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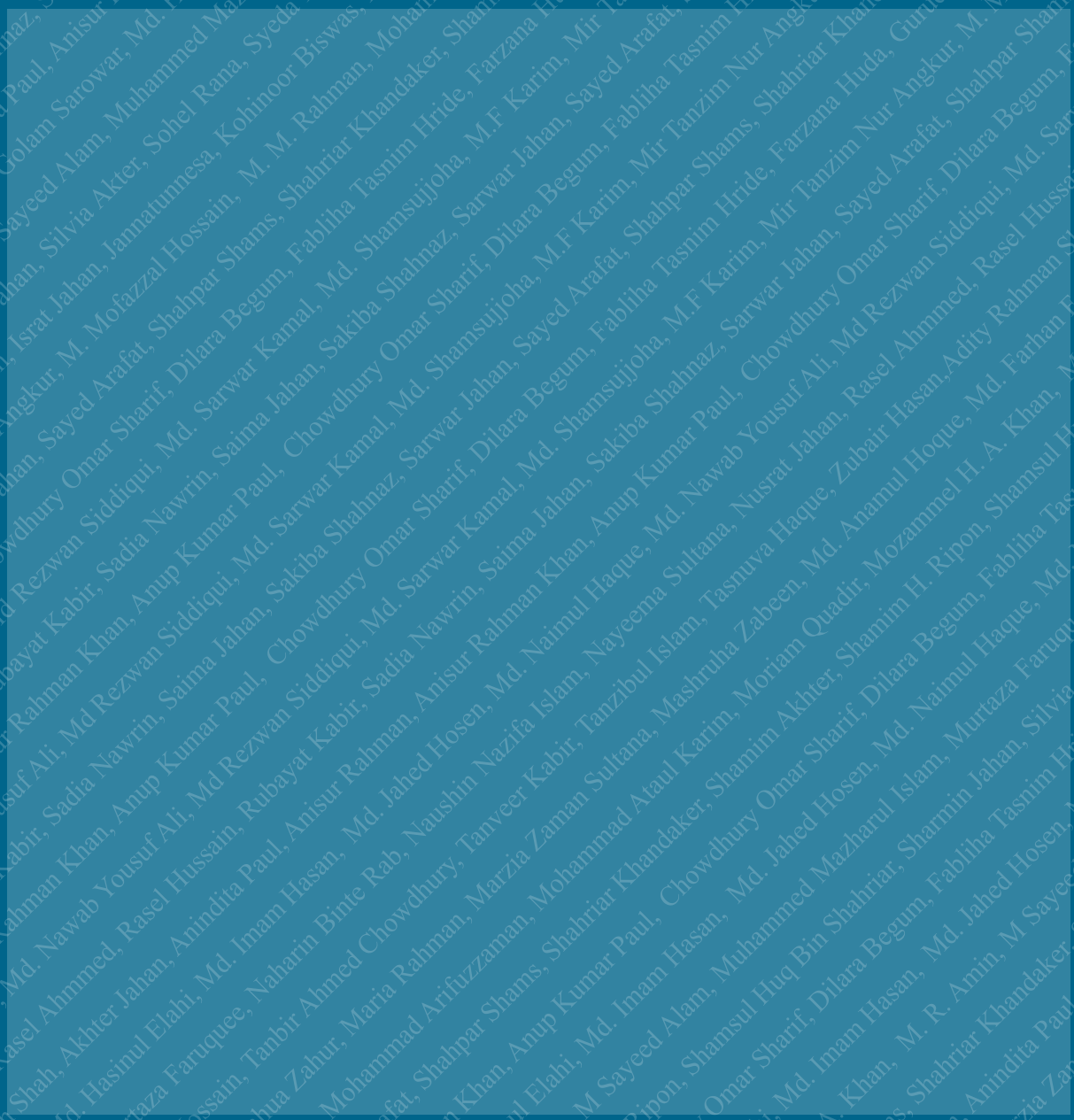

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PREFACE

It is my pleasure to write this introductory note for the twelfth volume of the Abstracts of Published Papers 2017. The Abstracts of Published Papers is an annual publication of East West University Center for Research and Training (EWUCRT) with an objective to keep an official log of academic publications of the faculty members of East West University. It includes the abstract of published research articles, book chapters, books, and conference papers of our colleagues.

It is indeed a matter of great satisfaction for East West University Center for Research and Training (EWUCRT) to publish the twelfth volume of the Abstracts of Published Papers, which contains abstracts of the academic publication published in 2017. This publication is a collective effort of the faculty members of the university. Our scholars have enthusiastically and immensely contributed in areas of business, economics, social sciences, engineering, telecommunications, liberal arts and literature, population health, computer science, pharmacy, and technology. This volume contains abstracts of 102 research articles. Among them, 62 articles were published in international and two in national journals, four book chapters were published abroad, as well as 33 papers were published in international and one in national conference proceedings. Considering their academic achievements, we sincerely congratulate all the research scholars.

The Center expresses its sincere thanks to Dr. Rafiqul Huda Chaudhury, Chairperson of EWUCRT and Member, Board of Trustees, and all the members of the Research Committee (RC) for their support and encouragement. Furthermore, thanks are also due to all the personnel of EWUCRT involved in this publication.

Professor Muhammed Shahriar Haque, PhD
Executive Director
EWUCRT, 2018

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Asian Economic and Financial Review, Vol. 7, No. 9, pp: 509–518. , 2017

Prospect of E-Banking in Bangladesh: A Case Study of Dutch Bangla Bank Limited and BRAC Bank Limited

Farzana Huda* and **Tanbir Ahmed Chowdhury****

ABSTRACT

Bangladesh is a developing country where E-banking opened up tremendous opportunity to the existing banks and financial institutions. This paper studies the prospects of e-banking in Bangladesh, as well as analyzes the development and growth of Dutch Bangla Bank Ltd. and BRAC Bank Ltd. Seven trend equations have been tested for different activities of the DBBL and BRAC bank. Among them the trend value of number of ATM, recoveries from clients, number of branches, charges from services, income from IT service, card expenses, depreciation on computer equipment and software, other operating expense, cash carrying charges, net income and EPS are positive in case of both banks during the period of 2008-2015. Square of correlation coefficient (r2) has also been tested for all trend equations. The r2 of number of ATM, recoveries from clients, number of branches, income from IT service, card expenses, Depreciation on Computer equipment and software, other operating expense, Cash Carrying Charges, net income and EPS is more than 0.5. It indicates the prospect of E-banking in Bangladesh is very bright.

Keywords: Electronic banking, cash carrying charge, ATM, credit card.

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Development, Sustainability and Happiness-Perspectives and Challenges for Youth 2025, Bloomsbury Publishing India Ltd, 2017, PP.: 10-12, ISBN:978-93-86432-09-4

Youth as a Driving Force for Achieving Sustainable Development Goals

Tanbir Ahmed Chowdhury*

ABSTRACT

The United Nations (UN) Sustainable Development Goals (SDGs) were formally announced at the UN General Assembly in September 2015. SDGs comprise 17 inclusive, global aims designed to guide national and international agendas, strategies, and policies for the next 15 years. Recent studies, observations and dialogs on international platforms clearly reveal that YOUTH play a vital role for achieving SDGs in South Asia. We have discovered significant role of YOUTH towards key economic and social targets of SDGs such as poverty, health, nutrition, employment, gender equity, education, justice, and inequality. The YOUTH should be always considered as the main driving force towards achieving sustainable development goals. Young people and youth-led organizations need to have the space and recognition to participate in translation of the agenda into local, national and regional policy, in implementation, in monitoring and review, in holding governments accountable. Young people need structured mechanism for participation through decision-making, ideally in co-decision manner, and especially in areas that have a clear impact on young people. With right political commitment and adequate fund allocation, young people can fulfill their roles and that way make the most effective transformation of the world into a better place for all.

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Performance Evaluation of Selected Merchant Banks in Bangladesh

Farzana Huda* and **Tanbir Ahmed Chowdhury****

ABSTRACT

In Bangladesh the establishment of merchant bank added value to the stock market which plays a vital role in the progress of economic development. This study tried to analyze the performance of LankaBangla Investment Ltd., Prime Finance Capital Management Ltd., IDLC Investment Ltd. and Uttara Finance and Investment Ltd. Seven trend equations have been tested for different activities of the selected merchant banks. It is observed that the selected merchant banks were able to achieve a stable growth of investment in securities, margin loan to clients, brokerage commission capital gain/loss from securities, portfolio management services, issue management fees, corporate advisory fees and underwriting commission during the period of 2011-2015. Among them the trend equation of investment in securities, margin loan to clients, and corporate advisory fees are positive incase of all the selected merchant banks. Square of correlation coefficient (r^2) has also been tested for all trend equations. The r2 of interest income from merchant bank, portfolio management services, settlement and transaction fees and documentation fees, is more than 0.5. It indicates the prospect of merchant banks in Bangladesh is bright.

Keynotes: Merchant bank, underwriter, brokerage commission.

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Stock Market Investors' Guide to Corporate Dividend Policy: Evidence from Pharmaceuticals and Chemicals Industries in Bangladesh

Jannatunnesa* and **Tanbir Ahmed Chowdhury****

ABSTRACT

Dividend policy has been an important component in the arena of financial literature and providing evidence that dividend payout decisions are affected by various factors. Numerous studies have been conducted so far on corporate dividend policy in Bangladesh. The pharmaceuticals and chemicals industries of Bangladesh offer a lot of investment panorama for the retail investors. This research has been an endeavor to determine the factors affecting the dividend policy of these promising industries, and guide the investment decisions of the equity investors. In this attempt, this study is also a unique one to incorporate the chemicals industry along with the pharmaceuticals industry as both the industries constitute the 'pharmaceuticals and chemicals sector' listed in the stock market of Bangladesh. The study is a quantitative one based on secondary data. It comprises of different statistical analyses such as descriptive statistics, correlation matrix and multiple linear regression analysis, etc. Firm size, growth, liquidity, profitability, last year's dividend and P/E ratio are used as dependent variables. Besides, ownership structure, firm age, market share, and risk are used as control variables. The study explores that firm size has significant negative and last year's dividend has significant positive relationship with dividend payout. However, dividend payout does not depend on firm growth, liquidity, profitability and P/E ratio of a firm. The research outcome may have important implications for the improvement of investors' perceptions, which may assist them in their investment decisions in the researched industries. Certainly more work lies ahead to add to explanations for why some of the factors affect the dividend policy of the industries, while others have no significant impact thereon.

Keywords*:* Dividend Policy, multiple regression analysis, pharmaceuticals and chemicals Industries, Investors.

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Review of Social Sciences, Vol- 02, Issue-01, January 2017, pp- 52-61, ISSN 2378-8569(Print), ISSN 2378-8550(Online)

Customer Response towards Non-Deceptive Counterfeit Brands

Md. Farhan Faruqui* , Md. Anamul Hoque** and **Fabliha Tasnim Hride*****

ABSTRACT

Universally counterfeiting is a very significant growing problem and profitable business, occurring both in less and well developed countries. A recent report in early February 2017 which published by Frontier Economics on the Behalf of the international Chamber of Commerce and BASCAP (Business Action to Stop Counterfeiting and Piracy), along with INTA (International Trademark Association), reports the value of international and domestic trade in counterfeit products in 2013 reached a total of $710 to $917 billion a year. The main purpose of this study is to integrate the main predictors of consumer reaction towards non-deceptive counterfeit brands; to help companies understand the main factors influencing consumer behavior toward counterfeits brands and create effective anti-piracy approaches. The main contribution of the research is to demonstrate that consumer intentions to buy counterfeit products are dependent on the attitudes they have towards counterfeits, which in turn are more influenced by price sensitivity, social marketing communication, fashion consciousness, price quality schema, status seeking, perceived control behavior, subjective norms, product attributes, whether consumers have bought a counterfeit before and so on. The paper contributes to notify government and original brands managers about the main predictors of consumer's attitudes towards counterfeiting.

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Equity and Commodity Market Co-Movements in Thailand

Md. Farhan Faruqui* and **Md. Anamul Hoque****

ABSTRACT

This paper studies the dynamic linkage between oil price, gold price and Thailand stock market in the long run as well as in the short run. By employing Time series analysis using monthly data from for the period of August 1999 to August 2013, the study applies co-integration technique, Granger causality test, and Impulse Response Function (IRF) and Variance Decomposition (VDC) analysis. The findings reveal that oil price changes have asymmetric effects on Thailand stock market while a positive relationship has been observed between the gold price and the stock return in the same market. Finally, few implications and applications of the study have been suggested in detail.

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Merchant Banking Operation: A Case Study of Selected Merchant Banks in Bangladesh

Farzana Huda* and **Tanbir Ahmed Chowdhury****

ABSTRACT

In Bangladesh the establishment of merchant bank added value to the stock market which plays a vital role in the progress of economic development. This study tried to analyze the performance of Lanka Bangla Investment Ltd., Prime Finance Capital Management Ltd., IDLC Investment Ltd. and Uttara Finance and Investment Ltd. Seven trend equations have been tested for different activities of the selected merchant banks. It is observed that the selected merchant banks were able to achieve a stable growth of investment in securities, margin loan to clients, brokerage commission, capital gain/loss from securities, portfolio management services, issue management fees, corporate advisory fees and underwriting commission during the period of 2011-2015. Among them the trend equation of investment in securities, margin loan to clients, and corporate advisory fees are positive incase of all the selected merchant banks. Square of correlation coefficient (r2) has also been tested for all trend equations. The r2 of interest income from merchant bank, portfolio management services, settlement and transaction fees and documentation fees, is more than 0.5. It indicates the prospect of merchant banks in Bangladesh is bright.

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Prospect of E-Banking in Bangladesh: New Way to Make Banking Electronic

Farzana Huda* and **Tanbir Ahmed Chowdhury****

ABSTRACT

Being a developing country E-banking opened up tremendous opportunity to the financial sector and economic development of Bangladesh. This paper studies prospects of e-banking in Bangladesh, considering the performance of Dutch Bangla Bank Ltd. (DBBL) and BRAC Bank Ltd. To evaluate the performance of DBBL and BRAC bank seven trend equations have been tested for different activities of DBBL and BRAC Bank. Among them trend value of number of ATM, recoveries from clients, number of branches, charges from services, income from IT service, card expenses, depreciation on computer equipment and software, other operating expenses, cash carrying charges, net income and EPS are positive in case of both banks during the period of 2008-2015. The square of correlation coefficient (r2) of number of ATM, recoveries from clients, number of branches, income from IT service, card expenses, depreciation on computer equipment and software, other operating expenses, cash carrying charges, net income and EPS is more than 0.5. It indicates the prospect of E-banking in Bangladesh is very bright.

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An Appraisal of the Activities of Central Depository Bangladesh Limited (CDBL)

Farzana Huda* and **Tanbir Ahmed Chowdhury****

ABSTRACT

In Bangladesh the establishment of Central Depository Bangladesh Limited (CDBL) added value to the stock market and plays a vital role in the progress of economic development. CDBL is engaged in the operations of the Central Depository System (CDS), a major financial market infrastructure in Bangladesh established as a part of the overall financial sector development. This study tried to analyze the growth and development of CDBL. Seven trend equations have been tested for different activities of CDBL. It is observed that CDBL was able to achieve a stable growth of listed securities in CDS, depository participants, settlement of securities transactions, documentation of CDBL, total assets and net income during the period of 2007-2015. Square of correlation coefficient (r^2) has also been tested for all trend equations. It indicates the prospect of CDBL in Bangladesh is relatively bright.

