Research Papers
Presented at the 2018
International Conference on
'Responsible Research and
Innovation in Science,
Management and Education'

Held on the
4th – 6th of April 2018
At the Panjab University,
Chandigarh (India)
## Conference Committees

<table>
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<th>Name</th>
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<tbody>
<tr>
<td>Patron</td>
<td>Professor A.K. Grover - Vice Chancellor, Panjab University, India</td>
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<tr>
<td>Conference Chairman</td>
<td>Professor Stephen McKinney, University of Glasgow, UK</td>
</tr>
<tr>
<td>President</td>
<td>Professor O.P. Katare, Panjab University, India</td>
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<tr>
<td>Vice President</td>
<td>Professor Ramanjit Kaur Johal, Panjab University, India</td>
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<td>Organising Secretary</td>
<td>Professor Suresh Kumar Sharma, Panjab University, India</td>
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<tr>
<td>Conference Convener</td>
<td>Dr. Ravi Kumar, London School of Management Education, UK</td>
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</table>

### International Committee

1. Professor Stephen McKinney, University of Glasgow (UK)
2. Professor Suresh Kumar Sharma, Panjab University, India
3. Dr. Peter Gray, NTNU (Norway)
4. Dr. Ravi Kumar, London School of Management Education (UK)
5. Dr. Sarita Parhi, London School of Management Education (UK)
6. Dr. Dolly Jackson-Sillah, London School of Management Education (UK)
7. Professor Mokgale Makgopa, University of Venda (South Africa)
8. Professor Erica Joslyn, University of Suffolk (UK)
9. Dr. Richard Race, University of Roehampton (UK)
10. Dr. Abdulai Abukari, The British University in Dubai (Dubai)
11. Martin McAreavey, University of Bolton (UK)
12. Dr. Heather Mbaye, University of West Georgia (USA)

### Coordination Committee

1. Professor Sanjay Chibber
2. Professor S.K. Chadha
3. Dr. Sarita Parhi, LSME (UK)
4. Professor Sanjeev Puri
5. Professor Rajat Sandhir
6. Dr. Amandeep Singh Marwaha, Panjab University
7. Professor Devinder Dhawan
8. Dr. Ajay Kumar Arora

### Treasurer

Dr. Amandeep Singh Marwaha, Panjab University, India
International Conference on 'Responsible Research and Innovation in Science, Management and Education'

Jointly Organised by Panjab University, Chandigarh (India) and LSME, UK

LSME has jointly organised a second International Conference with the Panjab University in Chandigarh, India from the 4th to 6th of April, 2018. The theme of the Conference was 'Responsible Research and Innovation in Science, Management and Education'. This Conference was hosted by the Panjab University, Chandigarh (India).

The three-day conference was aimed at presenting research which is designed to achieve impact within and outside the research community and to establish a Responsible Research and Innovation (RRI) community which involves Scientists and societal actors working together during the research process with the common goal of aligning research and its outcomes with the values, needs and expectations of the society and integrating citizens’ visions, needs and desires into science and innovation. The conference appealed to persons working in Science, Management and Education and was attended by over 200 delegates from various institutions from India and abroad.

Professor Suresh Sharma, the organizing secretary delivered the welcome address and it was followed by a brief address of Conference Chairman, Professor Stephen McKinney, Conference President, Professor O.P. Katare, Conference Convener, Dr. Ravi Kumar, Professor Ramanjit Kaur Johal, Director RPC, Panjab University, and Dr. Peter Gray from Norwegian University of Science and Technology. The Guest of Honor, Professor Rajan Welukar, Vice Chancellor of Raison University Nagpur, gave an informative and highly motivating address punctuated by relevant anecdotes that signified the importance of responsible research in enhancing meaningful interactions between communities. The Chief Guest of the function, Professor Meenakshi Malhotra, Dean University Instruction, Panjab University, spoke about the role of academia in scientific research and the ethics of responsible research in various disciplines.

Professor Arun Kumar Grover, Vice Chancellor of Panjab University presided over the opening session on day two of the conference. Professor Amreek Sohal from Monash University, Australia, appraised the audience with the culture of highest level of ethics prevailing in Monash University, right from undergraduate level to the doctorate level, which ensures that the spirit of responsible research is enshrined in every activity.
The conference attracted excellent presentations on a wide variety of topics. Notably, presentations were on educational psychology, climate and environmental issues, education, medical sciences and social media, technology in the classrooms including smartphones, mobile commerce and a huge range of science and health care related topics.

The highlights of the presentations were the special addresses on United Nations Principles and workshop on RRI organised by Dr Peter Gray, Professor Stephen McKinney and Dr Ravi Kumar. These themes and the contributions from the presenters provided a powerful and more meaningful framework for future RRI initiatives by LSME, Panjab University and the Chandigarh Region Innovation & Knowledge Cluster (CRIKC).

