

In the contrary, technology has some negative impact over society. Because its bring changes to society. Peoples are developing some resistance to adopt the new way of living. Therefore, they have developing technology anxiety within their society. This understanding is support in the hypothesis that shows technology anxiety creates significant influence on zoom adoption intention. According to teachers, students are showing many excuses (poor internet connection, power shutdown etc.) and this become worse at the time of exam. According to students, they become panic if their answer script is not submitted properly. This behavior are the product of technology anxiety. Thus, education technologist and service providers need to develop user friendly and participative mode of learning to reduce technology anxiety among prospective users to increase the adoption intention.

8. Conclusion and Recommendations

The insights of the current study seem to be in line with previous studies regarding the importance of UTAUT variables (Venkatesh & Bala, 2008). It appears that students' intention to accept zoom applications is higher when there are no other systems is available to study during the spread of COVID-19. The results that are related Performance Expectancy and Effort Expectancy are consistent with exiting research, as they are significantly affect students' acceptance of Zoom applications during the time of pandemic. Moreover, Effort expectancy influences Performance expectancy, which implies that whenever technology is evaluated as easy, it has the implicit indication that it is useful. Regarding Social influence (SI), the results showed strong relationship with the zoom adoption intention. This indicates that students' technology adoption influenced by their friends and classmates.

Similarly, the factor of preventive behavior represents the crucial contextual influence over the behavioral intention of students. The super spread of covid-19 and devastating results awakening preventive behaviors among students. This type of behavior leads to increase more adoption rate of zoom application in the university education. However, technology anxiety play negative role in this adoption research (Tsai et al., 2020). Students are showing their anxiety on zoom meeting and classes in the form of health hazards (increase weights, dry eyes syndrome etc.). Consequently, it is very essential for the educator and service provider to develop precise course content and design user-friendly interface to increase more adoption rate.

References

Ahmed, A.-A., Patrick, P., & Karsten, L. (2017). Investigating the effect of learning styles in a blended e-learning system: An extension of the technology acceptance model (TAM). *Australasian Journal of Educational Technology, 33*(2). doi:10.14742/ajet.2741

Ahorsu, D. K., Lin, C.-Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The Fear of COVID-19 Scale: Development and Initial Validation. *International Journal of Mental Health and Addiction*. doi:10.1007/s11469-020-00270-8

Ajzen, I., & Fishbein, M. (1975). A Bayesian analysis of attribution processes. *Psychological bulletin, 82*(2), 261.

Alt, D., & Boniel-Nissim, M. J. I. i. (2018). Links between adolescents' deep and surface learning approaches, problematic Internet use, and fear of missing out (FOMO). *13*, 30-39.

Appavoo, P. (2021). *Acceptance of Technology in the Classroom: A Qualitative Analysis of Mathematics Teachers' Perceptions*, Singapore.

Baby, A., & Kannammal, A. (2020). Network Path Analysis for developing an enhanced TAM model: A user-centric e-learning perspective. *Computers in human behavior, 107*, 106081. doi:https://doi.org/10.1016/j.chb.2019.07.024

Bailey, A. A., & Pentina, I. (2020). Exploring factors influencing US millennial consumers' use of tap-and-go payment technology. *The International Review of Retail, Distribution and Consumer Research, 30*(2), 143-163. doi:10.1080/09593969.2019.1667854

Bhattacherjee, A., & Hikmet, N. (2007). Physicians' resistance toward healthcare information technology: a theoretical model and empirical test. *European Journal of Information Systems, 16*(6), 725-737. doi:10.1057/palgrave.ejis.3000717

Bhattacherjee, A., & Premkumar, G. (2004). Understanding changes in belief and attitude toward information technology usage: A theoretical model and longitudinal test. *mis Quarterly*, 229-254.

Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The lancet, 395*(10227), 912-920.

Chen, K.-C., & Jang, S.-J. (2010). Motivation in online learning: Testing a model of self-determination theory. *Computers in human behavior, 26*(4), 741-752.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace1. *22*(14), 1111-1132. doi:https://doi.org/10.1111/j.1559-1816.1992.tb00945.x

Distler, V., Lallemand, C., & Koenig, V. (2020). How Acceptable Is This? How User Experience Factors Can Broaden our Understanding of The Acceptance of Privacy Trade-offs. *Computers in human behavior, 106*, 106227. doi:https://doi.org/10.1016/j.chb.2019.106227

Eckhardt, A., Laumer, S., & Weitzel, T. (2009). Who Influences Whom? Analyzing Workplace Referents' Social Influence on it Adoption and Non-Adoption. *24*(1), 11-24. doi:10.1057/jit.2008.31

Erchun, C., & Zhen, L. (2011, 26-28 July 2011). *On the application of multimedia technology in foreign language teaching and learning in China's colleges: Challenges, problems and implications.* Paper presented at the 2011 International Conference on Multimedia Technology.