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Growing Popularity of Muslim Attire: Faith or Fashion

Mashruha Zabeen*, Shahpar Shams** and **Nayeema Sultana*****

ABSTRACT

Muslim attire, also popularly known as Modest Clothing is a particular dressing style for the women who adhere to Islamic faith. Traditionally, this attire has been practiced by women as part of obligation to their faith. Interestingly, last decade has seen increasing popularity of the Muslim attire in all age groups of women not only as part of their religion, but also as part of their fashion statement. The prime focus of this paper is to study consumers' opinion about Muslim attire and the underlying forces boosting its rise in the global market. This paper is both exploratory and descriptive in nature. Sample has been chosen from Bangladeshi women aged 13 to 65 who already dress in Muslim attire. The research conducted a primary in-depth interview on 10 women to gain perspective on the motivating factors behind growing attraction towards Muslim attire. The second phase of the research carried out a survey on 150 women with the help of a structured questionnaire on 14 variables to explore their viewpoint. The results reveal that religious duty, beauty and influence of opinion leaders have positive relationship with the growing popularity of Muslim attire.

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Conference Reaching consumers of emerging markets, proceedings of the Annual Conference of the Emerging Markets Conference organized by Indian Institute of Management Lucknow (Noida Campus). January 5–7 (2017), pp. 791-794, ISBN: 978-81-928560-2-5. India.

A Case of Success Story from the Street Market in Dhaka

Kohinoor Biswas*, M Sayeed Alam** and **Md. Jahed Hosen*****

ABSTRACT

This paper is about a single case of a micro-entrepreneur from the street market in Dhaka city; namely *Imam Chotpoti*. The case is specially "chosen" based on the criteria of extra-ordinary success. Authors have applied a positive comparative method via theoretical inference since this single case is selected with an analytical view. Using the working definition of informal marketing the authors find that the micro-entrepreneur Imam possesses entrepreneurial insight, offers a product portfolio intuitively in immediate response to the market need and want; establishes a brand after his name through maintaining 3C (Cleanliness, Consistency and Communication).

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Is Informal Economy Pro or Against of Green Economy? A Literature Review on the Debate

Kohinoor Biswas* and **M Sayeed Alam****

ABSTRACT

Historically, informal economies have been labeled as 'shadow', 'grey', or 'black' markets because of their connections to tax evasion, unregulated enterprises and criminal activity. Yet, the contribution of informal economy is astounding as is clear from the statistics that it generates half to three-quarters of all non-agricultural employment in developing countries. Informal economy is reported to serve as 'cushion' or 'buffer' or 'safety net' in times of economic downturn as demonstrated over the parts of developed as well as developing world. Latin America in 1980s, Asia in 1990s, highly developed OECD countries in 2008; Cuba and Armenia in their transition from socialism to neo-capitalism, experienced a significant rise in informal economy. Presence of informal economy is ubiquitous; from food sellers on the streets and networks of waste workers, to artisanal miners, to home based workers and charcoal producers. According to ILO in informal employment women outnumbered men in at least 22 countries which further add to the socio-economic dimension. As Rio+20 comes up with the inclusive green growth with a dual goal of saving the planet and saving marginalized lives, consequently arises a question: what is the relation between informal and green economy: is it symbiotic or counterproductive? Proponents of informal markets argue that they tend to have a smaller ecological footprint than their formal counterparts. However, the opponents associate informal economy with environmental pollution and degradation as a result of expanding urban slums, and activities such as illegal logging and unregulated mineral extraction. The term decoupling means using less resources per unit of economic output and reducing the environmental impact; came into the existence in 2001 by OECD nations to break the link between 'economic goods' and 'environmental bads'. This paper will screen out literature on the role of informal economy to the transition of greening with the means of decoupling.

Keywords: Informal economy, green economy, decoupling.

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Ek Cup Cha (A Cup of Tea): A Triumphant Case from Dhaka on Street Food Branding

M. Sayeed Alam*, Tanveer Kabir** and **Sayed Arafat*****

ABSTRACT

Street food vending has been exhibited as the most common form of informal business; (Muzaffar, Huq and Mallik, 2009; Cross, 2000) at the same time, it is a form of traditional microenterprise in a modernized world (Tinker, 2003). According to a report, around 200,000 street food vendors are operating their businesses at present, in Dhaka city (Ahmed, 2000). This study aims to discuss the different marketing practices undertaken by a local tea café in Bangladesh (named "Ek Cup Cha") and how it transformed from being a street cart in the informal sector to a strong brand, operating a larger scale business as a formal enterprise. The business **"**Ek Cup Cha" (which translates to 'A Cup of Tea')stands for an effort to present itself as a modernized version of a local tea stall, serving a variety of tea based hot beverages to its customers. This study explores the nature of transformation of this small yet trendy street-side cart from an inadequate informal business status to an emerging brand. The information was collected using an in-depth interview consisting of a set of standardized open-ended questions. The interviewee was Mr. Simanto Redwan, one of the owners of the business 'EkCup Cha'. The case study revealed that, 'Ek Cup Cha' managed to utilize an effective crowd control technique. Throughout the day, the owners invited a number of friends to taste their tea and consistently form a crowd around the stall. The people passing by the cart would notice the crowd and naturally become inclined to taste what the cart had to offer. Following the Government's decision to shut down a large number of street food stalls, 'Ek Cup Cha' transformed itself to a tea café. They faced initial difficulties after the sudden change but by means of positive word of mouth, proper utilization of social media marketing, different seasonal discount offerings, openness to customer suggestion & complaints and a unique value proposition they managed to survive the highly competitive formal business sector. The new café which goes by the same name is now located in a busy food street at Khilgaon. To survive with the competitive surroundings they merged with a Mexican themed café which enabled them to draw more consumers by means of the added personnel and an expanded menu portfolio. The independent enterprise's aesthetic outlook, ambiance and strategically thought-out geographic locations worked as core competencies for the business as a whole resulting in a successful transformation.

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A Transformation from Informal to Formal, Where Customer Engagement is an Issue: Case Study on Rise of Mr. Burger", in Customer Engagement & Experience issues , Reflections and Future Strategies

M Sayeed Alam*, Tanzibul Islam** and **Shamsul Huq Bin Shahriar*****

ABSTRACT

Informal sector always has always been inspected in the context of entrepreneurship development, employment generation, and its contribution in the less developed and developing countries' economy. Nevertheless, distinct business functions, e.g. Marketing, operations and management style have never broadly appeared into literature. This study aims to explore customer engagement in the context of an informal brand. A single case study approach was adopted for the in-depth study; data were collected via interview (conversation with purpose). Research findings indicated that informal sector per se has a grater scope for customer engagement within the business process because of its nature; Customer proximity and managerial flexibility. Customer engagement on the other hand these engagements help the informal firms to understand their customers better, improve the product and services from ingenuousness. The proximity with the customers' thoroughly associated with the customer satisfaction; repurchases indentations, and finally commercial profitability; those give an informal enterprise economic stability to transform itself into a formal organization

Keywords: Informal sector, transformation, customer engagement, case study.

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A Transformation from Informal to Formal, Where Customer Value is Core Concern: Qualitative Case Evidence

M Sayeed Alam*, Nusrat Jahan** and **Shamsul Huq Bin Shahriar*****

ABSTRACT

This case study discusses the depth of marketing distinctions to interpret the transformation of a small street corner vendor shop, from informal to a formal enterprise. Aside from that understanding marketing strategy of the business, its concept of creating value for the customers; customers based business strategies for survival and growth, customer orientation are the areas of interest of this study. Authors considered the 'Shahi Mama Peyaju' as a 'case of something' or 'crucial'.

Keywords: Informal sector, transformation, customer value, case study.

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Transforming the Informal into Formal Sector through Branding: A Study on the Processed Street Foods in Dhaka Metropolis

M Sayeed Alam*

ABSTRACT

The author in this study explores on the idea of branding opportunity for informal street food business in informal sector in the landscape of Metropolis Dhaka. The presence of informal street food sector in Bangladesh is quite perceptible and significant like in many other developing countries. Branding, a marketing tool of differentiation, is more common with big businesses, much less seen for SMEs, but non-existent in informal sector. In this proposal, the author eyes the entrepreneurial potential of the informal street food in Dhaka and searches for the answer whether branding is possible; in order to create a win-win for the sector and the economy.

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Street Food Vendors' Identity Crisis: Can Branding Be a Solution? A Case Study from Dhaka

Naharin Binte Rab*, M. Sayeed Alam** and **Shahpar Shams*****

ABSTRACT

The number of informal street food vendors in cities has increased with the growing pace of urbanization in developing countries. Whether they are snacks or full meals, they are available with the street vendors. Now it is a significant part of urban diet. This scenario has gained the interest of government and international agencies (FAO, 1989; Hussain, 1990; Rossi-Espagnat et al., 1991; Lunven, 1994). Street food businesses are generally owner-manager or family businesses of which majority work in the informal sector, i.e. without any license (FAO, 2011). Generally, the number of street vendors increases with modernization as traditions of eating at home break down in the face of urban sprawl, transportation congestion, and as the number of school-age children increases. Yet early policies of both governments and international agencies sought to deliminate the sector denouncing the food as unhygienic (Tinker, 2003).

Keywords: Street food, dhaka, branding.

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Banking Sector Contribution in a Developing Economy: The Case of Bangladesh

Md. Imam Hasan* and **Naharin Binte Rab****

ABSTRACT

The paper endeavored to highlight the contribution and commitment of the Banking sector in the economy of Bangladesh. A healthy and well-functioning banking system enables the efficient allocation of resources to individuals, organizations, and projects that can use those resources effectively. This paper looks at the different aspects of Banking Industry which contribute directly or indirectly in the economy. The role of banks in economic development is to eliminate the deficiency of capital by stimulating savings and investment. A comprehensive banking system assembles the small and scattered savings of the community, and makes them available for investment in productive enterprises. Numerous studies have revealed that banking and financial sector development is an indispensable condition for economic development. Banks stimulate capital formation, investment in new enterprises, promotion of trade and industry, savings, and development of agriculture. No financial advancement of substantial extent is feasible unless there is a sufficient level of capital development. This research is focused on secondary data collected from the different official publications of respected banks and Bangladesh bank for 2004 to 2015. To find the long run relationship between the variables we have used multiple regression analysis where GDP (gross domestic product) is the dependent variable on DEP (Deposits), INV (Investments), ADV (Advances), ROA (Return on asset), INE (Interest earning) and NEMP (Number of Employees) of the Banking sector of Bangladesh. The research echoes with some expected relationship of dependent variable with some of the independent variables while few independent variables yield no significant relationship. This research explored the extent of contribution of Banking industry in the economy of Bangladesh and identified the improvement areas.

Keywords: Banking sector, bangladesh, economic development, deposits, investments.

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Evaluating the Effectiveness of Facebook as the Source of Job Advertisements: An Empirical Study

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Maria Rahman****

ABSTRACT

Purpose of this paper is to evaluate the effectiveness of Facebook, as the source for job advertisements. This study also examined the basic characteristic of the contents of these job advertisements at local Facebook groups and brand pages. Both qualitative and quantitative approach was adopted for the study. Results confirmed that, from the organizations' perspective, it is the cost effective source. From the applicants' perspective, it is a source of direct communication; still serious dilemma was reported on the question of privacy and security. Finally, according to academic experts, the advertisements characteristic has some problems of poor content, which could have serious effects on corporate reputation.

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Development of Green Banking in Bangladesh

Farzana Huda*

ABSTRACT

Green banking is a global initiative to save environment from carbon emission surrounds the world. The study evaluates Green Banking practices among State Owned Commercial Banks (SCBs), State Owned Development Banks (SDBs), Private Commercial Banks (PCBs), Foreign Commercial Banks (FCBs) and non banking financial institutions (NBFIs) in Bangladesh. The study finds that 56 banks have adopted Green Banking policy, formed Green Banking Unit, allocated and utilized budget for green banking sector. But allocation and utilization of budget of SCBs and SDBs are not satisfactory. Online banking and ATM facilities of SCBs and SDBs are very poor. Among 31NBFIs very few are following green banking policy. The study suggests government should provide adequate fund, technical support, sufficient subsidy and effective policy to the banks and NBFIs to meet up the Green banking process cost which will make a greener world for communities.

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A Study On Bangladeshi Consumers Understanding of 3R Food Packaging

Murtaza Faruquee* and **Sharmin Jahan****

ABSTRACT

Food packaging is the core element of food supply chain. 3R (Returnable, Recyclable and Reusable) food packaging is the largest scope of packaging. Use of 3R packaging has strong interest from the environment and health aspect, though the success of these packaging highly depends on the customers understanding of 3R packaging materials. This paper explains how customers' perception is influenced by their basic knowledge of 3R packaging materials, from Bangladeshi perspective. After investigating this relation statistically, this research creates a strong ground for further examination on food packaging supply chain and 3R reverse logistics of Bangladesh. Customers' understanding of healthy food packaging materials and the ability to place a particular food packaging material in right 3R context is surprisingly high for different types of Bangladeshi consumers. In order to develop more environment-friendly food supply chain, these findings will become significantly useful.

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Factors Determining the Choice of Level of Education in Bangladesh: Empirical Evidence from HIES

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ABSTRACT

There is no denying to the fact that education is considered to be one of the fundamental factors of economic development. Due to its significant positive externalities, it enhances the quality of lives and leads to broad social benefits to individuals and society as a whole. In addition, it also assumes to play a pivotal role in securing economic and social progress and improving income distribution within an economy. The overall objective of this paper there exists gender discrimination especially at the lower level of education paper is to ascertain the relevant factors which determine the choice of level of education from the individual point of view. For the estimation, we have constructed a pooled data using Household Income and Expenditure Survey (HIES) of 2005 and 2010.Therefore we opted for an econometric estimation of ordered logistic education function to determine the factors influencing the probability of being educated. From the estimation, we have that there exists gender discrimination especially at the lower level of education till 2000.Moreover, other family members' education, regional factor, remittances have the significant effect on determining the choice of level of education in Bangladesh.

Keywords: Pooled data, ordered logistic, economic and social progress, choice of level of education.

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Rigorous Analysis of Acousto-Optic Interactions in Optical Waveguides

B. M. A. Rahman, **M. M. Rahman***, S. Sriratanavaree, N. Kejalakshmy and K. T. V. Grattan

ABSTRACT

Stimulated Brillouin Scattering (SBS) is a nonlinear process between interacting light and sound waves. For an accurate analysis of the interaction between the guided optical and acoustic modes, a rigorous yet computationally efficient numerical approach is needed. A finite element based full-vectorial approach was developed to find modal solutions of acoustic modes in low and high-index contrast waveguides. The SBS frequency shift, the overlaps between the quasi-TE fundamental optical mode the fundamental and the higher order quasi-shear and quasi-longitudinal acoustic modes, and SBS gain curves are also presented.