Two renowned academics who presented the valedictory speeches on the closing day were Professor Gurmail Singh, Vice Chancellor, Akal University, Punjab and Professor S. K. Chadha, Director, Central Placement Cell & Professor, University Business School, Panjab University. The Vote of Thanks was delivered by Dr Sarita Parhi, the Principal of LSME. Many of the presented research papers have already appeared in UGC approved ‘International Journal of Mathematical, Engineering and Management Sciences’. The conference proceedings and special research book will be published by LSME, UK.

About the Conference

Responsible Research and Innovation (RRI) is gaining significant momentum in Europe and globally. The aim of this Conference is to present research which is designed to achieve impact within and outside the research community. The call for papers will clearly emphasise the importance of this new vision for research excellence in science, management and education, which contributes to knowledge, skills and policy development that meets the needs of society as a whole. Panjab University, Chandigarh and the London School of Management Education (LSME), UK, organised the first Conference on Responsible Research in India in August 2016. More than one hundred research papers were presented during this conference. This conference was highly successful in creating awareness and acceptance of the principles of Responsible Research in India. LSME has therefore agreed to jointly organise the second Conference this year on Responsible Research with Research Promotion Cell (RPC) of Panjab University. The Conference was at Panjab University, Chandigarh from 4th-6th, April 2018.
This initiative provides a great opportunity for collaboration between the Panjab University, Chandigarh, India, and the London School of Management Education, UK, to organise an International Conference in Chandigarh, based on the theme of ‘Responsible Research and Innovation in Science, Management and Education. The move towards responsible research is driven by the desire of policymakers and the public for research to make a real difference by making a contribution to everyday life, improving the conditions of society and adding value to scientific and scholarly activity.

Why Responsible Research and Innovation (RRI) is important? There is currently a worldwide movement towards transformation in research management and governance. This movement has been called 'Responsible Research and Innovation' (RRI) and is supported by many leading research funding organisations and universities.

In research management and governance, there is currently a shift from internal to external measurement of impact. Current metrics for impact, including citation indices and similar indicators, refer primarily to the impact of research on other researchers. Responsible Research and Innovation, conversely, argues that research should demonstrate its benefits for society as a whole. Stakeholders should, therefore, share responsibility for, shaping research agendas, processes and outcomes. This includes stakeholders (such as patients, students or consumers) who have previously not had such a voice in research governance.

Objectives of the Conference

- Promote the principles of responsible research in research planning, activity and dissemination
- Share good practice in responsible research with the research community and with stakeholders.
- Highlight the enhanced impact of responsible research
- Engage the public in thinking about research and innovation in a scientific way
- Improve gender awareness in research communities
- Involve school-level science education in research
- Enhance student learning through closer links with research in universities
- Deal with wider ethical issues in science, management and education research
- Make research governance more inclusive
- Anticipate future trends in research
- Deal with the consequences of research and innovation.
The conference overall aim is to establish a Responsible Research and Innovation community which involves scientists and societal actors working together during the whole research and innovation process with the common goals of aligning both the process and its outcomes with the values, needs and expectations of the society and integrating citizens’ visions, needs and desires into science and innovation.

The conference will itself be inclusive and responsive to public concerns about the research process. It will produce accessible summaries of the learning and outcomes from its activities, and will provide the basis for sustained debate and action on RRI in the university, the local region and beyond. The call for abstracts will include specific guidelines on how to address RRI, and papers will be selected on the basis of their relevance to the principles and aims of RRI.

**Scientific Section:** This will include topics related to recent trends and innovations in areas such as: Nuclear Energy, Electromagnetic radiations, Environment & Energy, Genetics, Terminal seeds, Stem cells, Biostatistics, Systems biology & Bioinformatics and Industrial, Mechanical, Systems Science and Engineering.

**Management Section:** This will include sessions on E-business (ERP, CRM, E-Learning, E-Governance, BPR, etc.). Innovation in services, logistics and supply-chain management, Healthcare Management, Leadership and Ethics, Entrepreneurship & Social Entrepreneurship, Corporate Social Responsibility & Corporate Governance, Econometrics, Technological innovation, product innovation and industrial innovation, Web Technologies and Information Management, The Integration of Technology and Business Strategies, Broad areas of Finance, Human Resource Management.


**About Research Promotion of Panjab University, India**

The Research Promotion Cell (RPC), functions under the patronage of the Vice Chancellor and as part of the Vice Chancellor’s office. It envisions "promotion of quality research" in Panjab University. Thus it is a nucleus for promotion of high
quality research activities in the University and for coordination with various national and international academic and funding bodies. It supports administration of research initiatives across disciplines and departments. The main Functions of RPC includes:

- Encourage quality research in all the disciplines.
- Disseminate information about research project grants.
- Facilitate sending of research proposals to research funding organisations;
- To provide a comprehensive statement on the quality of research performance of Panjab University to IQAC Cell.
- To finalise and supervise MoUs between Panjab University and other National and International Institutions/organisations.
- To coordinate the formation of research centres at different institutions.
- To supervise the consultancy and other activities being undertaken by Panjab University researchers.
- To coordinate the activities and recognition of various institutions as Research Centres.
- To promote Academia-Industry/Corporate Sector interface.