Prospects of Professional Doctorate Degree in Bangladesh

Md Anwarul Islam [1]

Abstract

Private or public universities worldwide offer both traditional PhD and professional doctorate degrees (PDD), to train researchers for creating new knowledge for the society. Although, in Bangladesh the private universities (PvU) are not allowed to offer doctoral degrees, but the government may decide to allow them to offer PhD to fulfil the increasing needs of the academia and the corporate job market. In such a scenario, the PvU need to evaluate what type of doctoral degree is suitable for Bangladesh and which type of doctoral degree (Traditional PhD of PDD) would be suitable for PvU to offer. The basic approach to the study is secondary data search and empirical observations through questionnaire survey and interview of academicians, students, and alumni of the PvU and randomly selected 250 private companies of Bangladesh. The result of the study reveals that there is a greater prospect for PDD holders in local job market and the PvU are better poised to offer different PDD curriculum to fulfil the national and regional needs. It also shows that 71.4 percent of the companies prefer PDD holders over traditional PhD degrees and 78.6 percent think that employing PDD holders would increase their profitability by 5-15 percent.

Keywords: Private Universities; Traditional PhD; Professional doctoral degrees; Doctoral degrees.

1.0 Introduction

Ever since the establishment of first university in the world, its primary role was creation, dissemination, and application of knowledge for the service of the community (Krishna. 2019). Overall, the country's growth and productivity can increase when the employees and management workforce are educated on relevant skills, innovative, systematically

[1]A retired Brigadier General, a PhD (Fellow) and Registrar, Independent University, Bangladesh (IUB). Email: anwar2242@gmail.com

involved in applied knowledge creation using their experience which is essentially the basis for a knowledge-based economy (Ahmed et al. 2018). Bangladesh Economic Review of Ministry of Finance (MOF, 2019) shows the general GDP contribution of service sector as 50 per cent, manufacturing sector 30 per cent, and agriculture sector 20 per cent. These sectors create a huge demand for **researchers** with appropriate knowledge, skillset, and experience of the respective fields which a traditional researcher may not always be able to fulfill (Haque. 2014).

In the last decade, there has been phenomenal growth of students in the private universities (UGC 2020). Research shows that if the present growth continues, the total students by the year 2030 is likely to be about 1.5 million. Majority of them would end up looking for employment in the corporate job market. This would also create a huge internal demand for faculty members, research and management staff for the academia and the corporate sector.

Universities are primarily responsible for creating that crucial workforce and developing the required pool of qualified research professionals for the community. These researchers should be innovative and be able to use the on-job professional experience for developing new practice and procedure for their own field which is particularly the objective of a 'Professional Doctorate Degree (PDD)'.

Private universities (PvU) are more flexible in designing their own academic programs keeping in view the needs of the market. A closer look at the employment pattern in Bangladesh shows that, many of the mid and mid lower positions are held by graduate of the local private and public universities and affiliated colleges. But the research positions are held by professional from other countries (Khatun, 2019). Some of our first-generation graduates of the private universities are currently holding the top management positions in the corporate sector competing with foreigners and Bangladeshis educated in the west Ahmed et al. (2018). There is a belief amongst many that the local universities can do a lot for increasing the number of qualified professional researchers for employment by offering professional doctorate degrees. It is argued that such degrees will add a lot of value to the society and greatly increase corporate research competencies thus contributing to the overall economic emancipation of the country.

In view of the above, it was worthwhile to study the prospects of offering 'Professional Doctorate Degree PDD' by the PvU, in order to fulfill the increasing demand of the corporate job market. Moreover, keeping in mind the employability in the job market the study ventured into finding whether a traditional PhD or PDD or a combination of both would be suitable for the PvU of Bangladesh. As such, the problem statement for this research was to find out which type of doctoral degree would be more useful for the corporate sector of Bangladesh. The research questions were (1) Which type of doctoral degree the Bangladeshi job market needs the most? (2) Why should the private universities prefer offering Professional Doctorate Degree?

2.0 Literature Review

This study draws heavily in terms of understanding the underlying themes of the academicians and classical theorists and researchers of home and abroad. Several articles on the difference between the traditional doctoral education and the PDDs were reviewed but those did to specifically address the need of the Bangladeshi corporate sector. However, similar study done elsewhere were reviewed to draw inference and analyze the requirements of the corporate sector regarding their research and development needs. Few literatures guided the researcher on the general needs of doctoral degrees, but they did not separately evaluate the type of the doctoral education i.e., traditional PhD or PDD are required for the corporate sectors.