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Coordinate Determination of Submerged Sensors with a Single Beacon using the Cayley–Menger Determinant

Anisur Rahman* and Vallipuram Muthukkumarasamy**

ABSTRACT

This chapter, entitled 'Coordinate Determination of Submerged Sensors with a Single Beacon using the Cayley–Menger Determinant', introduces a new dynamic method for locating sensor-enabled nodes, objects and vehicles with higher precision. In this measurement system, a closed-form solution is used to determine the coordinates and associated specifications using beacon nodes at the surface; these can give continuous updates, with the coordinates claimed to be achieved instantly, without a need for any complex infrastructure or use of reference points. The method uses the Cayley–Menger determinant and linearized trilateration. An interesting feature is associated with using the Cayley–Menger determinant: the six edges of the planar quadrilateral are not independent and need to satisfy certain equality constraints. This constraint then can be exploited to reduce the impact of distance measurement errors, and this insight can be extended to give TDOA and AOA localization measurements. T he Cayley–Menger determinant gives the volume of a tetrahedron created by one beacon at the surface and three sensors at the bottom of the water column to determine the coordinates of each of the sensors with respect to one of them, where the determinant is nonlinear. Then, applying the degree-of-freedom property to expand the determinant, a linearized system is solved once the coordinates of the sensor are found with respect to known distances, trilateration and linear transformation of the reference point. This is used to determine the coordinates of the sensors with respect to the beacon node. At first, the coordinates of the submerged sensors are determined assuming the sensors are stationary; voluntary or involuntary mobility of the sensors is incorporated into the mathematical model at a later stage.

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Exploring Cloud-Based Distributed Disaster Management With Dynamic Multi-Agents Workflow System

Mansura Habiba and **Shamim Akhter***

ABSTRACT

Natural disaster is one of the important topics in current researches. Disaster Management System (DMS) is a complex system and needs to perform a collection of tasks collaboratively along with the potentiality to change the configurations of the system dynamically. In the research era of workflow model, existing models mainly deal with temporal and static constrains. However they cannot be used to keep pace with an uncertainly dynamic system like disaster management. Considering all these significant DMS attributes we have designed a new dynamically configurable and changeable workflow model with the support of adaptive scheduling, for both successful and failed situations, and implemented in a distributed cloud system to maintain the rescue and reorganization activities of disaster situation. In order to simplify the system architecture, we have used Multi Agent System (MAS) for our design. The proposed system achieves a comparatively higher rate of successful job completion-higher rescheduling success rate and comparatively lower dropout rate.

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Cloud-Based Geo-Information Infrastructure to Support Agriculture Activity Monitoring

Shamim Akhter* and Kento Aida

ABSTRACT

Agriculture activity monitoring needs to deal with large amount of data originated from various organizations (weather station, agriculture repositories, field management, farm management, universities ,etc.) and mass people. Therefore, a scalable environment with flexible information access, easy communication and real time collaboration from all types of computing devices, including mobile hand held devices as smart phones, PDAs and iPads, Geo-sensor devices, and etc. are essential. It is mandatory that the system must be accessible, scalable, and transparent from location, migration and resources. In addition, the framework should support modern information retrieval and management systems, unstructured information to structured information processing (IBM Info Stream, text analytic, pig & hive, etc.), task prioritization, task distribution (Hadoop), workflow and task scheduling system, processing power and data storage (Amazon S3 and Google BigTable). Thus, High Scalability Computing (HSC)or Cloud based system can be a prominent and convincing solution for this circumstance.

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Effect of AQM-Based RLC Buffer Management on the eNB Scheduling Algorithm in LTE Network

Anup Kumar Paul*, Hidehiko Kawakami, Atsuo Tachibana, and Teruyuki Hasegawa

ABSTRACT

With the advancement of the Long-Term Evolution (LTE)network and smart-phones, most of today's internet content is delivered via cellular links. Due to the nature of wireless signal propagation, the capacity of the last hop link can vary within a short period of time. Unfortunately, Transmission Control Protocol (TCP) does not perform well in such scenarios, potentially leading to poor Quality of Service (QoS) (e.g., end-to-end throughput and delay) for the end user. In this work, we have studied the effect of Active Queue Management (AQM) based congestion control and intra LTE handover on the performance of different Medium Access Control (MAC) schedulers with TCP traffic by ns3 simulation. A proper AQM design in the Radio Link Control (RLC) buffer of eNB in the LTE network leads to the avoidance of forced drops and link under-utilization along with robustness to a variety of network traffic-loads. We first demonstrate that the original Random Early Detection (RED) linear dropping function cannot cope well with different traffic-load scenarios. Then, we establish a heuristic approach in which different non-linear functions are proposed with one parameter free to define. In our simulations, we demonstrate that the performance of different schedulers can be enhanced via proper dropping function.

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Localization in Wireless Sensor Networks: A Survey On Algorithms, Measurement Techniques, Applications and Challenges

Anup Kumar Paul* and Takuro Sato

ABSTRACT

Localization is an important aspect in the field of wireless sensor networks (WSNs) that has developed significant research interest among academia and research community. Wireless sensor network is formed by a large number of tiny, low energy, limited processing capability and low-cost sensors that communicate with each other in ad-hoc fashion. The task of determining physical coordinates of sensor nodes in WSNs is known as localization or positioning and is a key factor in today's communication systems to estimate the place of origin of events. As the requirement of the positioning accuracy for different applications varies, different localization methods are used in different applications and there are several challenges in some special scenarios such as forest fire detection. In this paper, we survey different measurement techniques and strategies for range based and range free localization with an emphasis on the latter. Further, we discuss different localization-based applications, where the estimation of the location information is crucial. Finally, a comprehensive discussion of the challenges such as accuracy, cost, complexity, and scalability are given.

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Evolution of Surface Acoustic Waves in an Optical Microfiber

Siamak Dawazdah Emami, Lee Hui Jing, **M. M. Rahman***, Fairuz Abdullah, Hairul Azhar Abdul-Rashid, Mahdi Mozdoor Dashtabi, and B. M. Azizur Rahman

ABSTRACT

This paper reports stimulated Brillouin scattering characterization in a tapered optical fiber using full-vectorial finite element-based numerical methods. Numerical simulations of both optical and acoustic waves' propagation through a tapered microfiber have been carried out. Acoustic modes over a range of wavenumber for different fiber core radii are obtained and nature of their both dominant and non-dominant displacement vector profiles are studied and discussed. Acoustic mode profiles show confinement of the acoustic wave predominantly at the core cladding interface. In addition, the acoustooptical overlap factors at different fiber radii are also presented.

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Comparison of CSI and Fixed Gain Relay of Two-hop Wireless Link under Small-Scale Fading

Sarwar Jahan* , Md. Imdadul Islam and **M. R. Amin****

ABSTRACT

In this paper, we show the explicit analytical model of CSI (Channel State Information) and Fixed Gain Relay of 2-hop wireless link under dissimilar fading environment. The two schemes can be compared in context of common fading condition and common amplitude of signal. The CSI scheme is alike adaptive algorithm to provide optimum result at the expense of process time. Fixed Gain relay system provides a constant gain at relay without the knowledge of channel. Because of this there is a possibility of a receiver to experience unnecessary high amplitude signal or possibility of getting huge attenuation of signal. Actually it is very difficult to prove theoretically which scheme is better under which environment. In this paper we compare models based on outage probability and SER. The finding of the paper is: The CSI model works better in adverse channel condition i.e. at low SNR at receiving end but fixed gain relay is better under friendly condition i.e. at higher SNR under the same fading environment.

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Design of Joint Cooperative Routing, MAC and Physical Layer with QoS-aware Traffic-based Scheduling for Wireless Sensor Networks

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ABSTRACT

Compare the WSN with other conventional network system, the changing or charging the existing battery of sensor node within WSN is a tough job. Therefore, since last decade the effort has been made to design and introduce a large number of communication protocol for WSN with given concern on the performance parameter of energy efficiency and still the key requirements within WSN domain, that how to incrementally expands the energy minimization consuming techniques of sensor battery. The other parameters include latency, fairness, throughput and delivery ratio. In this work, we propose a novel joint cooperative routing, medium access control (MAC) and physical layer protocol with traffic differentiation based QoS- aware for wireless sensor network (WSNs). This is referred to as a Joint Routing, MAC and Physical layer protocol (J-RMP). By blending the classical layered approach and combining routing, MAC and physical layer functions, the proposed J-RMP protocol achieves a solution for energy efficiency in WSNs. Convention ally, the problem of energy efficient protocol design is considered independently at respective layer of protocol stack. This paper has taken a holistic approach of finding solution by addressing the possible energy gain in Routing, MAC and Physical layer together. Firstly, it is seen that communication path with the large number of short hop substantially minimizes energy consumption. This phenomenon is used while instantaneous network information is collected with minimum overhead through the control packets for selecting next hop. Based on the updated network knowledge the next hop neighbor is chosen with reduced control overhead. Further, we describe how J-RMP protocol uses the approach for finding the constrained shortest path for forwarding packets [1], which results in load balancing in WSNs and provide mathematical analysis of node forwarding path determination within network. Finally, we compare our proposed method with existing protocols by ns-2 simulator and confirm that J-RMP outperform in some cases in term of sensitive traffics. The experimental results have proved that the traffic load has been balanced to a certain traffic, and energy efficiency has been achieved by properly adjusting the applied theory. The outcome supports the theory, and proves the effectiveness of our proposed scheme. This kind of protocol should have significant implications for various WSNs application where energy constraint is the main point of concerns.

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Thalassemias in South Asia: Clinical Lessons Learnt from Bangladesh

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ABSTRACT

Thalassemias are emerging as a global public health concern. Due to remarkable success in the reduction of childhood mortality by controlling infectious diseases in developing countries, thalassemias are likely to be a major public health concern in the coming decades in South Asia. Despite the fact that Bangladesh lies in the world's thalassemia belt, the information on different aspects (epidemiology, clinical course, mortality, complications and treatment outcomes) of thalassemias is lacking. In this comprehensive review, the aim is to to depict the epidemiological aspects of thalassemias, mutation profile and current treatment and management practices in the country by sharing the experience of dealing with 1178 cases over 2009–2014 time periods in a specialized thalassemia treatment centre. We have also discussed the preventative strategies of thalassemias from the context of Bangladesh which could be effective for other developing countries.

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An Intelligent Cross-Layer QoS-Aware Protocol with Traffic-Differentiation-Based for Energy Efficient Communication in WSNs

Jawad Ahmad Haqbeen, Takayuki Ito, **Mohammad Arifuzzaman*** and Takanobu Otsuka

ABSTRACT

Despite an increase in energy efficiency of WSNs research in couple of last years, still the key challenge in the design of WSNs remains to maximize the quality of service (QoS) and energy efficiency of network system. The layered strength and functionality collaboration is commonly considered as one of the most promising techniques for dealing with the given challenge to increase the duration between recharging battery and improve energy efficiency in order to prolong the sensor nodes and network lifetime. This paper presents a novel Intelligent Cross Layer QoS-aware Protocol (I-XLP) with traffic differentiation for WSNs for monitoring applications which has been done by addressing cross layered, cluster-less and application specific design. The target application is building monitoring. The novel concept behind this paper is that, by leveraging classical layered approach and blending different layer functions our proposed protocol I-XLP achieves a solution for energy efficiency and latency for the case of building monitoring applications of WSNs. This is done by combining the strong functionalities of Medium Access control (MAC), Routing and Congestion control. The proposed protocol is energy efficient and the protocol ensures lower latency for the prioritized traffic. Our proposed I-XLP is simulated by using the network simulator (ns-2). The simulation results corroborate the theoretical idea, and verify that the proposed I-XLP transmits more data with less delay and its energy consumption compared with existing protocol achieves optimum energy efficiency.

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On the Determination of Levelized Cost of Electricity of Wind Energy in the Coastal Areas of Bangladesh

Fahmida Azmi and **M. Mofazzal Hossain***

ABSTRACT

Sustainable energy supply is the key to industrial, social and economic developments of any society. At the same time environment friendly sustainable energy supply is a burning issue nowadays. Among other renewable energy sources, due to geographical location, wind energy harvesting is more prospective in Bangladesh, especially in the coastal area of Bangladesh. In this work we studied the feasibility of harvesting wind energy in the coastal area of Bangladesh through the calculation of levelized cost of electricity (LCOE) at seven different locations. It is found that among seven locations the LCOE is approximately 5 BDT/kWh at Kuakata and St. Martin. We also investigated the effects of blade diameter and tower height on LCOE. It is found that the minimum LCOE may be achieved using blade diameter of 21.5 m and tower height has in significant effects on the LCOE of wind energy for the coastal area of Bangladesh.

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Design and Performance Analysis of Depletion-ModeInSb Quantum-Well Field-Effect Transistor for Logic Applications

R. Islam, M. M. Uddin, **M. Mofazzal Hossain*** and M. A. Matin

ABSTRACT

The design of a 1μm gate length depletion-mode InSb quantum-well field-effect transistor (QWFET) with a 10nm-thick Al2O3 gate dielectric has been optimized using a quantum corrected self-consistent Schrödinger-Poisson (QCSP) and two-dimensional drift-diffusion model. The model predicts a very high electron mobility of 4.42m2V−1s−1 at Vg=0V, a small pinch off gate voltage (Vp) of −0.25V, a maximum extrinsic transconductance (gm) of 4.85mS/μm and a drain current density of more than 3.34mA/μm. A short-circuit current-gain cut-off frequency (fT) of 374GHz and a maximum oscillation frequency (fmax) of 645GHz are predicted for the device. These characteristics make the device a potential candidate for low power, high-speed logic electronic device applications.

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A Time-Dependent Model of Pulse-Driven Radio Frequency Capacitively Coupled Collisional Plasma Sheath

M. T. Rahman and **M. Mofazzal Hossain***

ABSTRACT

The time-dependent model of ion motion is used to propose an analytical model for dual frequency (DF) capacitively coupled plasma (CCP) sheath driven by a pulsed source and a radio-frequency source. In this model,the sheath is considered to be collisional. In this model, the time dependent terms of ion fluid equations are ignored, but the electric field, ion motion and ion density remain time dependent. Electron profile is assumed to be step-like. Analytical expressions for electron sheath width and sheath potential have been developed. The calculated sheath width and potential are compared with the dual radio frequency driven time dependent models of capacitively coupled plasma sheath. From the temporal evaluation of sheath motion and potential, it has been found that pulse driven sheath has higher sheath potential and sheath width than that of conventional radio frequency driven DF CCP. Moreover, it is also found that ion energy spread can be reduced using pulsed power. From the temporal investigation of sheath motion and potential, it has been found that the duty cycle of the pulse power significantly affects sheath width and sheath potential.

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Small and Arbitrary Amplitude Dust-Acoustic Solitary Waves With Nonextensive Electrons and Vortex-like Distributed Ions

G. Mandal*, A. Paul,** K. Roy*** and M. Asaduzzaman****

ABSTRACT

The modified Korteweg-de Vries (KdV) equation is derived in this study for dust acoustic (DA) solitary waves in an unmagnetized dusty plasma consisting of q-nonextensive electrons, vortex-like (trapped) distributed ions. The reductive perturbation technique has been employed to derive the modified KdV equation. A non-linear pseudo-potential technique is also employed to investigate arbitrary amplitude DA solitary waves. Numerical results show the variation of amplitude, phase velocity and width of the nonlinear waves for different parameters.