About the London School of Management Education (LSME)

London School of Management Education is a progressive and innovative training organisation offering high quality and affordable education with the primary aim of promoting development through skill enhancement programmes.

**Vision:** To play a leading role in the delivery of global educational services in partnership through radical Lifelong Learning training, equipping managers, health and social care professionals, tutors, teachers and trainers, with modern and transformational standards.

**Mission:** To provide affordable and high quality training for aspiring and practicing managers, health and social care professionals and educationalists, that is innovative and global in perspective. Values: The School seeks to nurture and sustain a creative and supportive academic environment based upon an ethos of respect and transparency.

**LSME is committed to:**

- High quality learning experience;
- Developing and sharing expertise to strengthen our capacity;
- Professional relationships based on mutual respect and transparency;
• Equality and diversity;
• Financial robustness.

**Collaboration between the RPC of Panjab University and LSME**

The senior academics of Panjab University and LSME have agreed to collaborate and organise an India-centric Conference on Responsible Research and Innovation in order to build an expanding base for advancing research, practice and policy in India and beyond. This collaborative effort would seek to provide a platform through this Conference and future conferences to strengthen scientific, educational and management research capacities in various educational institutions, as well as to improve infrastructure.
Message

I am immensely pleased to learn that the Research Promotion Cell (RPC), Panjab University, Chandigarh and London School of Management Education (LSME), UK are jointly organising the International Conference on Responsible Research and Innovation in Science, Management and Education (ICRRISME-2018) from 4-6 April, 2018. Responsible Research and Innovation (RRI) is gaining significant momentum in Europe and globally. The aim of this Conference is to present research which is designed to achieve impact within and outside the research community. It is an exciting time for the academic research field as we continue to grow and adapt to societal changes. I am sure that Panjab University, CRIKC and LSME will continue in their collaborative effort to bring institutions together for academic dialogue. This is particularly relevant as our organisations are confronting a time of many challenges both nationally and globally and it is our responsibility to bring inspired people together on forums such as this one.

I am sure the conference will itself be inclusive in nature and responsive to public concerns about the research process. It will produce accessible abstracts of the learning and outcomes from its activities, and will provide the basis for sustained debate and action on RRI in the University, the local region and beyond.

A big thank you to the members of various committees of the Conference and a hearty welcome to the participants of ICRRISME-2018.

My best wishes for the success of ICRRISME-2018!

(Arun K. Grover)
Professor Stephen McKinney  
Conference Chairman

I offer you a very warm welcome to the International Conference on Responsible Research and Innovation in Science, Management and Education. The Conference committee is delighted that so many academics and early career researchers are attending this important event. I hope you enjoy this conference and that you participate in the conference with enthusiasm, generosity and openness to engaging with new ideas and meeting new people. Above all, I hope we all leave the conference with a greater knowledge and understanding of responsible research and innovation and the implications for our own current and future research.

Responsible research questions and challenges the researcher in the rationale, aims, operation and dissemination of research. What is the rationale for the research and why has the researcher pursued this research? Responsible research and innovation challenges the researcher to evaluate the impact of the findings of their research not just in terms of the impact on the research community but on the positive impact on the users of the research in society. Researchers are asked to probe: who will be the users of the research and how will they potentially benefit from the research? Can the end users be involved in the conceptualisation, construction and operation of the research? How will their needs be served by the research? These ideas test some of the accepted norms, boundaries, roles and relationships associated with the research process. There is a strong focus on social justice in responsible research and innovation. Responsible research questions if under-represented groups are part of the research process and promotes the ideas of equity and sustainability.

We are very grateful to Professor A. K. Grover and the Panjab University for kindly agreeing to host the conference. I wish to thank all of the members of the International Organising committee and the Co-ordination committee who have worked so hard to ensure that the conference is a success. In particular, I wish to thank Dr. Ravi Kumar, Dr. Sarita Parhi, Professor Suresh Kumar Sharma and Dr. Peter Gray for their hard work and dedication.

With very best wishes

Professor Stephen McKinney  
School of Education  
University of Glasgow
As an institution, we are delighted to be given the opportunity to collaborate and share our thoughts in the Second International Conference on 'Responsible Research and Innovation' organised jointly by LSME and the Panjab University, Chandigarh. It is encouraging to note that we have sustained our RRI ambition and I am particularly excited about this year's event as it has also opened doors for additional proceedings and discussions that have the potential to enhance academic capacity for conducting future research and to improve on the quality of existing curricula. As this Conference progresses, I would like to encourage all researchers and delegates to use the lessons learnt, knowledge gained and ideas developed in a meaningful and impactful manner for the betterment of their individual institutions and for the collective good of our existing partnership.