Several handbooks of local and foreign universities on graduate and post graduate degrees were reviewed. These manuals explain the modalities of preparing students after they are enrolled, illustrates procedure and code of ethics to be followed and systematically guides the faculties' members and students to maximize their potential during different stages of the research. But none of these specifically mention about the separate needs of the traditional PhD and PDDs. (UOE, 2019, p.5-20).

3.0 Research Objective

The main objective of the research work is to find out the most appropriate type of doctoral degree i.e., a traditional PhD degree or a professional doctorate degree (PDD) would be more useful for the PvU of Bangladesh.

4.0 Research Methodology

Qualitative exploratory research was conducted using primary and secondary data with pragmatic and interpretive philosophy and inductive approach. The basic approach to the research was secondary search and empirical observations through questionnaire study, opinion survey, and personal interview. The research methods, philosophy, strategy, data collection, management and data analysis process were carefully chosen and implemented to find answers to research questions and drawing relevant conclusions. Interview and survey strategy, with personal interaction through semi-structured face-to-face personal interaction with predetermined questionnaire were used. For interview thirty-three academicians and top management personalities of the PvU board of trustees responded and for student's survey four-hundred and thirty-seven students and alumni of the PvU responded. For survey of the randomly selected companies two hundred fifty companies responded. The researcher himself as the principal researcher, was responsible for data collection and analysis. The questionnaires comprising of eight-ten questions were used for collecting data, endorsing subjective and objective opinions on the study, institutional views and to validate data. Overall data collection effort was focused on what type of doctoral degree would be most useful for the corporate sector in Bangladesh.

5.0 Results and Discussions

5.1 Traditional PhD Vs Professional Doctorate Degree

5.1.1 Why to Pursue a Doctoral Degree?

A doctorate degree especially PhD, is regarded as the highest-level degrees awarded in the academia. This is considered important for a credible employment and career recognition. PhD, the abbreviated form of 'Doctor of Philosophy' represents the original Greek word meaning 'love for wisdom'.

The PhD and PDDs are considered highest terminal degrees, meaning to say the person has achieved the highest formal degree in the field; as such, they can significantly enhance the credential of the résumé and the person's career profile. However, when it comes to choose between these two, it is good to know that each degree has its strengths, and one's decision should be based on an elaborate study and how the person wants to use the degree.

A PhD researcher needs to be prepared to invest a lot of valuable time, usually three to five years, going into the depths of the problem that he has selected for study. In the process, he receives a significant grounding in research methodology and skill development program that prepares him for employment in the selected professional field or to allow him to continue for further studies and research. These degrees signify that a student has attained a great degree of competence in their field of study (Kharkongor, 2018). The employers view that the person with PhD or PDD has requisite analytical skills to identify and approach the problem correctly and professionally, analyses all relevant data and statistics exhaustively and finally undertake rigorous activities aimed at solving the problem.

Undertaking a doctoral degree, whether traditional PhD or Professional Doctorate Degree, is time consuming, expensive, requires some special expertise by the researcher and more importantly financially demanding, which many potential researchers fail to meet. As such before taking a decision of pursuing a PhD or professional doctorate degree, one must be clear in one's mind about the likely future career pattern before embarking into it. Otherwise, it is likely to lose interest of continuing the same.

5.1.2 How do they Differ?

People generally decided to pursue a traditional academic PhD or Professional Doctorate degree because this is considered important and, in some country, essential for reaching the top faculty positions in the academia. Some may undertake the same as a passion to explore the unexplored areas of study through research. In multiple fields of study, one can choose between a Doctor of Philosophy (PhD) degree and a professional doctoral degree. Professional doctoral degrees include the Doctor of Business Administration (DBA), Doctor of Public Health (DrPH), Doctor of Education (EdD), Doctor of Psychology (Psy.D. Doctor of Jurisprudence (JD), Doctor of Medicine (MD) and Doctor of Pharmacy (Pharm.D), as examples.

Although 'research' is something which is common to both traditional PhD and a professional doctorate degree, and the end of the study awards the title of 'doctor,' there are differences between them.

Core Difference

The Core difference is that a PhD is an academic degree focused on original research, data analysis, and the evaluation of theory. On the other hand, a professional doctorate focuses on applying research to practical problems, formulating solutions to complex issues, and designing effective professional practices within one's own field of study (Waldenu.edu, 2020).

Program Differences

In designing the Program, a PhD is designed for university or college graduates who are keen in doing original and applied research that would test a theory and adds to the existing knowledge in their particular field or discipline. A PhD program can help a person learn how to analyze theories and concepts; evaluate the relevance of current, and emerging theories; evaluate gaps in the current research literatures; advance the frontier of knowledge through original research; and finally communicate new knowledge effectively to stakeholders.