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Asymptotically Stable Electromagnetic Shock Waves in Relativistic Plasmas

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ABSTRACT

The behavior of electromagnetic (EM) waves in a relativistic plasma is investigated. The governing equations of such dynamical plasma system are derived from the basic fluid model equations, and the vector and electrostatic potential are analyzed using Maxwell's equations. A system of first-order, ordinary but nonlinear differential equations, is obtained from the two coupled second-order differential equations. Numerical results are found using fourth the order Runge–Kutta method. It is seen that EM shock waves are emerged for subsonic case, and on the other hand, periodic oscillatory solution as well as asymptotically stable state is obtained for supersonic case. The present investigation is important to extrapolate in different plasma backgrounds, like laboratory and astroplasma environments, viz., in laboratory biomedicine, biophysics, genetic engineering, laboratory astrophysics, and at different stages of stellar evolution.

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Tsunami Inundation Modeling in a Boundary Fitted Curvilinear Grid Model Using the Method of Lines Technique

Meah, M. A., Noor, S., Arefin, M.A. and **M.F Karim***

ABSTRACT

A numerical technique in a boundary-fitted curvilinear grid model is developed to simulate the extent of inland inundation along the coastal belts of Peninsular Malaysia and Southern Thailand due to 2004 Indian ocean tsunami. Tsunami propagation and run-up are also studied in this paper. The vertically integrated shallow water equations are solved by using the method of lines (MOL). For this purpose the boundary-fitted grids are generated along the coastal and island boundaries and the other open boundaries of the model domain. A transformation is used to the governing equations so that the transformed physical domain is converted into a rectangular one. The MOL technique is applied to the transformed shallow water equations and the boundary conditions so that the equations are converted into ordinary differential equations initial value problem. Finally the 4th order Runge-Kutta method is used to solve these ordinary differential equations. The moving boundary technique is applied instead of fixed sea side wall or fixed coastal boundary to ensure the movement of the coastal boundary. The extent of intrusion of water and associated tsunami propagation are simulated for the 2004 Indian Ocean tsunami along the west coast of Peninsular Malaysia and southern Thailand. The simulated results are compared with the results obtained from a finite difference model and the data available in the USGS website. All simulations show better approximation than earlier research and also show excellent agreement with the observed data.

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Secrecy Capacity of a Rayleigh Fading Channel under Jamming Signal

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ABSTRACT

In this paper, we deal with physical layer security of a wireless network where the secrecy capacity of the link is considered as the parameter. The impact of received signal to noise ratio (SNR) of legitimate/authorized user, the number of transmitting/receiving antenna elements of multiple input multiple output (MIMO) along with antenna elements of eavesdropper, selection of transmitting antenna element under transmit antenna selection (TAS) scheme are also contemplated. Next the outage probability of the network is determined taking SNR of the valid user, number of antenna elements of both transmitter of eavesdropper and threshold value of different channel capacity as the parameters. Finally, the impact of jammer on normalized channel capacity and outage probability of eavesdropper are analyzed taking signal-to-interference ratio (SIR) of the channel as the ratio of two random variables of fading channel.

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Pattern Recognition Using the Concept of Disjoint Matrix of MIMO System

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ABSTRACT

In many applications, it is necessary to compare two or more images to identify the originality of them. For example, verification of fake logo of an organization or fake signature of an official can be considered in this context. The cross correlation and wavelet transform are widely used techniques to compare two images but they are low sensitive to awgn noise and very small change in the image. Different learning algorithms for example Principle Component Analysis (PCA) are prevalent for this purpose at the expense of process time. In this paper we apply the concept of uncorrelated MIMO channel of wireless link on different images such that received signal vector corresponding to the largest six eigen values will reflect the characteristics of the images. In this paper, three types of images: human face with background, fingerprint and human signature are considered for identification and the proposed model shows rigidity in identification of the image under rotation and noise contamination.

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Comparison of CSI and Fixed Gain Relay of Two-hop Wireless Link under Small-Scale Fading

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ABSTRACT

In this paper, we show the explicit analytical model of CSI (Channel State Information) and Fixed Gain Relay of 2-hopwireless link under dissimilar fading environment. The two schemes can be compared in context of common fading condition and common amplitude of signal. The CSI scheme is a like adaptive algorithm to provide optimum result at the expense of process time. Fixed Gain relay system provides a constant gain at relay without the knowledge of channel. Because of this there is a possibility of a receiver to experience unnecessary high amplitude signal or possibility of getting huge attenuation of signal. Actually it is very difficult to prove theoretically which scheme is better under which environment. In this paper we compare models based on outage probability and SER. The finding of the paper is: The CSI model works better in adverse channel condition i.e.at low SNR at receiving end but fixed gain relay is better under friendly condition i.e. at higher SNR under the same fading environment.

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Isostructural Metal-Carboxylates MIL-100(M) and MIL-53(M) (M: V, Al, Fe and Cr) as Catalysts for Condensation of Glycerol with Acetone

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ABSTRACT

The synthesis of solketal from acetone and glycerol (I) was investigated in the presence of the iso-structural MOFs of the families MIL-100(M) and MIL-53(M) (M = V, Al, Fe and Cr) and mixed MIL-53 (Al,V) (Al/V– 100/0, 75/25, 50/50, 25/75 and 0/100 atom/atom). The main products were a five-membered solketal (2,2-dimethyl-1,3-dioxane-4-methanol, (II)) and a six-membered acetal (2,2-dimethyl-dioxane-5-ol,(III)). It was demonstrated that the reaction rate and isomer selectivity depend on different parameters such as the type of metal ion, the length of the M-O bond, the rate constant for the exchange of the water molecules from the first coordination sphere of a metal ion and the value of the zero point of the surface charge (pH_{PZC}). Investigation of mixed MIL-53(Al,V) shows that the reaction rate and selectivity towards (II) increase with increasing V^{3+} content in MIL-53(Al,V). V-containing MOFs possess a high activity and selectivity at 25 ◦C. The efficiencies of MIL-100(V) and MIL-47 (V) were higher than those of H_2SO_4, $SnCl_2$ and p-toluenesulfonic acid at 25 ◦C. The MIL-100 (V) catalyst showed good reusability for 4 catalyst recycles.

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N Doped Cobalt-Carbon Composite for Reduction of P-Nitrophenol and Pendimethaline

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ABSTRACT

A novel and magnetically separable N doped-cobalt carbon composite (Co-NC) was facilely synthesized via thermal treatment of Co_3O_4-melamine mixture in atmospheric condition. The physicochemical properties of the composite were characterized with X-ray diffractometer, Raman spectroscopy, SQUID magnetometer, scanning electron microscope, and X-ray photoelectron spectroscopy. The catalytic ability of the composite was evaluated in reduction of p-nitrophenol and pendimethalin using $NaBH_4$ as a reductant. The composite showed a good catalytic performance to completely reduce 20 mg L^{-1} of p-nitrophenol within 7.5 min, and 44 mg L^{-1} of pendimethaline within 20 min at a dose of 0.27 mg L^{-1} and 0.32 mg L^{-1}, respectively. The composite also displayed a robust reusability with a small loss of catalytic activity in completion of four repetitive p-nitrophenol reduction cycles, demonstrating its potential utility as an alternative to noble-metal catalysts.

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Metal Organic Framework Derived Cu-Carbon Composite: An Efficient Non-Noble Metal Catalyst for Reduction of Hexavalent Chromium and Pendimethalin

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ABSTRACT

A Cu-carbon composite was facilely synthesized via one step calcination of a Cu-based metal organic frameworks (MOF), HKUST-1, under N_2 atmosphere. Physicochemical characteristics of the composite were examined with a series of spectroscopy and surface analyzer. The composite was used as a catalyst in the reduction of Cr (VI) and pendimethalin using HCOOH and $NaBH_4$ as reductant, respectively. The composite was very efficient in both reduction reactions, completing the reactions in several minutes. The composite also exhibited a robust reusability in the completion of four repeated Cr (VI) reduction cycles, demonstrating its potential utility as an alternative to noble-metal catalysts.

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A High Breakdown, High Efficiency and Bounded Influence Modified GM Estimator based on Support Vector Regression

Waleed Dhhan Sleabi*, **Sohel Rana**** and Habshah Midi****

ABSTRACT

Regression analysis aims to estimate the approximate relationship between the response variable and the explanatory variables. This can be done using classical methods such as ordinary least squares. Unfortunately, these methods are very sensitive to anomalous points, often called outliers, in the data set. The main contribution of this article is to propose a new version of the Generalized M-estimator that provides good resistance against vertical outliers and bad leverage points. The advantage of this method over the existing methods is that it does not minimize the weight of the good leverage points, and this increases the efficiency of this estimator. To achieve this goal, the fixed parameters support vector regression technique is used to identify and minimize the weight of outliers and bad leverage points. The effectiveness of the proposed estimator is investigated using real and simulated data sets.

Keywords: Robust regression, breakdown point, outliers, leverage points, support vector regression.

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Selective Overview of Forward Selection in Terms of Robust Correlations

Hassan S. Uraibi*, **Sohel Rana**** and Habshah Midi***

ABSTRACT

Forward selection (FS) is a very effective variable selection procedure for selecting a parsimonious subset of covariates from a large number of candidate covariates. Detecting the type of outlying observations, such as vertical outliers or leverage points, and the FS procedure are inseparable problems. For robust variable selection, a crucial issue is whether the outliers are univariate, bivariate, or multivariate. This paper uses a consistent robust multivariate dispersion estimator to obtain robust correlation estimators used to establish robust forward selection (RFS) procedures that outperform methods that use robust bivariate correlations. The usefulness of our proposed procedure is studied with a numerical example and a simulation study. The result shows the proposed method has scalability and the ability to deal with univariate, bivariate and multivariate outlying observations including leverage points or vertical outliers, and the new method outperforms previously published methods of RFS.

Keywords: Adjusted winsorization, forward selection, RFCH, robust correlation, robust variable selection.

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Elastic Net for Single Index Support Vector Regression Model

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ABSTRACT

The single index model (SIM) is a useful regression tool used to alleviate the so-called curse of dimensionality. In this paper, we propose a variable selection technique for the SIM by combining the estimation method with the Elastic Net penalized method to get sparse estimation of the index parameters. Furthermore, we propose the support vector regression (SVR) to estimate the unknown nonparametric link function due to its ability to fit the non-linear relationships and the high dimensional problems. This make the proposed work is not only for estimating the parameters and the unknown link function of the single index model, but also for selecting the important variables simultaneously.Simulations of various single index models with nonlinear relationships among variables are conducted to demonstrate the effectiveness of the proposed semi-parametric estimation and the variable selectionversus the existing fully parametric SVR method. Moreover, the proposed method is illustrated by analyzing a real data set. A data analysis is given which highlights the utility of the suggested methodology.

Keywords: Elastic net, single-index model, high-dimensional, dimension reduction, variable selection, support vector regression. JEL classification: 62J02, 62G08.

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Robust Multivariate Least Angle Regression

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ABSTRACT

The least angle regression selection (LARS) algorithms that use the classical sample means, variances, and correlations between the original variables are very sensitive to the presence of outliers and other contamination. To remedy this problem, a simple modification of this algorithm is to replace the non-robust estimates with their robust counterparts. Khan, Van Aelst, and Zamar employed the robust correlation for winsorized data based on adjusted winsorization correlation as a robust bivariate correlation approach for plug-in LARS. However, the robust least angle regression selection has some drawbacks in the presence of multivariate outliers. We propose to incorporate the Olive and Hawkins reweighted and fast consistent high breakdown estimator into the robust plug-in LARS method based on correlations. Our proposed method is tested by using a numerical example and a simulation study.

Keywords: Variable selection, least angle regression selection, RFCH, adjusted winsorization.

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Adjusting Outliers in Univariate Circular Data

Ehab A Mahmood*, **Sohel Rana****,** Abdul GhaporHussin*** and Habshah Midi

ABSTRACT

Circular data analysis is a particular branch of statistics that sits somewhere between the analysis of linear data and the analysis of spherical data. Circular data are used in many scientific fields. The efficiency of the statistical methods that are applied depends on the accuracy of the data in the study. However, circular data may have outliers that cannot be deleted. If this is the case, we have two ways to avoid the effect of outliers. First, we can apply robust methods for statistical estimations. Second, we can adjust the outliers using the other clean data points in the dataset. In this paper, we focus on adjusting outliers in circular data using the circular distance between the circular data points and the circular mean direction. The proposed procedure is tested by applying it to a simulation study and to real data sets. The results show that the proposed procedure can adjust outliers according to the measures used in the paper.

Keywords: Directional data, circular data, circular mean, circular distance, outlier.

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Diagnostic Robust Generalised Potentials based on GM6 to Identify High Leverage Points in Simultaneous Regression Model

Habshah Midi*, Orooba Mahdi** and **Sohel Rana*****

ABSTRACT

Regression analysis aims to estimate the approximate relationship between the response variable and the explanatory variables. This can be done using classical methods such as ordinary least squares. Unfortunately, these methods are very sensitive to anomalous points, often called outliers, in the data set. The main contribution of this article is to propose a new version of the Generalized M-estimator that provides good resistance against vertical outliers and bad leverage points. The advantage of this method over the existing methods is that it does not minimize the weight of the good leverage points, and this increases the efficiency of this estimator. To achieve this goal, the fixed parameters support vector regression technique is used to identify and minimize the weight of outliers and bad leverage points. The effectiveness of the proposed estimator is investigated using real and simulated data sets.

Keywords: Robust regression, breakdown point, outliers, leverage points, support vector regression.

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Detection of Outliers in Univariate Circular Data using Robust Circular Distance

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ABSTRACT

A robust statistic to detect single and multi-outliers in univariate circular data is proposed. The performance of the proposed statistic was tested by applying it to a simulation study and to three real data sets, and was demonstrated to be robust.

Keywords: Circular data, outliers, masking, swamping.

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Small-Sample Confidence Interval for the Slope of Linear Structural Relationship Model

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ABSTRACT

The asymptotic confidence interval of the slope in linear structural relationship model is usually used to draw the inference about parameter. It isnow evident that, asymptotic inference is often unreliable for small-sample.In small samples, asymptotic inference may be unreliable as standard errors may be imprecise, leading to incorrect confidence intervals and statistical testsize. In these issues, bootstrap can be used instead of asymptotic inference todeal with these challenging problems. We consider both the parametric andthe jackknife-after-bootstrap methods for this particular study. The performances of both confidence intervals are studied by real world data and MonteCarlo simulations. Our findings show that overall the bootstrap confidenceintervals perform better than the asymptotic confidence interval for smallsamples in terms of coverage probability with reasonable expected length.

Keywords: Linear structural relationship model, asymptotic confidence interval, bootstrap confidence interval, coverage probability, expected length.