I am extremely grateful to the VC of Panjab University (Professor Arun Kumar Grover) and the Organising Committee for their endearing support and hard work throughout the process. I wish all delegates, researchers and invited guests a very successful Annual Conference.

Dr Ravi Kumar
Conference Convener & Director of LSME
Dr Peter Gray  
Norwegian University of Science and Technology

The 2018 Conference on “Responsible Research and Innovation” jointly organised by the London School of Management Education (LSME) and Panjab University, Chandigarh in India is a major opportunity for researchers, but it is also an opportunity for Indian society. Historically, many prominent Indian scientists, such as B.P. Pal and Yellapragada SubbaRow, had social impacts well beyond their own scientific fields, in agronomy and clinical nutrition for example. But, in common with most research communities, pressures of funding and perhaps a lack of critical thinking have led to a closed system of research circulation. The pernicious influence of citation indices, journal ratings and the culture of ‘publish or perish’ have led to a massive over-production of knowledge for its own sake.

Frank Miedema, from the Medical Faculty at the University of Utrecht in the Netherlands, has coined the slogan ‘cures not careers’. Whilst it would be foolish to ignore the value of so-called ‘pure’, as opposed to ‘applied’ research, the challenges we face as a global, or perhaps ‘glocal’ society, make it vital that research contributes to solutions, rather than a ‘body of knowledge’. This ‘body’ is suffering from intellectual obesity, producing and consuming too much junk – low value research that ignores the obvious needs of citizens for better health, more sustainable employment and more fundamental education.

This is not just an Indian problem. My own University has many of the same issues regarding over-publication and under-application. Yet we have many bright young researchers, many of them from India, Africa and South America, who are reacting against the old paradigm. In this conference, and in the accompanying researchers’ workshop event, we need to critically examine the practices and governance of research. It is no longer enough to follow the lead of professors in producing more of the same. The power of science, like the bureaucracy of empires, should listen to the people whose daily work provides its funding.

“Responsible Research and Innovation” is a slogan, a symbol representing something more complex. Western Universities and institutions are only just waking up to its implications. By coming to this Conference, you have shown that you are already awake! Let’s make sure that India shows what Responsible Research and Innovation can achieve. I am happy to see the incredible opportunities on RRI are being provided by LSME and Panjab University.

Dr Peter Gray  
NTNU, Norway
We are delighted to welcome all of you to the International Conference on Responsible Research and Innovation in Science, Management and Education (ICRRISME-2018). The main objective of the Conference is to establish a Responsible Research and Innovation community which involves scientists and societal actors working together during the whole research and innovation process with the common goals of aligning both the process and its outcomes with the values, needs and expectations of the society and integrating citizens’ visions, needs and desires into science and innovation. ICRRISME-2018 will provide a unique opportunity for the Science, Management and Education Technology professionals, scientists, engineers, educators, students and researchers from all over the world to exchange their scientific ideas, views and thoughts with fellow researchers and participants.

This conference will address some of the more relevant and state-of-the-art issues and topics involved in Science, Management and Education Technology. The special workshop on RRI will focus on principles, identification of stakeholders, gender issues in research and how to provide evidence for the social value of projects.

We would like to thank Research Promotion Cell, Panjab University and LSME who agreed to collaborate and organise an India-centric Conference on Responsible Research and Innovation in order to build an expanding base for advancing research, practice and policy in India and beyond.

We wish all the participants to have inspiring discussions and return home with innovative research ideas. Look forward to your active participation.

Professor Suresh Kumar Sharma
Panjab University, Chandigarh, India
CONFERENCE PROGRAMME

The International Conference on Responsible Research and Innovation in Science, Management and Education, was held from April 4th to April 6th 2018, in the Golden Jubilee Seminar Hall of the Panjab University, Chandigarh, India.

DAY ONE OF THE CONFERENCE: OVERVIEW

The first day of the Conference began with the registration of all participants. The Opening Ceremony began with the traditional lighting of the lamp by the VIP Guests. This was followed by the Panjab University Anthem. The Organising Secretary, Professor Suresh Kumar Sharma, presented his welcome address. This was followed by the address from Professor Stephen McKinney, who was the Conference Chairman. Professor O.P Katare, Conference President, delivered his address on behalf of the Conference Committee. Dr Ravi Kumar presented his address as Conference Convener. Professor Ramanjit Kaur Johal presented her address as Director, Research Promotion Cell, Panjab University. Dr Peter Gray from Norwegian University of Science and Technology presented an address as Advisor, European Research Projects, and Norway.

The Chief Guest Professor Meenakshi Malhotra presented her address as Dean University Instruction, Panjab University.

The Guest of Honour, Professor Rajan Welukar, Vice-Chancellor, Raisoni University Nagpur was then invited to speak and in his address he deliberated on the theme and objectives of the conference. Professor Rajat Sandhir, Associate Director, Research Promotion Cell, Panjab University, gave the Vote of Thanks.