A professional doctorate degree on the other hand, is designed for working professionals who have experience in their own field and willing to increase the knowledge and research competencies, for career advancement. These professionals translate their work experience into a higher-level proficiency and credibility, leadership, and influence through research. A professional doctorate program can help a person learn how to; evaluate the relevance of current, and emerging theories; find out effective solutions to complex, real-world problems in one's own field of study; use and apply the current research output for solving practical problems in one's own field; design research that expands the professional frontier of knowledge in own professional field.

Degree Completion Differences

While the universities and colleges have their own policies of offering degrees, the methods always differ. Although it can vary by degree, program and university, PhD candidates usually complete a dissertation while many doctoral candidates complete a doctoral study.

A PhD dissertation requires a student to conduct research into an approved area of study within own discipline. While this can be in an unexplored field or by complementing the existing knowledge or missing research. Walden University requires their researcher to complement the dissertation by multiple steps which includes drafting a dissertation prospectus and orally defending the proposal to a committee; completing the research; writing the research dissertation, which includes literature review, research methodology, findings, and conclusions; and finally defend the findings to a committee.

A PDD study requires the researcher to identify a real-world problem within own field of work and research and analyze it thoroughly with the primary intent of discovering new understandings about the problem and eventually lead to a better and new solution. The multiple study steps include developing a research proposal that identifies the problem to be solved and design the study with appropriate methodology to be followed; defending the proposal orally; collect and collate data and write the findings; and finally defend the findings orally to the committee.

Other Differences

There are several other differences in the type of doctoral degrees offered. These are in requirements, who awards the degree (State or the University), in length of time taken to complete, status of the researcher, in funding (free, tuition based, with scholarships or loans, or with a salary), in teaching responsibilities, in supervision, and obviously in purpose and relevance (FindaPhD.com. 2021). There is also discussion about the position of doctoral programs within the university: under the department or the faculty, or under the graduate schools (Fernandez et al., 2019), within or between universities and together with masters or without master programs? There are wide variations, by country, discipline, and individual universities in labour markets for new doctoral workforce in academia as well as their career prospects in non-university sector (Richard et. al., 2010).

The essential difference between a PhD and a PDD is that the possessor of a PhD has demonstrated the ability to use research skills to create original knowledge that contributes to the research and theory in a field, and a possessor of a professional doctorate has demonstrated the ability to evaluate, synthesize, and apply knowledge in a field.

5.2 Why Professional Doctorate Degree?

The professional doctorate degrees are more focused to a specific field of profession (Santos and Lo 2018). Santos and Lo further adds that these days, many professionals are interested to earn doctoral degree through a professional doctorate program. This gives them an opportunity to make use of the wealth of experience they have gathered over the years. Unlike traditional PhD, professional doctorate requires professionals to apply with their experience fulfilling certain minimum academic pre-conditions. The researcher can apply their experience instead of conducting research.

UOW (2019) further noted that the UK Council for Graduate Education identified that in the recent years, there has been a significant increase in the interest of professionals to get a professional doctorate degree. The number of such students rose to nearly 400 in mid-2010 from 128 in late 1990s. In the late 2000s in UK, about 8,000 students were enrolled for professional doctorate programs. Bourner, Bowden & Laing (2001) also conferred based on survey reports that the professional doctorates in the UK have increased significantly. The study suggests that by the end of the next decade, professional doctorates will be offered in the majority of the country's universities covering wide range of discipline.

A survey conducted in 250 randomly selected companies in Bangladesh shows that 43 per cent of their Chairman / MD / CEO and 14 per cent of the Directors and their equivalent feels that PDD is a need of the time, and the corporate sectors need professional doctorate degree holders more in their companies. The survey also reveals that no formal study has so far been carried out to find the specific need of the doctoral work force in the country and the region especially in the corporate sector. A better University-Industry Linkage (UIL) is required to find separately the needs of the PDD workforce in the country. The figure below shows the areas of the corporate sector where the PDD holders would be better employed in Bangladeshi companies. It is seen that R&D is the most demanded area followed by corporate management and HR.