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Standardisation Techniques of Independent PET/CT Modalities utilising PET SUVmax as a Potential Conversion Marker

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ABSTRACT

Objective: This study purposed to compare the variation of standardized uptake values, SUV (g/mL) between two independent PET/CT modalities in standardising the PET images quality. Materials and methods: Two independent dedicated PET/CT systems were involved in this standardization. The experimental procedure was to analyse technical study of phantom utilising Fluorine -18 Flurodeoxyglucose (^{18}F-FDG) as in vitro markers. The image quality evaluation of patients (n=21) measured and analysed the mean of SUV_{max} of the lungs (left, right), the brain (left, right) and the liver to ascertain the image quality standard from the 2 independent set of patients undergoing the PET/CT study from two independent imaging centres. Patients were randomised based on the matched fasting blood glucose (FBG) ($p<0.05$) as a reference standard for subject inclusion of the study. The correlations of post-variation calibrated SUV with the variation SUV of the patients were analysed using linear regression analysis. Results: Consecutive 21 patients with average age (52.7 ± 13.6 yrs.) were dichotomised to undergo PET/CT studies of two independent PET-CT systems. The transferable calibration constant of the patients of two groups were analysed using phantom SUVmax as a gold standard for the calibrated SUV conversion of patients. The ratio of transferable calibration constant of PET/CT was 0.966:1.035. The linear regression analysis of correlation coefficient (CE) of the post-variation calibrated SUVmax for the SUVmax variation of the dichotomised patients' lungs (left, right), brain (left, right) and liver (segment 4 & 6) were 0.994 ($P<0.001$), 0.995 ($P<0.001$), 0.995 ($P<0.001$), 0.995 ($P<0.001$) and 0.997($P<0.001$) respectively. Conclusion: We concluded that the SUVmax was a potential conversion marker to validate the in vivo standardisation techniques for the two independent PET/CT modality systems based on the reference standard of the matched FBG and the in vitro 18 F- FDG phantom.

Keywords: 18F-FDG; image quality; independent PET; quantification; SUV; standardisation.

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Study of Biochemical and Cooking Quality Traits of Major Rice Varieties of Bangladesh

Shozib, H.B., Hossain, M.M., **Saima Jahan***, Alam, M.S., Das, S.C., Alam, S., Amin, .R. B., Hasan, M.M., Malo, R., Islam, M.R., Shekhar, H.U. and Siddiquee, M.A.

ABSTRACT

A total of eight BRRI inbreed high yielding rice varieties (HYVs) were subjected to evaluate both physicochemical and biochemical characterization. Nutritional quality, mineral profiling, molar ratio of phytate to minerals, starch digestion, glycemic index (GI) of all selected HYVs were tested along with their physicochemical parameters in this study. The data revealed that BR16 is a low GI rice variety (GI 52.4) with the highest content of both α-amylase inhibitory activity (122 µg/g AE) and resistant starch (RS) of 4.68% among all tested HYVs. It was found that GI has a negative correlation (-0.796*) with apparent amylase content (AAC); RS has shown a positive correlation (0.836**) with α-amylase inhibitory activity (AAIA) and AAC has positive correlation (0.787*) with imbibitions ratio (IR) of rice. So, for better explanation of GI value of a particular variety, it is necessary to consider a group of parameters consisting of AAIA, IR, RS content along with AAC. In terms of bioavailability of micronutrients such as Zn and Fe, molar ratio of Phytic acid (PA) was evaluated to respective minerals. Regarding molar ratio of PA/Fe and PA/Zn we have found BRRI dhan53 and BRRI dhan62 are suitable for mineral intake of Fe and Zn respectively among other tested HYVs. This information might possibly be helpful for generating breeding materials specially for low GI and micronutrient enriched rice (MER) breeding programs in Bangladesh.

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Mineral Profiling of HYV Rice in Bangladesh

Habibul Bari Shozib, **Saima Jahan***, Suman Chandra Das, Samsul Alam, Rifat Bin Amin, Mahedi Hasan, Richard Malo and Muhammad Ali Siddiquee

ABSTRACT

Bangladesh is rich in genetic diversity of crops specially rice. Thousands of rice cultivars including indigenous, locally popular, aromatic and modern HYVs are available in Bangladesh for many years. Rice is a potential source of micronutrient specially zinc, iron etc and bioavailability of these minerals exclusively depend on the content of Phytic acid (PA) and relative molar ratio of Phytate to minerals accordingly. We aimed to explore for such valuable information for popular rice varieties specially BRRI HYVs in Bangladesh. We profiled mineral composition for Zn,Fe, Ca, P and anti-nutrient components such as PA and molar ratio of PA to minerals for 68 HYVs including Aus,Aman and Boro seasons in Bangladesh. Our data reveals that BRRI dhan43 possess the highest Zn content of 38.4ppm followed by Fe (17 ppm), Ca (68.1 ppm) and P (2.5 gKg^{-1}) at clean rice condition. We also noticed that it's molar ratio to Zn (PA/Zn); Fe (PA/Fe); Ca(PA/Ca) and P(PA/P) are lower among all selected high Zn enriched HYVs by 3.56, 6.93,1.24 and 25.69 respectively. Since there is no single HYV reported yet, BRRI dhan43 might be a potential micronutrient enriched BRRI HYV for Aus season and it could be used as parental source for zinc enriched rice (ZnER) breeding in Bangladesh.

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Topical Delivery of Anthramycin I. Influence of Neat Solvents

Tasnuva Haque *, Rahman KM**, Thurston DE**, Hadgraft J** and Lane ME**

ABSTRACT

Anthramycin (ANT) was the first pyrrolobenzodiazepine (PBD) molecule to be isolated, and is a potent cytotoxic agent. Although the PBD family has been investigated for use in systemic chemotherapy, their application in the management of actinic keratoses (AK) or skin cancer has not been investigated to date. In the present work, anthramycin (ANT) was selected as a model PBD compound, and the skin penetration of the molecule was investigated using conventional Franz diffusion cells. Finite dose permeation studies of ANT were performed using propylene glycol (PG), 1,3-butanediol (BD), dipropylene glycol (DiPG), Transcutol P® (TC), propylene glycol monocaprylate (PGMC), propylene glycol monolaurate (PGML) and isopropyl myristate (IPM). The skin penetration of BD, DiPG, PG and TC was also measured. Penetration of ANT through human skin was evident for TC, PG and PGML with the active appearing to "track" the permeation of the vehicle in the case of TC and PG. Deposition of ANT in skin could be correlated with skin retention of the vehicle in the case of IPM, PGMC and PGML. These preliminary findings confirm the ability of ANT to penetrate human skin and, given the potency of the molecule, suggest that further investigation is justified. Additionally, the findings emphasise the critical importance of understanding the fate of the excipient for the rational design of topical formulations.

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In Vitro Permeation and Disposition of Niacinamide in Silicone and Porcine Skin of Skin Barrier-Mimetic Formulations

Tasnuva Haque*, Crowther JM**, Lane ME** and Moore DJ**

ABSTRACT

Niacinamide (NIA) is an amide form of vitamin B3 which is used in cosmetic formulations to improve various skin conditions and it has also been shown to increase stratum corneum thickness following repeated application. In this study, three doses (5, 20 and 50μL per cm^2) of two NIA containing oil-in-water skin barrier-mimetic formulations were evaluated in silicone membrane and porcine ear skin and compared with a commercial control formulation. Permeation studies were conducted over 24h in Franz cells and at the end of the experiment membranes were washed and niacinamide was extracted. For the three doses, retention or deposition of NIA was generally higher in porcine skin compared with silicone membrane, consistent with the hydrophilic nature of the active. Despite the control containing a higher amount of active, comparable amounts of NIA were deposited in skin for all formulations for all doses; total skin absorption values (permeation and retention) of NIA were also comparable across all formulations. For infinite (50μL) and finite (5μL) doses the absolute permeation of NIA from the control formulation was significantly higher in porcine skin compared with both test formulations. This likely reflects differences in formulation components and/or presence of skin penetration enhancers in the formulations. Higher permeation for the 50 and 20μL dose was also evident in porcine skin compared with silicone membrane but the opposite is the case for the finite dose. The findings point to the critical importance of dose and occlusion when evaluating topical formulations in vitro and also the likelihood of exaggerated effects of excipients on permeation at infinite and pseudo-finite dose applications.

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Automatic Synthesis of Quaternary Quantum Circuits

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ABSTRACT

Quaternary encoded binary circuits are more compact than their binary counterpart. Although quaternary reversible circuits are realizable, design of such circuits is still in its infancy. This work proposes a new, enhanced method of quaternary Galois field sum of products (QGFSOP) synthesis for quaternary quantum circuits. To reduce QGFSOP product terms, the algorithm makes use of 11 newly defined quaternary Galois field (QGF) expansions (for a total of 21 QGF expansions). This algorithm achieves QGFSOP minimization with the assistance of a pseudo-Kronecker Galois field decision diagram (QGFDD). This is a novel approach for QGFSOP synthesis. Finally, QGFSOP expressions are translated into quantum cost optimized quaternary quantum circuits using: (i) newly developed quaternary quantum gate realizations of Controlled Feynman and Toffoli gate that are optimized in terms of quantum cost, (ii) use of composite literals consisting of 1 digit and M-S gates. Performance evaluation against existing works in the literature determined that are proposed method achieves an average QGFSOP expression product term savings of 32.66%. Also, the synthesized QGFSOP circuits were evaluated in terms of quantum cost.

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Self-Organizing Mapping Based Swarm Intelligence for Secondary and Tertiary Proteins Classification

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ABSTRACT

Proteins have a significant role in animals and human health. Interactions among proteins are complex and large. Proteins separations are challenging process in molecular biology. Computational tools help to simulate the analysis in order to reduce the training data into small testing data. Large proteins have been mapped using self-organizing maps (SOMs). Neural network based SOMs has a significant role in reducing the irregular shapes of proteins interactions. Iterative checking enables the organizations of all proteins. In next stage, particle swarm intelligence is applied to classify the proteins' families. In the current work, secondary (Two dimensional) and tertiary proteins (Three dimensional) proteins have been grouped. Two dimensional proteins contain fewer hydro-carbons than three dimensional proteins. For faster analysis, the angles of the proteins are taken into account. The SOMs is compared with Bounding Box approach. In final, the experimental evolutions show that swarm intelligence achieved faster processing through enabling less memory consumptions and time. Since PSO combines proteins datasets in fuzzy values, the compactness or integration of similar proteins are strong. On the other hand, Bounding Box uses the Crisp value. Therefore, it needs more space to organize the whole data. Without SOMs, swarm intelligence also results are poor due to the excessive time consuming and required storage area. Moreover, for almost all classification and clustering tools, it is observed that the overall classification task becomes slow, time consuming, space consuming and also less sensitive because of noises, irrelevant data in input datasets. Thus, the proposed SOM based PSO approach achieved less time consuming with efficient classification into secondary and tertiary proteins.

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Construction of Word Dictionary for Bangla Vowel Ended Roots and Its Verbal Inflexions in UNL Based Machine Translation Scheme

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ABSTRACT

This paper focuses on the development of word dictionary of Bangla vowel ended roots and their verbal inflexions to incorporating them into an Interlingua representation called Universal Networking Language (UNL) processors. A considerable amount of work has been done on the development of Bangla morphological analysis on verbs, nouns, prefixes and suffixes for machine translation. As far as the researchers are aware, no attempts, however, have been made to integrate the previous developments on Bangla vowel ended roots and inflexions for a concrete computational output. This paper attempts to bridge the gap on Bangla vowel ended roots and inflexions in the framework of UNL system aiming to produce a Bangla word dictionary for UNL. The paper analyzes the Bangla vowel ended roots and verbal inflexions and develops their formats in the UNL structure. Dictionary entries of all vowel ended roots and their inflexions are developed in order to generate associated verbs for sentences. These verbs can be used to convert Bangla native language sentences into UNL expressions using semantic rules, which are then converted into required native languages using the language specific generation rules. Conversion of a Bangla language sentence into UNL expression has also been shown in this paper.

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Fb Mapping: An Automated System for Monitoring Facebook Data

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ABSTRACT

In recent modernized era, the number of the Facebook users is increasing dramatically. Moreover, the daily life information on social networking sites is changing energetically over web. Teenagers and university students are the major users for the different social networks all over the world. In order to maintain rapid user satisfactions, information flow and clustering are essential. However, these tasks are very challenging due to the excessive datasets. In this context, cleaning the original data is significant. Thus, in the current work the Fishers Discrimination Criterion (FDC) is applied to clean the raw datasets. The FDC separates the datasets for superior fit under least square sense. It arranges datasets by combining linearly with greater ratios of between groups and within the groups. In the proposed approach, the separated data are handled by the Big table mapping that is constructed with Map specification, tabular representation and aggregation. The first phase organizes the cleaned datasets in row, column and timestamps. In the tabular representation, Sorted String Table (SSTable) ensures the exact mapping. Aggregation phase is employed to find out the similarity among the extracted data sets. Mapping, preprocessing and aggregation help to monitor information flow and communication over Facebook. For smooth and continuous monitoring, the Dynamic Source Monitoring (DSM) scheme is applied. Adequate experimental comparisons and synthesis are performed with mapping the Facebook data sets. The results prove the efficiency of the proposed machine learning approaches for the Facebook datasets monitoring.

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Exploreing K-Means with Internal Validity Indexes for Data Clustering in Traffic Management System

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ABSTRACT

Traffic Management System (TMS) is used to improve traffic flow by integrating information from different data repositories and online sensors, detecting incidents and taking actions on traffic routing. In general, two decision making systems-weights updating and forecasting are integrated inside the TMS. The models need numerous data sets for making appropriate decisions. To determine the dynamic road weights in TMS, four (4) different environmental attributes are considered, which are directly or indirectly related to increase the traffic jam– rain fall, temperature, wind, and humidity. In addition, peak hour is taken as an additional attribute. Usually, the data sets are classified by instinct method. However, optimum classification on data sets is vital to improve the decision accuracy of the TMS. Collected data sets have no class label and thus, cluster based unsupervised classifications (partitioning, hierarchical, grid-based, density-based) can be used to find optimum number of classifications in each attribute, and expected to improve the performance of the TMS. Two most popular and frequently used classifiers are hierarchical clustering and partition clustering. K-means is simple, easy to implement, and easy to interpret the clustering results. It is also faster, because the order of time complexity is linear with the number of data. Thus, in this paper we are going to demonstrate the performance of partition k-means and hierarchical k-means with their implementations by Davies Boulder Index (DBI), Dunn Index (DI), Silhouette Coefficient (SC) methods to outline the optimal number classifications (features) inside each attribute of TMS data sets. Subsequently, the optimal classes are validated by using WSS (within sum of square) errors and correlation methods. The validation results conclude that k-means with DI performs better in all attributes of TMS data sets and provides more accurate optimum classification numbers. Thereafter, the dynamic road weights for TMS are generated and classified using the combined k-means and DI method.

Keywords: Traffic management system (TMS); data clustering; K-means; hierarchical clustering; cluster validation.

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Recognition of Handwritten Bangla Characters using Gabor Filter and Artificial Neural Network

Halima Begum* and **Muhammed Mazharul Islam****

ABSTRACT

Recognizing handwritten characters is a major challengein the field of pattern recognition. High variability in thesamples makes it difficult to obtain a unique solution. In thispaper, Gabor filters were used to obtain directional featuresand to classify Bangla characters, artificial neural network(ANN) with back propagation learning algorithm was used.Using the directional feature, a higher rate of recognition ofthe character images was achieved.