After the Opening Ceremony, there was a tea break of thirty minutes. This was followed by the first Plenary Session of Day One, which was a Keynote Address by Professor Stephen McKinney, University of Glasgow, UK. His Keynote Address was entitled Responsible Research and Transformation.

At the end of Professor McKinney's Keynote Address, there were short announcements regarding arrangements for the paper presentation sessions that were to follow. There were three Parallel Sessions for Day One of the Conference. Three parallel auditoriums, namely, the Main Golden Jubilee Hall, the Main Hall-ICSSR, and the Small Hall- ICSSR were designated for these parallel sessions. One set of Parallel Sessions were scheduled before lunch, and the remaining two sets of four parallel sessions were scheduled in the after lunch. The first set of parallel paper presentations consisted of the presentation of seventeen papers. Dr. Heather
A. D. Mbaye, University of West Georgia (USA), Prof. J.S. Bedi, Dr Manjushri Sharma Prof. Devinder Dhawan, Prof. Rajat Sandhir, Prof. Amar Nath Gill and Dr Gagandeep Singh from Panjab University Chandigarh, India chaired each parallel session respectively.

There was a lunch break after the first set of parallel paper presentation sessions and during the lunch break, a photography session was also conducted.

The second set of parallel paper presentation sessions began after the lunch break where twenty-seven papers were presented. These sessions were chaired by Prof. Mokgale Makgopa, Prof. Upasna Joshi Sethi, & Dr. Anupreet Kaur Mavi, Prof. Saranjit Singh from NIPER, Mohali & Prof. Sanjay Chibber, Prof. Kalpana Mahajan & Prof. Sangeeta Arora., Prof. Devinder Dhawan, & Dr. Tiratha Raj Singh respectively. A tea break followed the conclusion of these sessions.

The third and final set of parallel paper presentation sessions of day one, began after the tea break where thirty-two papers were presented. These sessions were chaired by Prof. S.K Chadha, Prof. Neeraj Sharma & Dr. Nishi Sharma, Dr. Peter Gray from Norwegian University of Science and Technology & Prof. Deepti Gupta, Prof. Narinder Kumar, Prof. Mangey Ram & Prof. Kanchan Jain, Prof. Sanjeev Puri & Dr. Jayanti Dutta from the Panjab University, India, respectively. A thirty-minute panel discussion was conducted at the parallel session held in the UIHTM-Seminar Hall 2 before the paper presentations began. Day one of the Conference concluded at the end of these sessions.
An overview of the first day’s Conference Programme is shown in schematic form below:

International Conference on Responsible Research and Innovation in Science, Management and Education

Dates: 4th – 6th April 2018
Venue: Golden Jubilee Seminar Hall, Panjab University, Chandigarh (INDIA)

PROGRAMME DAY 1: 4 April 2018 (Wednesday)