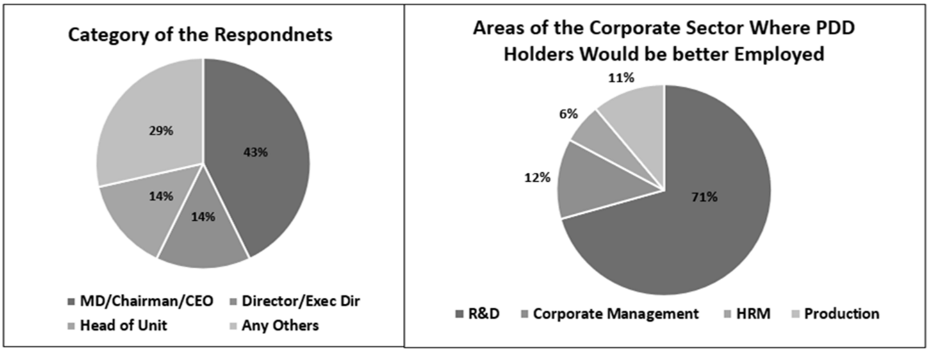


Figure 1: Category of the Respondents and the Areas of the Corporate Sector where PDD Holders can be Better Employed. Source: Survey result Conducted under this Study.

Unlike a traditional PhD, PDDs are offered for the working professionals on part time basis for a wide variety of subjects keeping in view the professional needs of the community. Based on the type of profession they represent different cohort-based groups are made and appropriate taught modules are prepared (UOW 2019). Students are to work on their thesis independently which focuses on practical application of students' knowledge. Doctorate degree is finally awarded to the student who has qualified in the taught module designed for his own group and successfully completed an original doctoral thesis following a standard research methodology. The program involves six taught modules and a thesis of 60,000 words. Besides the minimum academic requirement, the program needs three years' profession experience in position that would benefit from the doctoral program under the EdD program.

One of the important objectives of many degree programs is to prepare students for the workplace. Students of professional study programs have what can be regarded as an additional benefit or advantage to join a particular profession and have a clearly identified career path—in return, employers often expect graduates of such programs to be able to contribute directly to the organization (Azim & Ahmed, 2016). A PDD prepares a person for not just the immediate work entry years but a life-long career in the chosen profession with suitable skills and scope which fulfils both personal and employers need (Davies, Csete, & Poon, 1999).

Study shows several advantages a person enjoys with a professional doctoral degree. It is easier to secure a position not only in the academia but also in management hierarchy as people acknowledges that a person with PDD has a higher academic understanding and better grasp of the issue at hand. Such senior management positions do also come with high salary and financial incentives (Speedupcareer.com 2019). Kharkongor (2018) views that a PDD gives a person a platform from where publication of papers and article in the journal, working with other researchers in the academia and corporate sector makes it a lot easier for a person and motivates him to take responsibility and ownership of professional life.

Although the doctoral degrees are usually offered by the universities and designed for a career in the academia, but there is an increasingly important labour market for doctorate degree-holder researchers outside academia. (Auriol et al., 2013; Neumann & Tan, 2011). Etmanski et al. (2017) brings out that 85 per cent of doctoral graduates in Canada and 75 per cent in Australia respectively find employment outside the academic institutions on completion of their PhD or PDD (Neumann & Tan. 2011). Study shows that as a whole a large portion (81.8 per cent) of the doctoral graduate do not enter the academia, instead find employment in the non-academic job market. Only 12.8 per cent of PhD graduates can attain academic positions in the USA (Larson et. al., 2014). Many of those joining the job markets are not fully prepared for the kind of job they are employed, while there is a demand for such graduates the universities currently do not supply for (Franklin, U. 2021; Walden, U. 2021).

Additionally, doctorate degree holders have broader horizons in terms of placement, because the number of competitors with similar qualifications significantly reduces at this level (mlcuniv.in, 2019). 30 per cent of the academic positions as adjunct faculty members in the PvU are also available to these PDD holders (UGC 2020).

Now a days, the demand for doctorate researchers in the private sector have increased. The corporate offices are more inclined to doing applied research and the researchers are employed as advisers, consultants, experts in addition to their primary field of employment. Survey conducted under this study shows that 43 per cent of the companies have staff with traditional PhD or Professional doctorate degree, which appears to be a good percentage. 67 per cent of these companies have staff ranging from 1 to 5, and 33 per cent of the companies have 6 to 10 staff available in different areas / departments.

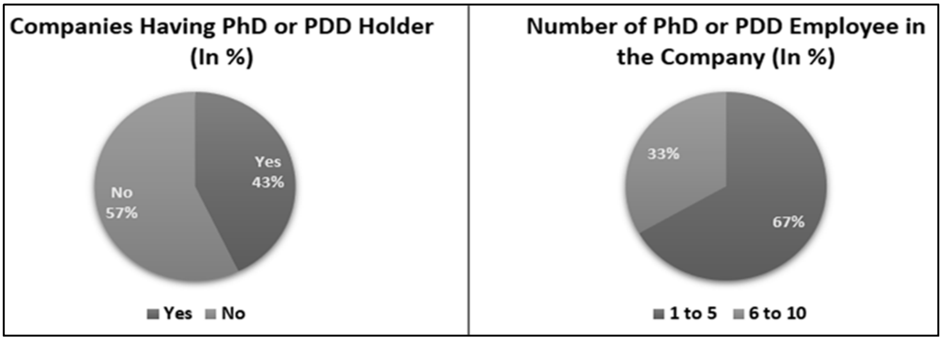


Figure 2: Companies Having PhD or PDD Holders and their Number.
Source: Survey result Conducted under this Study.