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Grain Quality Evaluation & Comparative Analysis of Physicochemical Properties of Traditional Cultivars and High Yielding (HYV)Aman Rice Varieties in Bangladesh

Shakir Hosen, **Saima Jahan***, Md Mahfuzur Rahman, Muhammad Ali Siddiquee and Habibul Bari Shozib

ABSTRACT

This study was carried out to evaluate physicochemical characteristics of rice grains of local traditional and high yielding Aman variety. Characteristics studied include physical parameters such as grain classification, appearance, milling outturn, length, breadth, L/B ratio), Chemical parameters such as alkali spreading value (ASV), apparent amylose content (AAC), protein content and cooking characteristics such as cooking time, volume expansion, elongation ratio. A total of 26 rice aman cultivars including 13 (thirteen) local cultivars and 13 (thirteen) high yielding variety were studied for physicochemical properties. Our data reveals that the highest milling outturn 72.5% was found in the BRRI dhan57 and lowest in local variety Sakor (67.4%). The highest milled rice length (6.5mm) was found in BRRI dhan42 and the highest L/B ratio (3.7) was found in BRRI dhan57 and the lowest was in Sakor (1.9). AAC of these cultivars range from 21% (BRRI dhan 53) to 28.1 (Subulkua). All the variety contain protein more than 7%. The highest protein content found in traditional variety Betu (9.1%) and the lowest in HYV BRRI dhan51 and BRRI dhan 54(7%). Maximum cooking time required for 22.5 min for BRRI dhan33 and lowest in Jabsiri (12.5 min). Elongation ratio (ER) of grain of local and modern aman rice varieties varied between 1.2 to 1.6. The highest elongation ratio was BRRI dhan51(1.6). Imbibition ratio (IR) of grain of local and modern Aman rice varieties varied between BRRI dhan57(2.4) to Subulkua(4.6). The highest elongation ratio was BRRI dhan51(1.6). Information generated from characterizing these local traditional cultivars will allow breeders to select superior quality rice varieties for parental selection of aman rice breeding program in Bangladesh.

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Pseudochlorella Encapsulata Sp. Nov. (Chlorophyceae) from Mahagoni Bark, Dhaka, Bangladesh

Mahin Mohid* and Abdul Aziz**

ABSTRACT

Morphology and reproduction of a coccoid subaerial green alga isolated from mahagoni tree (Swetenia mahagoni) bark were studied in controlled batch culture using light and scanning electron microscope. Vegetative cells are predominantly spheroidal to ellipsoidal, a few are spherical, 7.0-12.0 µm in diameter. Cell wall about 1.00 µm thick surrounded by over 1.00 µm thick uneven sheath. Chloroplast single, massive cup with incised margin and a central spherical pyrenoid surrounded by two to many spherical starch granules of over 1.00 µm diameter. Cultures were initially green, turning into orange at the initiation of stationary phase. Reproduction by vegetative cell division producing 2 - 3 celled short filament, later dissociate by autospores formation. Autospores in young cultures are 4 - 16 in each autosporangium, mostly spherical to spheroidal or ellipsoidal, up to 8.00 µm long and about 4 µm broad; number of autospores in old cultures are up to 32, always spherical but smaller, about 4.00 µm diameter. Among the coccoid algae the present strain Dh97 resembles Pseudochlorella Lund in some characters. Presence of sheath around vegetative cell wall, incised chloroplasts and starch granules around pyrenoids led to consider the alga as a new species Pseudochlorella encapsulata Aziz et Mohid sp. nov.

Keywords: Green unicells, microalgae, chlorococcoids, pseudochlorella encapsulata aziz et Mohid sp. nov.

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A Game-Theoretical Green Networking Approach for Information-Centric Networks

Quang N Nguyen, Keping Yu, Takuro Sato and **Mohammad Arifuzzaman***

ABSTRACT

In order to address the energy issue and enhance the feasibility of Information-Centric Networking (ICN) in the case of access networks, this research proposes a novel Green ICN design which can adapt power consumption of network devices to their optimized real-time link-utilizations based on content popularity levels. We utilize dynamic ALR (Adaptive Link Rate) based scheme for content nodes to provide efficient content delivery as a realistic approach for the economically viable green network We also develop a game-theoretical model to study the interaction between an ISP and a network equipment company in the context of green networking. Specifically, we present the system concept and some demonstration results of game-based Green ICN model to analyze the economic incentives of players. Moreover, we discuss ICN deployment and standardization challenges, then show that the proposal is robust, easy to deploy and practically relevant for the network players.

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Toward Standardization Activities for Future Networks in ITU-T: A Viewpoint from Y. Suppl. 35: ITU-T Y. 3033 Data-Aware Networking-Scenarios and Use Cases

Keping Yu, Zhenyu Zhou, **Mohammad Arifuzzaman***, **Anup Kumar Paul****,
Davaasambuu Battulga, Quang N Nguyen and Takuro Sato

ABSTRACT

Information-centric networking (ICN) approach, based on named contents instead of Internet Protocol (IP) addresses, has been emerging as a promising technology for the future Internet. It brings in innovative naming mechanisms, novel routing strategies, security schemes, and augmented with caching at intermediate nodes to improve network efficiency and enhance security. Therefore, it has attracted much attention to research communities, and its related standardization activities have been progressed. In this paper, we summarize the standardization activities on data aware networking (DAN) which corresponds to ICN in ITU-T. Thereinto, our contributions in recommendation Y. Suppl. 35 (ITU-T Y. 3033—Data aware networking: Scenarios and use cases) has been highlighted.

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Joint Routing, MAC and Physical Layer Protocol for Wireless Sensor Networks

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ABSTRACT

In the last few years, saving of energy in the wireless sensor network (WSNs) world has been, and continue to be now an important challenge in the area of WSNs. In this paper, energy aspect has been investigated, with specific regard to routing, MAC and physical layer. We propose a novel joint routing, medium access control (MAC) and physical layer protocol for wireless sensor network (WSNs) based on basic novelty feature of IH-MAC [4]. This is referred to as a Joint Routing, MAC and Physical layer protocol (RMP). The concept ran by blending the classical layered approach and combining routing, MAC and physical layer functions, the proposed RMP protocol achieves a solution for energy efficiency in WSNs. Conventionally, the problem of energy efficient protocol design is considered independently at respective layer of protocol stack. This paper has taken a holistic approach of finding solution by addressing the possible energy gain in Routing, MAC and Physical layer together. Firstly, it is seen that communication path with the large number of short hop substantially minimizes energy consumption. This phenomenon is used while instantaneous network information is collected with minimum overhead through the control packets for selecting next hop. Based on the updated network knowledge the next hop neighbour is chosen with reduced control overhead. Besides, the RMP protocol uses the approach for finding the constrained shortest path for forwarding packets [1], which results in load balancing in WSNs. We compare the RMP with other two existing protocols by network simulator ns-2. The simulation outcome of RMP supports the theatrical idea, and confirm the efficiency of proposed RMP because the energy consumption is reduced through applying the theory within simulation application.

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A Watermarking Scheme Based on Interpolation and Cellular Automata

Rahman Reza, **Rasel Ahmmed*,** Md. Foisal Hossain and Masud An Nur Islam Fahim

ABSTRACT

Watermarking with interpolation is widely used for data authentication. In this research, an interpolation based watermarking scheme has been proposed in which, a compatible scrambling method (Cellular Automata) has been introduced and watermark is embedded using pseudo random sequence. Firstly, interpolation has been done on the cover image to enlarge it to desired dimension. Then, to increase the security of watermarking scheme, Game of Life Cellular Automata based scrambling has been completed on the interpolated image. Last but not least of all an embedding method using pseudo-random sequence has been occupied to embed the watermark as well as to extract. Also, at the end of this work the proposed scheme is compared with different existing methods to prove its satisfactory results.

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Classification of Tumors and It Stages in Brain MRI Using Support Vector Machine and Artificial Neural Network

Rasel Ahmmed*, Anirban Sen Swakshar, Md. Foisal Hossain, and Md. Abdur Rafiq

ABSTRACT

Cell is the smallest unit of tissues, whose abnormal growth causes tumor in Brain. Support Vector Machine (SVM) and Artificial Neural Network (ANN) based tumor and its stages classification in brain MRI images is presented in this research work. This work is started with the enhancement of the brain MRI images which are obtained from oncology department of University of Maryland Medical Center. The integration of Temper based K-means and modified Fuzzy C-means (TKFCM) clustering algorithm used to segment the MRI images based on gray level intensity in small portion of brain image. The values of K in Temper based K-means algorithm more than the conventional K-means again, automatically updated membership of FCM eradicates the contouring problem of detecting the tumor region. Then, from the segmented images the first order statistic and region property based features are extracted. The first kind of features is used to detect and isolate tumor from normal brain MRI images with SVM. There is second kind which is used to classify the tumors into benign and four malignant stages tumor with ANN. The accuracy of classifying normal and tumor brain this proposed method is up to 97.37% with Bit Error Rate (BER) of 0.0294 which is better than other methods.

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Fuzzy Logic Based Algorithm to Classify Tumor Categories with Position from Brain MRI Images

Rasel Ahmmed*, Md. Asadur Rahman, and Md. Foisal Hossain

ABSTRACT

Early tumor detection is a vital issue and tumor position, tumor area, and tumor categories evaluation are also mandatory concerns for the proper medication. This paper proposes fuzzy logic based tumor classification method which can identify the tumor position as well. A database is prepared with normal and tumor affected brain MRI images. The integration of Temper based K-means and modified Fuzzy C-means (TKFCM) clustering algorithm is used to segment the MRI images regarding gray level intensity in small portion of brain images. The values of K which signifies the number of classifying contour in Temper based K-means algorithm is more than the conventional one and automatically updated membership of FCM eradicates the contouring problem between these two methods. Then, from the segmented images two types of features, i.e., first order statistic features and region property based features are extracted. The first features are used to detect and isolate tumor and second kind features are used to design Fuzzy expert logic with 93 rules to classify the tumor. In this process three inputs and one output variable are used with several membership functions to obtain the six categories of tumor. The orientation of the tumor provides position of tumors. The performance parameters of the proposed algorithm show substantial results which are effective in classifying tumors in multiple intensity based brain MRI image.

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Nonlinear Propagation of Dust-Acoustic Waves in Self-Gravitating Opposite Polarity Dusty Plasma with Maxwellian Ion and Nonthermal Electron Distribution

A. Paul*, **G. Mandal****, **M. R. Amin***** and A. A. Mamun*****

ABSTRACT

The nonlinear propagation of dust-acoustic (DA) waves in opposite polarity dusty plasma (OPDP) has been investigated by employing the reductive perturbation technique. The dusty plasma consists of positively and negatively charged dust, Maxwellian ions, and nonthermal electrons. In this work, both electrostatic and gravitational forces (dust particle size is considered very large, (1μm – 15μm)) govern the dynamics of the dusty plasma system. The results of this work show significant modification of the basic features of the DA solitary waves. This work would be useful in understanding DA wave propagation in laboratory and space plasmas.

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Tuning Free Parameters for Support Vector Regression

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ABSTRACT

Support Vector Machine (SVM) is a powerful method for classification and regression tasks. If trained optimally, SVM produces excellent generalization performance. The quality of the training, however, depends not only on the given training data but also on additional learning hyper-parameters. Traditionally, grid search techniques have been used for determining suitable values for these hyper-parameters. Unfortunately, in terms of computational costs and data requirements the existing grid search techniques for hyper-parameters (simultaneously) of SVM regression is very expensive. In this paper, we proposed a robust short grid search procedure by constructing the confidence interval for hyper-parameters C and ε of SVM regression. A number of empirical comparisons under various target functions, noise levels, types of noise, and sample sizes show that the proposed approach gives better generalization performance of SVR regression than the other existing methods.

Keywords: Hyper-parameters, grid search, loss function, parameter selection, support vector regression.

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In Proc. 9th International Conference on Reversible Computation (RC), 6-7 July 2017, Kolkata, India, I. Phillips and H. Rahaman (Eds.): RC 2017, LNCS 10301, pp. 141–147, 2017, Springer International Publishing AG 2017, DOI: 10.1007/978-3-319-59936-6 11.

Controlled and Uncontrolled SWAP Gates in Reversible Logic Synthesis

Md. Asif Nashiry*, **Mozammel H. A. Khan**** and Jacqueline E. Rice *

ABSTRACT

This paper presents a quantum-level realization and synthesis approach using SWAP and Fredkin (SF) gates. Our quantum realization of negative-controlled Fredkin gate requires five 2-qubit elementary quantum gates, the same as that required for realizing a positive-controlled Fredkin gate. We also propose and evaluate the performance of a synthesis approach using SF gates for realizing conservative reversible functions. Our result shows that circuit realization for conservative function using SF gates is more efficient than Toffoli gates. We achieve up to 87% improvement in gate count and quantum cost for (4×4) conservative reversible functions.

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Seismic Response of Building with Irregular Geometric Configurations

Md. Golam Kibria, Ayan Kumar Dey and **Md. Naimul Haque***

ABSTRACT

Earthquake is the most unpredictable and devastating natural disaster. Each and every year, our structures get damaged by this devastating natural disaster. The behavior of a building during an earthquake depends on several factors such as, mass, stiffness, strength, geographic location and geometric configurations. However, out of these factors, geometric configuration is the most common one that can be seen frequently in the reality. In the present study four common type of building configurations such as C, L, H, T shapes are taken into consideration to observe the effects of building configurations on seismic responses. Both the static and dynamic analyses were carried out. The base shear was considered as a parameter of interest. The static results were compared with the dynamic results and the responses of the regular building were compared with the building with irregular configurations. It was found that the building with irregular configurations have higher seismic responses as compared to the regular building.

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Influence of Vertically Irregular Configurations of Building On Seismic Responses

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ABSTRACT

Irregular buildings constitute a large portion of the modern urban infrastructure. When such buildings are located in a high seismic zone, it becomes more than a concern. The presence of irregular frame subjected to earthquake and other ground shaking calamities is matter of concern. In Bangladesh and many other developing countries building with vertical irregularities are being constructed from architectural point of view. Therefore, it is important to know that how the vertical irregular alters the seismic responses of buildings. Vertical irregularities in building configuration can be introduced in a number of ways such as, setback at one side of different height, in both side, in all sides, gradual variation of setback and setback at the corners. However, in the previous studies these issues were not taken into consideration elaborately. Hence, in the present research work, time history dynamic analysis is carried out and total 18 numbers of buildings with different irregularities were taken into consideration to observe the influence of vertical irregularity on seismic responses. Results were mainly compared in terms of floor acceleration and displacement. It was found that the vertical irregularities have significant influence on seismic responses.

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Influence of Curvature On Seismic Response of Steel I-Girder Bridge Deck

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ABSTRACT

Curved bridges are becoming a prominent component of highway transportation system due to its ability to accommodate geometric restriction imposed by existing highway. A number of curved bridges experienced damage during the seismic event. However, there is little information available about the seismic behavior of a steel curved bridge. It is important to know how the degree of curvature affects the seismic responses of a curved bridge. In the present study, a comprehensive analysis is performed to grasp the seismic behavior of curved Steel I-girder bridges with subtended angles of 30, 60, 90 degrees. Both the modal and elastic time history analyses are performed for the straight and curved bridges. It is observed that the behavior of curved bridges differs significantly from the straight bridge. With the increase in degree of curvature both the modal and seismic responses alter and show a definite trend in the results.