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<td>08.30-09.30</td>
<td>Registration</td>
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<td>09.30-10.30</td>
<td>Opening Ceremony</td>
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<td><strong>Professor Suresh Kumar Sharma</strong> – Organising</td>
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<td><strong>Professor Stephen McKinney</strong> – Conference</td>
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<td><strong>Professor O.P Katare</strong> – Conference</td>
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<td><strong>Dr Ravi Kumar</strong> – Conference Convener</td>
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<td><strong>Professor Ramanjit Kaur Johal</strong> – Director,</td>
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<td>RPC, Panjab University</td>
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<td><strong>Dr Peter Gray</strong>, Norwegian University of</td>
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<td><strong>Professor Meenakshi Malhotra</strong> – DUI, Panjab</td>
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<td>University, Nagpur</td>
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<td>Vote of Thanks by</td>
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<td><strong>Professor Rajat Sandhir</strong> – Associate</td>
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<td>Director, RPC, Panjab University</td>
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<td>10.30-11.00</td>
<td>Tea Break</td>
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<td>11.00-11.30</td>
<td>Keynote Address</td>
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<td><strong>Professor Stephen McKinney</strong> University of</td>
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<td>Glasgow, UK</td>
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<td>Time</td>
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| 11.30-13.15| Parallel Session 1 (Main Hall-Golden Jubilee) Chair: Dr. Heather A. D. Mbaye, Prof. J.S. Bedi, & Dr. Manjushri Sharma  
1. Bhavyata Kapoor: Educational and Psychological Needs of Individuals with Disabilities (SS2)  
2. Samni Singla: Climate Justice, Women and Intergovernmental Panel on Climate Change (IPCC): Issues and Challenges (SS4)  
3. Jatinder Kumar: Use of Smartphones for Academic Purposes by Teachers of Panjab University (SS8)  
4. Suman Sumi: Webometric and Technology Analysis of Websites of Selected Universities of Punjab (SS9)  
5. Puneet Sandhu: Towards Self-Regulated Learning and Well-Being in Inclusive Classrooms (ED14)  
6. Yashpreet Kaur: Social Media and Teachers' Role, Responsibilities and Ethical Dilemmas (ED21)  
7. Ajay Kumar Arora: Building a Participatory Learning Community through Library Learning Commons (ED22)  
|          | Parallel Session 2 (Main Hall-ICSSR) Chair: Prof. Devinder Dhawan & Prof Rajat Sandhir & Prof. Rajeshwari R. Mohanti  
1. Arun Mahajan: Rietveld Refinements of A2B04-Type Phases (LS2)  
2. Ayush Sachdeva: E-health services in India: Evaluation of patient outcomes and data protection (LS3)  
3. Basharat Ali: Phylogenetic analysis of Notopterus notopterus (Pallas) and Chitala chitala (Hamilton-Buchanan) from Harike Wetland using mitochondrial 12s rRNA gene (LS4)  
4. Chandra Devi: Investigating SMN and APP gene mutations in the patients with Backers Muscular Dystrophy (LS5)  
|          | Parallel Session 3 (Small Hall-ICSSR) Chair: Prof Amar Nath Gill Dr. Gagandeep Singh & Dr. Nitin Arora  
1. A.A. Bhat: Generalisation of Weighted Maxwell-Boltzmann distribution (MS1)  
2. Aliya Syed Malik: A New Generalization of Rayleigh Distribution with its Application (MS2)  
4. Bhagwati Devi: Robust Bayesian Analysis of a Family of Lifetime Distributions (MS4)  
5. Bilal Ahmad Bhat: On Two Parametric Shift-dependent Generalized Dynamic Entropy Measure for Lifetime Distributions (MS5)  
6. Hummara Sultan: Bayesian Normal and T-K Approximations for Shape Parameter of Type-I Dagum Distribution (MS10)  
<p>| 13.15-14.15| Lunch Break                                                                                     |</p>
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<tr>
<th>14.15-16.00</th>
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<tr>
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<td>(Main Hall- Golden Jubilee)</td>
<td>(Main Hall- ICSSR)</td>
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<td>Chair: Prof. S.K Chadha</td>
<td>Chair: Dr. Peter Gray &amp; Prof. Deepti Gupta</td>
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<td>&amp; Dr. Nishi Sharma</td>
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<td>Relations: A Qualitative Study of Organized Retail Stores (BM15)</td>
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<td>7. Seema: Opportunities creations in IT/ITes Industry in India in the dynamics of rightsizing due to emerging computing technologies (BM18)</td>
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<td>Inverse Weibul Distribution (MS25)</td>
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<td>7. Shelly Sharma: Mental Health and the Various Psychological Factors Associated with it (ED16)</td>
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DAY ONE–FIRST SET OF PARALLEL PAPER PRESENTATION SESSIONS

The first set of parallel paper presentations were held before lunch on day one. These sessions consisted of the presentation of twenty-three papers. Each session was moderated by Chairpersons of the sessions and summaries were recorded. There was a short Q&A session after each of the presentations. The session summaries are outlined below.

Parallel Session 1 - Golden Jubilee Main Hall

Session Chaired By: Dr. Heather A. D. Mbaye, Prof. J.S. Bedi & Dr. Manjushri Sharma

Rapporteur: Dr. Manjushri Sharma

Parallel Session-1 was chaired by Dr. Heather A. D. Mbaye, Prof. J.S. Bedi, & Dr. Manjushri Sharma and there were seven presentations in this session on research areas pertaining to various aspects of Education ranging from Educational and Psychological Needs, Climate Justice, Women and Intergovernmental Panel on Climate Change, Use of Smartphones for Academic Purposes, Webometric and Technology Analysis, Towards Self-Regulated Learning and Well-Being in Inclusive Classrooms, and Social Media and Teachers Role. The brief summaries of these presentations are as follows:

Bhavyata Kapoor presented the paper entitled ‘Educational and Psychological Needs of Individuals with Disabilities’. The author presented an exhaustive work done on a very narrow scope of work, which is persistent. It was suggested that Privacy of kids should have been maintained. It was observed that the recommendations were generic and author carried out good analysis, but sample size was small & drawn arbitrarily. It was also suggested that there is a need to look into the educational needs of disabled-individuals.

Samni Singla presented the paper entitled ‘Climate Justice, Women and Intergovernmental Panel on Climate Change (IPCC): Issues and Challenges ‘. Secondary data was analyzed well, but more reports could have been included. Social differentiation and impact on women well portrayed. It has been pointed out that changing the face of climate change is very important.

Jatinder Kumar presented the paper entitled ‘Use of Smartphones for Academic Purposes by Teachers of Panjab University’. The objectives of the study were thoroughly listed. Although the content was more extensive but still informative
from the practical point of view. The outcome could have been more meaningful had it been properly analysed. The conclusions could have been improved. Role of IT for academic purposes was discussed at length. The paper contains good information for teachers.

**Suman Sumi** presented the paper entitled 'Webometric and Technology Analysis of Websites of Selected Universities of Punjab '. This was an applicative study and could be of use to the universities. The content was clearly presented and well documented. But there was too much emphasis on qualitative aspects rather than Quantitative. Good study to show applicability of websites models.