Survey under this study shows that 78.6 per cent of the companies think that employing a PDD holder who is qualified in the similar field in which their company is working, will increase the company's in-house R&D capability to a great extent. It also shows that, given an opportunity 71.4 per cent of the companies would prefer professional doctorate degrees over a traditional PhD. The figure below shows the percentages.

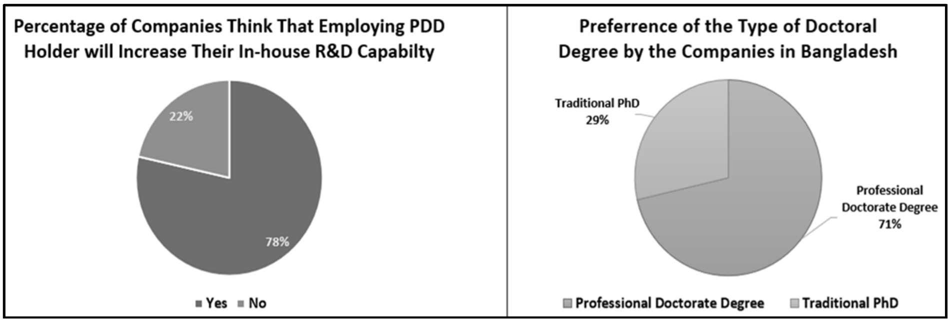


Figure 3: Companies Think PDD Holders will increase in-house R%D Capability & the Preference of their Doctoral Degree: Source: Survey result Conducted under this Study.

The research shows that there is an over-education and labour market mismatch with the doctoral degrees (Cedefop. 2016). The prediction of the European Centre for the Development of Vocational Training shows that a large proportion of doctorate degree holders employed outside academia are over-educated or over-skilled for the job they are employed. They work in jobs requiring a lower level of education and skill they possess. According to their prediction, this figure is expected to reach to 14% of the employed population in Europe by the year 2025. As a make up for this skill-employment qualification mismatch the employers prefer a higher level of experience while hiring people for employment (Kulkarni et al. 2015).

5.3 Why Private Universities in Bangladesh Should Prefer Professional Doctorate Degree over Traditional PhD Degree?

Although offering PhD or PDD is in the domain of the public universities in Bangladesh but soon, the government may decide to allow PvU to offer these degrees. In such a positive scenario, it would be necessary for the private universities to decide the right type of degrees which would suit the demand of the market. Understanding the increasing needs of the non-academic employers in the labour market, it would be wise for the universities to develop appropriate doctoral-education curriculum in keeping with the job market.

Over the year in Bangladesh, the PvU have demonstrated flexibility in designing their own academic programs keeping in view the needs of the market. They have been maintaining a steady supply of workforce especially in programs with emphasis on business studies, textile, engineering, computer science, information technology, pharmacy, and law. Some of the specialized private universities and colleges are also offering programs in medicine, dentistry, and nursing for which there is a huge demand in the local and global market. Research shows that, there has been a boost to the expanding service sector for both local corporate firms and multinational companies, financial institutions, telecommunication, construction sector and pharmaceutical industries of the country (FES, 2018). This would necessitate a large number of professional doctorate researchers for the economy.

Despite flexibility of the PvU in designing market focused curriculums for the graduates there has been complains of a gap between the actual need and what is being taught in the universities. This is true for the doctoral degrees as well. Study shows (Alamartine, 2019) that although there exists large requirement of doctoral workforce but then there is a skills mismatch among the PhD holders in the labour market. The same is true for Bangladesh and the other regional countries as well.

The study also suggests that the universities need to do their homework well to design the most appropriate PDD to suit the differing demands of the job market not only of own country but also of the regional and global market. The government, the higher education (HE) regulatory bodies and the university management need to work jointly to decide and validate the appropriate types of professional doctoral programs for the non-academic labour market.

Khatun (2019) opined that there is a general lack of interest for our students to go abroad for higher studies, particularly for doctorate degrees. Survey among the university students and alumni show that 75 per cent of the local students would like to pursue doctorate degree in Bangladesh. Students and Alumni from the PvU currently employed in the local companies think that the time spent abroad, can be more rewarding, both professionally and financially, in Bangladesh (Khatun 2019; Survey of PvU Alumni). The figure 2 below shows that a substantial percentage of Bangladeshi students are interested to pursue doctoral education in the country for various reasons and unwilling to leave their current job.