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Structural and Electrical Properties of Cobalt Coordination Polymer Based Nano-Wire on Solid Surfaces

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ABSTRACT

Coordination polymers based nano-wires have attracted much attention in the development of new functional materials owing to their many interesting properties such as conductivity, luminescence, magnetism, spin-crossover, and nonlinear optical effects. The investigation of elementary structure formation processes on substrate surfaces revealed several aspects concerning the systematic search for new adsorption methods for coordination polymers on surfaces, their morphological and physical characterization, and opened a new area for the study of coordination polymers as potential molecular wires. In this study, atomic force microscopy (AFM), scanning tunneling microscopy (STM) and current imaging tunneling spectroscopy (CITS) were carried out on supramolecular cobalt coordination polymer wires to achieve topographic as well as spatially resolved electronic structural information at the single molecule level. Cobalt coordination polymer was modeled by Diamond Software by considering minimization of energy on solid surfaces. AFM measurements show a two-dimensional intertwined network as well as a single polymer strand on SiO_2 surfaces whereas in STM measurements on highly oriented graphite surface (HOPG) shows a single polymer line in which the individual monomer in the polymeric strand is discernible. In the CITS images of single polymer a strong tunneling current contrast at the positions of the cobalt metal ions was observed.

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Sexism and Variations in the use of Language

Chowdhury Omar Sharif*

ABSTRACT

This paper tries to focus on the use of language of men and women through concentrating on sexism and variations. In this paper, the research tends to make an attempt to explore, examine and evaluate the difference in language choice from different students of universities situated at Dhaka city. Through the analysis of difference, the study also uncovers and evaluates the existing attitude and acceptance level of variation among the students from different disciplines.

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Use of Language of the Third Gender in Bangladesh: A Sociolinguistic Study

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ABSTRACT

This paper tries to focus on the use of language of the third gender in Bangladesh in relation to the Bangladeshi society. The area is not limited to Bangladesh only. This paper also focuses on the language, Hijra Farsi of neighbouring country- Pakistan in order to identify some common characteristics in the use of this language by the communities of third gender in Pakistan and Bangladesh. This research activity is intended to show that how social factors, significantly, influence the use of language in the community of the third gender.

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Let Us Listen to Our Students: An Analysis of Demotivation to Study English in Bangladesh

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ABSTRACT

In the area of second/foreign language learning, learner demotivation is a relatively recent issue, and less investigated individual difference compared to learner motivation. This paper reports a study attempted to identify the sources of demotivation experienced at higher secondary (HS) level in the context of Bangladeshi education, and the impacts of those demotivators on their subsequent academic performance at university level. To collect qualitative data an interview guide was developed based on the L2 demotivation factors listed by Dörnyei (2001). The original set of items, however, was modified in order to adjust with Bangladeshi context of education. A total of 36 students from three different universities were interviewed to understand the underlying sources of demotivation. From the analysis seven factors were indicated, in descending order: Teachers, Students' past experiences, Private tutors, Attitude of group members, School facilities, Textbooks, and Students' and their family members' attitude towards English study. Among these factors, teachers and students' past experiences were found to affect students' performance in academic activities at tertiary level more strongly than the other factors. Finally, this paper discusses some recommendations based on the findings.

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A Study of the Pragmatic Language Impairments of Children with Attention Deficit Hyperactivity Disorder (ADHD)

Naushin Nazifa Islam*

ABSTRACT

This study attempts to find out the pragmatic language impairments experienced by the Bengali speaking children in with Attention Deficit Hyperactivity Disorder (ADHD) in Bangladesh. The triads of symptoms-inattention, hyperactivity, and impulsivity hamper their practical use of language in social interaction. Different components of discourse analysis and pragmatics have been used to identify and explore the impairments, and how they affect these children's social functioning. Moreover, the idea of theory of mind and executive functions have been applied to find the connection between their pragmatic language impairments and social cognition deficiencies. For the empirical data, a survey was conducted with the use of both qualitative and quantitative approaches. This paper concluded with some recommendations on what steps should be taken to overcome the limitations which were found during the research.

Keywords and abbreviations: Bengali speaking children, Pragmatic Language Impairments (PLI), Attention Deficit Hyperactivity Disorder (ADHD), Theory of Mind (ToM), Executive Functions (EF), Diagnostic and Statistical Manual (DSM), American Psychiatric Association (APA), Social cognition, Social functions.

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Comics and Graphic Novels: Counter Narratives to Cultural Products, Crossings (Volume 8), ISSN 2071-1107, Page: 68-77, 2017

Comics and Graphic Novels: Counter Narratives to Cultural Products

Syeda Nadia Hasan*

ABSTRACT

Adapting either comic stories or graphic novels for the big screen with their spate of sequels proves lucrative for the film industry. Myriad of images sprung out of this current surge in comic or graphic characters and stories are associated with popular demands for an alternative source of entertainment- one that has hitherto been undermined by the mainstream genres. This attraction towards comics and graphic novels has skyrocketed as a recent phenomenon, thanks to Hollywood's commercialism. Paradoxically, too, the strength of burgeoning fandom is what boosts this industry to generate more profits while the industry itself remains morally equivocal in the way it responds to the committed viewers. But what panders to the endless promotion of entertainment has already been damaging to the core principles of this medium, be they comics or graphic novels. In capitalist economy movies created based on comics or graphic novels become cultural products. Before reaching the consumers these are intercepted by the intermediary groups, namely the studio conglomerates. Thus the artists‟/ creators‟ rights are violated and talents frequently go unacknowledged. What matters in the process of being so is the devaluation of comics or graphic novels as work of art or aesthetic creation. The premise of this paper is to investigate the nature of graphic novels and how they retain the transcendence of art as the primary function. The secondary role of the graphic novels is not to be ignored, given that numerous examples are available to validate their insightful probing of things- anything for that matter. The paper will also seek to determine the factors that transform arts into mere commodities.

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Elisa Allen: Steinbeck's Unconventional Reflections On the Female Character in The Chrysanthemums

Syeda Nadia Hasan*

ABSTRACT

It has been said about John Steinbeck that his "world is a man's world, a world that frustrates even minor league women's liberationists" (Sweet 214). This paper will seek to debunk the myth surrounding John Steinbeck's machismo as an author as well as a narrator who has often been thought to have portrayed women in a one-dimensional fashion, spewing gross stereotypes. This paper will attempt to show that Steinbeck, despite aforementioned allegations, projects in Elisa Allen - the protagonist of the short story titled "The Chrysanthemums" - an ideal individual, if not an ideal feminine, who subverts the hitherto rigid construct of the binary. Steinbeck has been purported to have delineated women characters, be they major or minor ones, falling under the classification of either a mother or a whore. In "The Chrysanthemums", on the contrary, Elisa Allen is a forerunner in the very scanty list of modern women drawn by Steinbeck. She asserts her sexuality and opposes the norms of femininity.

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Novel: Death or Resurrection of Storytelling?

Israt Jahan*

ABSTRACT

This paper probes into the theory penned by Walter Benjamin in "The Storyteller," that the rise of the novel at the beginning of modern times, marks the decline of storytelling and that it "neither comes from oral tradition nor goes into it" (Lodge 14). Benjamin also doubts the art of storytelling among people. This paper dismantles Benjamin's claim by showing the strong link between oral tradition and the novel, analyzing Amitav Ghosh's The Hungry Tide, The Shadow Lines, Sea of Poppies, River of Smoke, and In an Antique Land. Furthermore, I will apply Bakhtin's theory of dialogism, heteroglossia, and the ancient Indian philosophy of rasa to establish the connections among oral tradition, storytelling, storyteller, and language. By establishing these connections, this paper aims to demonstrate how storytelling gives rise to distinct vernacular, which performs a living counter-history resulting from the multiplicity of overlapping associations of displacement. This paper highlights Ghosh's concern with the movements of the marginalized− lascars, "girmitia," boatmen, and housewives−so far figured as absent from the histories of nations, and who emerge as storytellers in his novels. Overall, the paper argues that storytelling technique can create an atmosphere for carnival in novels.

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The Geographical Indication Act 2013: Protection of Traditional Knowledge in Bangladesh with Special Reference to Jamdani

Mahua Zahur*

ABSTRACT

Geographical indications (GIs) refer to signs or symbols that are used to denote a product, the distinctive characteristics of which are linked to its place of origin. GIs are different from other intellectual property rights because of their unique characteristics, namely, the fact that they can be collectively owned by a group of producers. Additionally, GIs have a connection to the territory from which the products originate, both in terms of geographical origin as well as quality and characteristics of the products. The inclusion of GIs in the provisions of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) was controversial precisely due to the differences between "old world" and "new world" countries, with respect to some of the theories supporting GI protection. After a long debate, GI protection was nevertheless introduced into TRIPS, and subsequently had to be protected in most countries worldwide. Nevertheless, although TRIPS requires for the protection of GIs, it does not provide for the specific mechanism that members of TRIPS should adopt to protect GIs under their national laws. Consequently, individual countries have chosen their own modality for the protection of GIs within their domestic system. Some countries have preferred to protect GIs under their existing trademarks law, whereas others have enacted a *sui generis* mechanism for GI protection, largely based upon the system currently adopted by the European Union (EU). In response to TRIPS' obligations, many Asian nations have also enacted ad hoc legislations for the protection of GIs, keeping in mind the socioeconomic conditions of their countries. In this respect, Bangladesh has recently enacted the Geographical Indication (Registration and Protection) Act 2013 (GI Act of 2013) (Act No. 54 of 2013). Law makers and relevant business sectors hoped that through the enactment of the GI Act of 2013, Bangladesh would be able to protect traditional domestic goods that utilize the intellectual ingenuity and traditional knowledge of local producers, which previously fell outside the conventional type of intellectual property protection in Bangladesh. This chapter aims to analyze GI protection from a Bangladeshi perspective. Furthermore, Section 2 will briefly revisit the provisions which relate to GI protection under TRIPS and how the notion of GIs is articulated within TRIPS' construction. Section 3 will project light upon the background of the newly enacted GI Act of 2013 and the practicalities of GI protection in Bangladesh. Briefly, the GI Act of 2013 is designed to conform to TRIPS while simultaneously seeking to accommodate the domestic needs of the country with respect to GI protection. Building on Section 3, Section 4 will review the salient features of the GI Act of 2013. This section will also mention some of the provisions of the Trademarks Act of Bangladesh of 2009 (TM Act of 2009)(Act No. 19 of 2009) that provide indirect protection to GIs. The TM Act of2009 was the only law applicable to GIs in Bangladesh before the passing of the GI Act

of 2013.Bangladesh is the home of many traditional place-based products. The GI Act of 2013 thus represents the normative framework for a potentially beneficial new model for the protection of domestic place-based local products. Among many other traditional products, one geographical name that has garnered particular attention in Bangladesh is Jamdani. The name Jamdani refers to an intricate woven fabric that has historically been associated with a particular region of Bangladesh. The process by which the fabric is created has also been recognized as an intangible cultural heritage of humanity by the United Nations Educational, Scientific, and Cultural Organization(UNESCO). In November 2016, Jamdani became the first GI to be registered in Bangladesh under the GI Act of 2013. Section 5 of this chapter will explore the history of this woven tradition and will argue that Jamdani deserved to be protected as a GI in Bangladesh. It is recognized, however, that the long-term protection of Jamdani and other traditional goods of Bangladesh does not only depend on the registration of their names as GIs under the GI Act of 2013. Instead, building an effective framework for GI protection in practice also requires that GIs are managed wisely by their producers and the communities. Only in this way can Bangladesh reap the benefits of the adoption of GI protection.

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Protection of 'Handicraft' as Geographical Indications under Municipal Law, TRIPS and BTAs vis-à-vis CETA: 'Bangladeshi Jamdani' as Case Study

Mohammad Ataul Karim* and Mohammad Ershadul Karim**

ABSTRACT

Handicrafts often demonstrate indigenous knowledge, traditional cultural expressions of artisans, small or big tribes and even nations at large. Crafting communities invest their labours and merits from generation to generation to create aesthetic and artistic handicrafts that both reflect their intellectual inputs and represent their community life styles, enabling them to benefit from protection under the geographical indications (GIs) regime. Even though these handicrafts may be protected as GIs under the provisions of international instruments and municipal laws (as enacted by around 160 countries), the international legal position on GIs is still a mess. Bangladesh and India, two friendly neighbours of South Asia, have had many things in common for centuries. A few years back, India registered at least three products, that is Jamdani, one variety of mango and Nakshi Katha, which are undoubtedly of Bangladeshi origin and their historic Bangladeshi roots are well documented long before the idea of protection of these products through GIs emerged. Taking the 'Jamdani' handicraft of Bangladesh as a case study, this paper intends to explore the doctrinal, legal issues along with the potentials and pitfalls of protecting handicrafts as GIs under national and international legal frameworks. Highlighting the ongoing tensions with India over Jamdani and analysing relevant legal issues, this article will propose some suggestions that Bangladeshi policy makers may consider to settle the dispute in a pacific manner. Such a discussion would ultimately enable the consumers to make an informed decision with respect to potentially buying misleading products and assist other countries facing similar problems relating to a GI of the same product being available in different jurisdictions.

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Adolescents' and their Mothers: Understanding the Needs

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ABSTRACT

The adolescence is indicative of being a stressful transitional stage of development. If pertinent attention or supervision is not provided during this point, it could give rise to certain behavioral and social maladjustments. This paper attempts to review various studies related to parenting style and its associated effects. A cross sectional survey was carried out among the school going young adolescents and their mothers in Dhaka city. An insight into adolescence liking and disliking factors on school and home environment was noted. In addition, it was seen that 31.4 percent of the mothers followed the authoritative style of parenting. Among them, the mothers who were more approachable and shared views with children, their children were mostly responsive in sharing their feelings with parents.

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The Role of Evaluation at the Stages of Policy Formulation, Implementation, and Impact Assessment

Anisur Rahman Khan* and Md. Mizanur Rahman**

ABSTRACT

Public policy evaluation is a sine qua non and unavoidable exercise for any nation states in the world. This paper discusses three major stages of policy evaluation i.e. evaluation at the formulation, implementation and post-implementation or impact assessment. In every stage evaluation must follow appropriate standard and criteria. For the sake of greater public interest and maintaining real worth or value for money, subjectivity should be avoided in doing evaluation studies rather proper objectivity should be maintained through choosing of right professionals or experts for doing right evaluation. In doing evaluation, evaluators should try to choose proper sampling, produce unbiased interpretation and analysis, and maintain reliability and validity with ethical manners. The evaluator or decision-makers should never hide and distort the research findings and the competent authority should ventilate the findings and try to utilize the results and recommendations with no time.

Keywords: Evaluation, policy implementation, policy formulation, impact assessment, evaluation standard.