**Puneet Sandhu** presented the paper entitled ‘Towards Self-Regulated Learning and Well-Being in Inclusive Classrooms ‘. Good content and presented well. However, the application of the study was not clearly conveyed. Model use was not portrayed. In-depth Analysis was needed.

**Yashpreet Kaur** presented the paper entitled ‘Social Media and Teachers: Role, Responsibilities and Ethical Dilemmas ‘. The conclusions were very generic and no specific tools were highlighted. Social media/ IT was the only Tool, which teachers use to achieve certain objectives. How to look at its impact, no method was explained properly?

**Ajay Kumar Arora** presented the paper entitled ‘Building a Participatory Learning Community through Library Learning Commons’. The paper reflected a good analysis and was presented adequately.

**Parallel Session 2 (Main Hall- ICSSR)**

**Session Chaired By: Prof. Devinder Dhawan, Prof. Rajat Sandhir & Prof. Rajeshwari R. Mohanti**

**Rapporteur: Prof. Rajat Sandhir**

Parallel Session 2 was chaired by Prof. Devinder Dhawan, Prof. Rajat Sandhir & Prof. Rajeshwari R. Mohanti and there were five presentations in this session on research areas pertaining to various aspects of sciences ranging from E-health services in India, Phylogenetic analysis of Notopterus notopterus, Investigating SMN and APP gene mutations in the patients, Development of Health Application for Promoting Maternal and Child Healthcare, and Rayleigh-Bénard Convection for Nanofluids. The summaries of these presentations are as follows:
Arun Mahajan presented the paper entitled 'Rietveld Refinements of A2BO4-Type Phases.' Good work and presented nicely.

Ayush Sachdeva presented the paper entitled 'E-health services in India: Evaluation of patient outcomes and data protection'. The topic was very relevant. The presenter covered all aspects relevant to the topic. The topic generated interest in the audience. The presentation covered the e-services provided by new health centre and their issues concerning the privacy of DATA.

Basharat Ali presented the paper entitled 'Phylogenetic analysis of Notopterus notopterus (Pallas) and Chitala chitala (Hamilton-Buchanan) from Harike Wetland using mitochondrial 12S rRNA gene '. The speaker highlighted the Role of rRNA gave in depth analysis/identification of fish species. Overall the presentation was satisfactory.

Chandra Devi presented the paper entitled 'Investigating SMN and APP gene mutations in the patients with Becker's Muscular Dystrophy '. The candidate presented her work related to Muscular dystrophy mutation and also discussed Alzheimer's MLPA technique. The objectives were well defined and presentation was satisfactory. The candidate could answer the question to the satisfaction of all.

Jatina Vij presented the paper entitled 'Development of Health Application for Promoting Maternal and Child Healthcare: An Innovative Approach in Public Health'. It demonstrated an interesting and useful application for android phones for pregnant women in Punjab. The presentation was about health care of mothers who are lactating. The delivery was meaningful and conveyed the objectives very effectively. Overall, it was nice presentation.

Jyoti Ahuja presented the paper entitled 'Rayleigh-Bénard Convection for Nanofluids for More Realistic Boundary Conditions (Rigid-Free and Rigid-Rigid) using Darcy Model'. Interesting work in behaviour of Nanofluids in magnetic fluids. The presentation was regards to Nanofluids and how the particles behave.

Parallel Session 3 (Small Hall- ICSSR)

Session Chaired By: Prof. Amar Nath Gill, Dr. Gagandeep Singh & Dr. Nitin Arora

Parallel Session 3 was chaired by Prof Amar Nath Gill, Dr. Gagandeep Singh and Dr. Nitin Arora and there were six presentations in this session on research areas
pertaining to various aspects of Mathematics ranging from Generalisation of Weighted Maxwell-Boltzmann distribution, Rayleigh Distribution with its Application, Efficient Class of Ratio -Cum- Regression Estimators, Robust Bayesian Analysis of a Family of Lifetime Distributions, Generalized Dynamic Entropy Measure for Lifetime Distributions, and Bayesian, Normal and T-K Approximations. The summaries of these presentations are as follows:

**A.A.Bhat** presented the paper entitled ‘Generalisation of Weighted Maxwell-Boltzmann distribution’. Presentation was very good. It was about mixture of two weighted Maxwell Boltzmann distribution. Some techniques were suggested to imperative mixture and to obtain meaningful results.

**Aliya Syed Malik** presented the paper entitled ‘A New Generalization of Rayleigh Distribution with its Application’. It has been suggested to apply Goodness of fit measures to verify the results. Test and goodness of fit were completely missing and the presentation was average.

**Asra Nazir** presented the paper entitled: ‘Efficient Class of Ratio -Cum- Regression Estimators using Non-Conventional Parameters for Estimating Population mean’. Good presentation and discussed a new approach to estimate mean. Data was in 1000's so the suggestion was given to reduce the MSE for the given estimate.