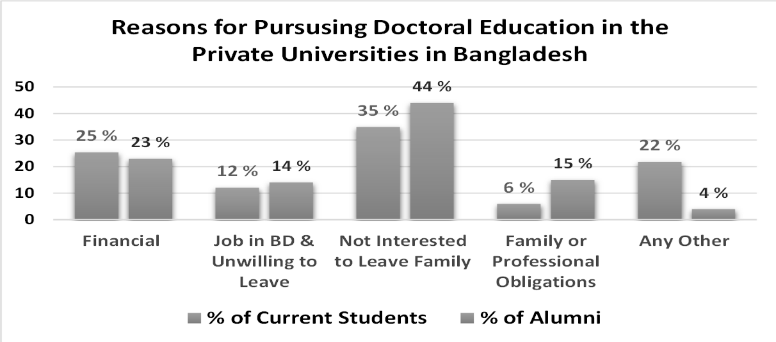


Figure 4: Reasons for Pursuing Doctoral Education in the Private Universities in Bangladesh. Source: Survey result Conducted under this Study among the Students and Alumni of Private Universities.

The study shows that 80 per cent of the respondents associated with the PvU prefer a PDD and think would be more useful for the job market. They respondents, however, opine that, the academia both PvU and public universities should continue to offer traditional PhD alongside the PDD. On the other hand, MD and Directors of 72.8 per cent of the companies surveyed under this study prefer PDD over traditional PhD and think that having some staff personnel with PDD in the company would not only increase the in-house R&D capability but also increase the overall profitability of the company to a great extent. The figure below shows the profitability range by at least 5-15 per cent.

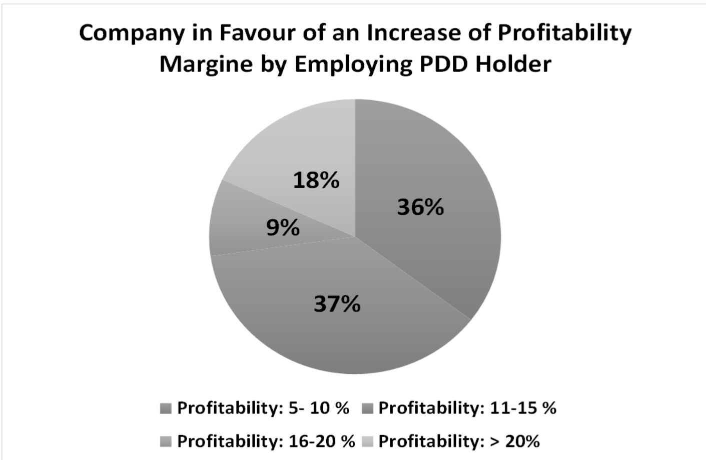


Figure 5: Likely Increase of Profitability by Employing PDD Holder in the Company

The future trend in doctoral education seems to be more inclined towards professional doctorate degrees. Phillip G. Altbach Boston College, USA (Philip. 2014) views that the doctoral education, faces challenges everywhere in the 21st Century. He adds that in some countries especially the underdeveloped ones, there is an underproduction of professional doctoral workforce to supply rapidly growing economy and meet the demands of the knowledge economy. A growing economy like Bangladesh is a typical example of this situation. In other countries, mostly the developed ones, there is an oversupply of doctoral workforce.

As a whole the doctoral education is criticized worldwide (Paul, J. 2015; Litalien, D. 2019). The critics now questions about the appropriate organization and purpose of the doctorate degrees, who argue that the nature of doctoral training requires a major reform to face the realities of the labour market and type of knowledge production and research worldwide. Some claim that traditional models are no longer relevant for the 21st Century (Paul, J. 2015). While others talk about a long degree completion time, high levels of dropouts (40-50%), a lack of interdisciplinarity, and to poor quality of training and lack of funds under strict budget cuts (Paul, J. 2015; Litalien, D. 2019).

6.0 Conclusion and Recommendations

PvU in Bangladesh should offer PDD as opposed to traditional PhD degrees. PDD holders are in an advantageous situation in the local and regional job market as they have better on-job research skills and experience which the employers would prefer. 72.8 per cent of the top management personnel prefer PDD over traditional PhD. They think having some staff personnel with PDD in the company would not only increase the in-house R&D capability but also increase the overall profitability of the company by 5-15 per cent. And it is highly likely that the PvU in Bangladesh, using their internal flexibility of decision-making process and better faculty hiring process from home and abroad, can develop and offer better PDD curriculum which would suit the job market of the country and the region.