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Factors Associated with Domestic Violence against Rural Bangladeshi Women

Anisur Rahman Khan*

ABSTRACT

This study examines the causes of domestic violence against rural Bangladeshi women. By drawing on thirty-nine semi-structured in-depth interviews through phenomenological approach of qualitative study, conducted in eight rural settings in Netrokona and Mymensingh districts, it was found that every experience of the women with domestic violence has a context or contexts. Broadly, the prominent causes of domestic violence were identified as dowry-demand, polygamy and extramarital relations, in-laws syndrome, childless and sonless state, questioning husbands, and not meeting the husbands' and in-laws' expectations. Patriarchal structure and system of the society are broadly and dominantly interwoven in every factor of domestic violence. Making structural changes to women's subordination is the most important strategic response to eliminate or prevent domestic violence from the society.

Keywords: Bangladesh, domestic violence against women, factors, patriarchy, women's subordination.

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Analysing Masculinity from the Key Theoretical Lenses and Searching for Linkages with Violence against Women

Anisur Rahman Khan* and **Shahriar Khandaker****

ABSTRACT

In recent years, masculinity has become both an important and influential academic discourse in the domain of gender studies. Despite having been explained and theorised from many perspectives, it lacks overall clarity and varies widely across different social and cultural contexts. Keeping that perspective in mind, this study drew on a rigorous review of the literature and reflexive analysis has synthesised prominent and pertinent theoretical issues concerning masculinity with the objective of having a succinct as well as a methodical understanding of masculinity. This study also aims at developing the linkage between masculinity and violence against women. In spite of being viewed as a cause of violence against women; theoretical notions of masculinity and its relation to violence against women remain largely understudied. Overall, the findings of the study confirm that masculinity as a concept is expressed through certain socially accepted ideologies and practices and there are at least three major theoretical developments concerning masculinity. When applied, each of these theories can individually stand as a reason for violence against women. The nexus between masculinity and violence against women is very proximate, and masculinity appears to be a predominating force for perpetuating violence against women. Nonetheless, further wider empirical studies on masculinity and its relation to violence against women can draw new insights and understandings

Keywords: Masculinity, psychoanalytical theory, sex role theory, hegemonic masculinity, violence against women.

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Open Trends in Bangladesh for Providing Information Services: Opportunities and Challenges

Md. Hasinul Elahi* and **Dilara Begum****

ABSTRACT

Open trends help in facilitating free and open access to the information sources that are required by the researchers, scholars and other information seekers. The aim of the present study is to analyse the open trends that prevail in Bangladesh for providing information services. This paper is primarily based on literature review and the authors' own viewpoints. Primarily, a substantial amount of literature has been reviewed in preparation of the study plan. The data have been gathered from Directory of Open Access Journals, BanglaJOL, Directory of Open Access Repository, Bangladesh Open Data Portal and intensively examining the institutional repository websites of Bangladesh. The necessary data about the study area were collected manually and transferred to a Microsoft Excel file for tabulation. The present study is limited within four aspects of open trend in Bangladesh for providing information services. This can be broadened further in future with other dimensions and perspectives.

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Impact of Textual Enhancement on Bangladeshi Learner's Grammatical Development of Present Perfect and Past Simple Tenses

Akhter Jahan*

ABSTRACT

The purpose of this experimental study, was to investigate whether Textual Enhancement (TE) could facilitate English language learners'noticing of, intake or acquisition of present perfect and past simple forms in expressing higher and lower immediacy of any event taking place. Textual Enhancement (TE) can be distinguished as the focus on form procedure that intends to increase the input saliency in any kind of texts so that learners can notice target forms in a meaning oriented context and thereby acquiring those items' form-function mapping (Schmidt, 1995, 2001 Sharwood Smith, 1991, 1993). Lee (2007) and White (1998) suggested that this implicit procedure assisted the language acquisition process of learners who have pre-knowledge regarding target forms. In spite of having long term pre-exposure to English, most of the tertiary learners of Bangladesh encounter problems in using present perfect and past simple tenses accurately. This study was conducted using a pre-test, an immediate post-test and delayed post-test research design. 100 Bangladeshi undergraduate learners were divided into enhanced, non-enhanced and control groups. The enhanced group got exposure to the enhanced texts and the non-enhanced group received exposure to the non-enhanced texts whereas the control group attended only the tests. Data was elicited by note-taking, a reading comprehension task, two grammar tasks, a metalinguistic awareness tasks and four noticing questions. Findings of the study revealed that multiple exposure to TE was able to facilitate only the noticing and the intake of the targeted forms in the case of the enhanced group.

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Preventing Abuse and Neglect of Parents in Bangladesh: From Religious Dogmas to Legislative Initiatives

Adity Rahman Shah*

ABSTRACT

Bangladesh as a secular State, with dominance of Muslim populace, faces critical intrinsic challenges in dealing with issues encompassed by both religious and secular legal paradigms. Preventing abuse and neglect of parents by offspring is encapsulated by divine and/or man-made laws as applicable in Bangladesh. The sacrosanct laws of Muslims, Hindus, and other religious minorities in the country cast immutable religious duty on the children to take care of their parents, particularly at their old age. The pursuit of modern life, besides the great positivity, has negatively impacted on our ways of life. Relevant to mention that age-old family traditions of living together, social norms of taking care of parents and even religious dogmas of getting eternal peace through serving the parents have been broken down in Bangladesh, particularly in urban societies. The old-homes culture, an alien concept to Bangladeshi tradition, has been injected in urban and educated societies. Against such backdrops, Bangladesh has enacted "The Maintenance of Parents Act, 2013", a piece of legislation covering all citizens of Bangladesh irrespective of their religious identities. However, the big challenge is that how far such legislative initiative and legal mechanisms are well equipped to prevent abuse and neglect of parents if other attributes such as religious duties, social values and overall fabric of family are either disregarded or distorted. This paper explains religious prescriptions, secular legal mechanisms and explores their impacts on the lives of elderly parents along with further policy options for Bangladesh in the days to come.

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Using Drama Technique to Engage University Students in Course Work

Rubayat Kabir*

ABSTRACT

Engaging students in class activity is a relatively complex task. It has been a concern for several academicians and researchers. Tremendous efforts are usually put forward to establish interest in the activities designed for the course. This paper explores related studies on the application of drama technique to enhance class activity. It tries to find out whether dramatization can be used to encourage University student's coursework involvement. Students of Sociology were assigned to conduct dramas as a part of their coursework. The participants ranged from 3rd-12th semester. A total number of 40 participants got enrolled in the course out of which 38 of them took part in the given work. There were 10 male and 30 female students including 2 group leaders. An equal number of participants were divided into two groups and each group had to enact a drama. The participants along with their group representatives were responsible from initial formation of groups to completion of the play. After the event was over, students provided feedback regarding their experience. Subsequent to a window period of 3 months, these students again provided feedback on their activity. It was thus noted that the exercise aided in enhancing students' self-esteem. Their outlook towards taking part in similar classroom activities, even for other courses was more confirmatory. Most of the participant's perception regarding their ability to involve in like activities was more positive. Although, most of the students reported more constructively, yet there were some disliked factors mentioned for further improvisation.

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Awareness of Apt Computer Use and Hazards among University Students in Dhaka

Rubayat Kabir*

ABSTRACT

Purpose: To accomplish Digital literacy in Bangladesh, educational institutions; starting from primary schools to universities facilitates the process of acquiring knowledge in information and communication technology (ICT). This adds in obtaining a competitive advantage over others. This paper obtains an overview of Computer Ergonomics and Musculoskeletal Disorder (MSD). It also assesses baseline awareness about appropriate ways of using computers among the students. And to see whether any kind of body discomfort occurs due to computer use. Methodology: A cross sectional survey was performed using a self-administered questionnaire among 1st-12th semester students. A total of 280 students were approached for the survey out of which 256 surveys were taken into consideration. The respondents were from 14 different Universities in Dhaka. Result: Findings reveal that the percentage of students using laptop is considerably high. Many respondents mentioned about feeling certain body discomfort while using Personal Computers (Pc's). Moreover, the awareness of appropriate ways of using computers is very bleak. And, as a result they do not practice the needed posture while using their devices. Implication: From the findings it can be remarked that there is scope of improvement in the curriculum design of the computer courses to incorporate healthy computing components. Increasing awareness and to emphasize on its practice could reduce the risk factors for musculoskeletal discomfort and build sustainable habit among the next working generation.

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Climate Change Induced and Environmentally Stressed Migration in Dhaka

Nurul Islam Nazem*, **Md Rezwan Siddiqui**** and Md Anwar Hossain***

ABSTRACT

Dhaka, the capital of Bangladesh and with 17 million populations (2017) is one of the most densely populated cities in the world. The City is still growing at rate of over 5% annually. Such increase takes place due to rural urban migration over last five decades. Both rural push and urban pull factors trigger migrants to leave their places of origin. Among all push factors, climate change and environmental stresses seem to be important for the migrants' desperations to leave. This paper aims at providing evidences on the links between climate change and migration of the people to Dhaka City. Especially, the scale and the location of migrants, mechanism behind its occurrences and the processes of adaptation to the City along with their management was the main focus of the study. On the basis of a recent survey on 12,078 migrants' households in the Dhaka Metropolitan region (1560 sq km) it has been confirmed that 20.9 percent of the migrant households left their origin due to climate change induced factors. The majority of the CC induced migrants came from southern coastal districts where cyclones, flood and river erosions trigger their movements, while the northern districts, being affected by droughts and river erosions also influence a substantial number of Dhaka's migrants. Top five origin district of CC and non-CC migrants are different. Highest percentage of CC induced migrants are coming from Bhola (10.06 %), Barisal (9.74 %), Chandpur (7.37 %), Patuakhali (6.85 %), Gaibandha (5.86%); whereas highest percentage of non-CC migrants are from Mymensingh (8.38 %), Sherpur (4.9 %), Barisal (4.77 %) and Comilla (4.7 %), Kishoreganj (4.58 %). Dhaka Metropolitan, the centre of this megacity, is receiving fewer migrants now (both climatic and non-climatic) than before. CC induced migration rate dropped from 26 % after 1990, and settled around a rate of 20 % thereafter until now. Riverbank erosion has been identified as the top natural cause behind such migration (48.42 %), followed by flood (33.25 %), cyclone/storms (10.94 %), water logging (4.43 %) and drought (2.96 %). Dhaka attracts these migrant by providing income and job opportunity. Average decadal growth rate of the CC migration is 197 % compared to 182 % of the non-cc migration. CC migrants have higher rates of unemployment and illiteracy rate if compared with other migrants. They hold significantly less job in business and service sectors compare to the non-cc migrants, and work mostly in low-income occupation. They are also found economically and socially more vulnerable. They live in houses with worst condition. 12.7 % of CC migrants live in concrete houses compare to the 22.22 % of the non-CC migrants.

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Child Murder Issue in Bangladesh: Reasoning from Socio-Ethical Observation

Rasel Hussain* and Tahmina Yeasmin Shova**

ABSTRACT

Since preceding one and half decades, Bangladesh is constantly confronting an escalating number of child murder incidents. Due to the different social, economic and political reasons, innocent child is being tortured, raped, sexually assaulted, and killed using heinous ways. According to the statistics of Bangladesh Shishu Adhikar Forum (BSAF) in 2015, Bangladesh witnessed 1,714 murders of children just over the last five years in which 968 children have been put into atrocious death. This number explicates the fact that in average one child is being killed in each day. Although legal actions are actively investigating these issues but it is not sufficiently reducing the number of killing occurrences. This paper is an endeavor to formulate a sociological and ethical examination on the feasible reason of killing child in Bangladesh. We shall argue that child murder issues stipulate special moral consideration of government and public for child since no child as a subject of unreasonable killing can be socially and morally acceptable; instead we have compelling moral responsibilities to protect them from any such vulnerable position of the society. Data of BASF, relevant literature review like books and articles, numerous empirical examples, and web resources have been used in this study. Findings demonstrate that such incidents have made real threat to fundamental rights to life and freedom of the child, and therefore, reconsideration of some reformed initiatives is required. More specially, reformation of existing legal pattern and enhancing public concerns and required.

Keywords: Child killing, rights of child, social perspectives, moral arguments, public policy, governance.

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Information Literacy and Digital Literacy Skills and Competencies for Providing Quality Services: A Special Reference to Public Sector Employees of Bangladesh

Md. Hasinul Elahi* and **Dilara Begum****

ABSTRACT

Information Literacy (IL) and Digital Literacy (DL) concepts are buzzwords for surviving in this modern society which is popularly known as information society. There are some skills and competencies involved with these concepts which are inevitable for every individual to make them competent in achieving their respective goals in the workplace. Especially, in public sector, the importance of these skills and competencies are crucial for providing quality services. The present study aims to identify the set of IL and DL skills and competencies and proposes a framework for proving quality services through this. The present study is exploratory in nature. This paper is based on an extensive review of literature and on the author's own viewpoints. A comprehensive search of the scientific literature has been done for identifying various skills and competencies of IL and DL applicable for public sector employees to ensure quality services.

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Possibilities and Potential Areas of Joint Collaboration between Chws and Hips for Promoting Health Information Literacy (HIL) in Communities of Bangladesh: A Study

Dilara Begum*, Md. Nazmul Hasan ** and Md. Tarik Aziz***

ABSTRACT

Objective: The research identified the Possible and Potential Areas of Joint Collaboration among Community Health Workers and Health Information Professionals in Promoting Health Information Literacy in the Community in context of northern part of Bangladesh. Methods: A quantitative approach was used to elicit respondent's reflection on health information literacy. First respondents were taking from community people to measure their health literacy level and other factors related to promotion and provision of such literacy. The second group was community health workers. There were more question and discussion on health information literacy and it could be promoted to community people by them. Result: Results shows that 75% community people need health information directly and others need it anyhow and only 47% people understand health information and instruction properly. Health information help to prevent disease (95%), take timely treatment (86%), and make people aware (94%). With low promotion and provision of health information few of respondents follow it in every case. Here motivation, awareness is important factor in promotion. 72% CHW have moderate knowledge about health care and they need more information and knowledge for their service delivery. Only 10% respondents from CHWS have sufficient health information to serve the community. Conclusion: The study highlighted the joint collaboration areas of community health workers (CHWs) and health information professionals (HIPs), those will strength and promote community health information literacy. Another important collaboration may be held on among HIPs and educator and trainer of CHWs to work effectively and make the CHWs self-empowered.

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Strengthening the Public Service Delivery: Renovate or Innovate?

Tamanna Hossain*

ABSTRACT

Public Service is deemed to be the backbone of a civil society where the citizens are aware of their rights and responsibilities. In this era of ever changing needs of the citizens, ensuring the best Public Service Delivery is nothing but a dream near to impossible. Many countries worldwide have been striving to find "one best way" that will increase accountability and transparency in dealings with the public. Policies alone are never likely to bring changes overnight. Inclusion of modernized technologies to render services to the citizens is a dramatic approach that is being adapted by the service providers these days. Compilation of variant factors including efficient manpower, innovations, infrastructure, and service quality measurement will pave the path for improvement in this sector. This paper is going to discuss about the approaches that will add value to the services, highlight the concept of user-centric model and provide innovative recommendations for redesigning the public service delivery to meet the changing demands of the society.

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