There is a great interest among both local and regional employers for a PDD and the universities need to match the skills of doctoral graduates with the needs of the labour market. The corporate employers are sometimes not fully aware of what PDD, and doctoral education consist of and what kind of research skills they need for their industry. The PvU should involve and integrate the corporate sector more in order to find out the actual need of the employer and then design the most appropriate doctoral curriculum which would precisely fulfil the employers need. This necessitates developing and fortifying a better *university–industry linkages* of the doctorate degree holders with the job market.

There is a need for the highest business community to sit with the university forums to find out in greater depth, as to why the traditional PhD holders seem not to use their PhD for employment outside the academia. Such study could reveal the underlying constraints, in the existing PhD curriculum and come up with the most appropriate type of PDD where both the employer and the employee will take pride in using their doctoral qualification.

The study concludes that there is a greater prospect in Bangladesh for offering 'Professional Doctorate Degree PDD' by the PvU to fulfil the increasing demand of the corporate job market Bangladesh. The PvU are better poised to offer different PDD curriculum instead of traditional PhD degrees, which would not only meet the local needs but also contribute to the regional and global need. Further research could be undertaken to find out the thrust sectors of our economy where PDD is required more and the types of PDD curriculum, which would be appropriate for the PvU to offer in Bangladesh.

References

Ahmed, I. Iqbal, H and Abbasi, P. (2018). Private Universities in Bangladesh: Possibilities and Challenges. Journal of Education, Published on March 2018. Supported Friedrich Ebert Stiftung, pp. 3-5.

Alamartine, E. (2019). Research by Eloise Germaine Alamartine, titled, 'Doctoral Education and Employment in the Regions: The Case of Catalonia' Published in Journal of Regional Studies, Regional Science, Vol 6, 2019-Issue 1, Page 299-318.

Auriol, L., Misu, M., & Freeman, R. A. (2013). Careers of doctorate holders. [Google Scholar]. [Accessed 20 Aug; 2020].

Azim, Md & Ahmed, Ak. (2016). Employment Scenario in Bangladesh: A Study on the gap between expectations of employers and the quality of graduates. International Journal of Entrepreneurship and Development Studies. 4. 175-195.

Bourner, T., Bowden, R., & Laing, S. (2010). Professional doctorates in England. Studies in Higher Education, 2010, Journal Studies in Higher Education Edition: 26(1), 65–83.

Davies, H. A, Csete, J, & Poon, L. K. (1999). Employer's Expectations of the Performance of Construction Graduates. International Journal of Engineering Education, 15(3), 191-198.

Etmanski, B., Walters, D., & Zarifa, D. (2017). Not what I expected: Early career prospects of doctoral graduates in academia. Canadian Journal of Higher Education, 47(3), 152 169.

fes-bangladesh.org, (2018). Private Universities in Bangladesh Possibilities and Challenges, [online]. Available at http://fes-bangladesh.org/files/daten/publications. Jun, 2019].

FindaPhD.com. (2021). What PhD Funding Can You Get From a University? Available at: https://www. findaphd.com/fund ing /guides/phd-funding-from-universities.aspx.

Franklin U. (2021). Franklin University. Applied Doctorate vs. Ph.D.: What are the Differences? Available at: https://www.franklin. edu/blog/doctorate-vs-ph-d-what-are-the-differences.

Haque (2014). Prof. Shamsul. Haque. Private Universities in Bangladesh: An Effective Innovation in Higher Education[online]. Available at: Http://www.thedailystar.net. 12:00 AM, May 29, 2014

Khatun, F. (2019). Fahmida Khatun, Executive Director of the Centre for Policy Dialogue. In her article titled, 'For a More Educated Bangladesh'. The Daily Star, Wednesday, July 24, 2019.

Krishna, R (2019). Prof. Radhe Krishna. Role of University Education in National Development. University of Zambia, School of Mines. Available at: http://www.daily-mail.co.zm.

Kharkongor, G. (2018). Why PhD is Important? Web Journal of Martine Luther Christian University, Shillong Meghalaya. [online]. Available at: http://www. mlcuniv .in/index.php?.

Larson, R. C., Ghaffarzadegan, N., & Xue, Y. (2014). Too many PhD graduates or too few academic job openings: Systems Research and Behavioral Science, 31(6), 745–750.

MOF. (2019). Finance Division, Ministry of Finance, Government of the People's Republic of Bangladesh, (2019), Bangladesh Economic Review. Dhaka, Bangladesh. P.xxxv. Available at: https://mof.portal.gov.bd/site.

Neumann, R., & Tan, K. K. (2011). From PhD to initial employment: The doctorate in a knowledge economy. Studies in Higher Education, 36(5), 601–614.