**Bhagwati Devi** presented the paper entitled ‘Robust Bayesian Analysis of a Family of Lifetime Distributions’. Presentation was on lifetime distribution. Good knowledge of concepts of satisfaction and estimates were precise. Suggestion was given that type I censoring case should have been better for generalization.

**Bilal Ahmad Bhat** presented the paper entitled ‘On Two Parametric Shift-dependent Generalized Dynamic Entropy Measure for Lifetime Distributions’. Presentation was on the weighted generalized Entropy for lifetime distribution. The author was suggested to use the weighted function instead of general.

**Hummara Sultan** presented the paper entitled ‘Bayesian Normal and T-K Approximations for Shape Parameter of Type-I Dagum Distribution’. Presentation was about the Type-I Dagum distribution. The results were presented after conducted the simulation study. Estimate of shapes parameters of Dagum distribution was discussed.
DAY ONE – SECOND SET OF PARALLEL PAPER PRESENTATION SESSIONS

The second set of parallel paper presentations were held immediately after lunch on Day One. These sessions consisted of the presentation of twenty-seven papers. Each session was moderated by Chairpersons of the sessions and summaries were recorded. There was a short Q&A session after each of the presentations. The session summaries are outlined below.

Parallel Session 1 - Golden Jubilee Main Hall

Session Chaired By: Prof. Mokgale Makgopa, Prof. Upasna Joshi Sethi & Dr. Anupreet Kaur Mavi

Rapporteur: Dr. Anupreet Kaur Mavi

Parallel Session 1 was chaired by Prof. Mokgale Makgopa, Prof. Upasna Joshi Sethi, & Dr. Anupreet Kaur Mavi and there were six presentations in this session on research areas pertaining to various aspects of Management ranging from Social media advertising, Human Resource Accounting, Future of Mobile Commerce, The Effect of Perceived Ethics of Online Retailing, Identifying Key Quality Dimensions Impacting Customer Satisfaction The Indian Expatriates' Experience. The summaries of these presentations are as follows:

Anish Kumar Kakirala presented the paper entitled 'Social media advertising: a new perspective in the Indian context'. New innovative ideas were incorporated in the study. The study was reflecting a good analysis regarding an attempt to qualify a quantitative aspect of social media advertising.

Anuradha presented the paper entitled ‘Human Resource Accounting Disclosure Practices of Top Commercial Banking Companies in India’. Paper was presented nicely but methods of HRA were not properly explained. The area of concern is of great significance in the current global scenario.

Arshan Bhullar presented the paper entitled ‘Future of Mobile Commerce: An Exploratory Study on Factors affecting Mobile Users' Behaviour Intention'. Properly structured paper and very clear relevant to the current scenario.

Atashi Bedi presented the paper entitled ‘The Effect of Perceived Ethics of Online Retailing on Customer Trust in E-Retailer’. The problem was explained properly and there should be more emphasis on the findings.

Deepika Gupta presented the paper entitled ‘Identifying Key Quality Dimensions
Impacting Customer Satisfaction for Bottom of Pyramid Population in Punjab'. The presentation was good. Study was well structured, planned and had a futuristic vision. The study has a vast scope for future research and application to the concerned area.

Ektapresented the paper entitled ‘The Indian Expatriates Experience: Adjustment and Job Performance with reference to their Cultural Intelligence’. Some new insights are presented about India expatriates.

Parallel Session 2 (Main Hall- ICSSR)

Session Chaired By: Prof. Saranjit Singh & Prof. Sanjay Chibber

Rapporteur: Prof. Saranjit Singh

Parallel Session 2 was chaired by Prof. Saranjit Singh & Prof. Sanjay Chibber and there were four presentations in this session on research areas pertaining to various aspects of sciences ranging from, A revised model for magneto convection in binary nanofluids, Importance of Natural Language Processing, Cephalo-facial and hand measurements in human identification, and Development of Human Face literature database using Text Mining Approach. The summaries of these presentations are as follows:

Jyoti Sharma presented the paper entitled ‘A revised model for magneto convection in binary nanofluids’. Her presentation was more theoretical but research presented was very good and has practical applications.

Kanika Gupta presented the paper entitled ‘Importance of Natural Language Processing and Unsupervised Learning on Biofilm Literature’. A very clear and confident presentation. Presentation was a literature review and did not cover the research being carried out. The work is targeted to generation of a database.

Mohd Ali presented the paper entitled ‘Cephalo-facial and hand measurements in human identification: A new dimension in forensic anthropology’. Presentation by a research scholar was very stable presentation in terms of delivery. Content was research based. Data of a tribe had been worked out for identification purpose.

Nisha Chaudhary presented the paper entitled ‘Effect of calcination temperature on structural and magnetic properties of nanosized perovskite oxide La0.5Sr0.5Fe0.5Ti0.5O3’. Very good work, presented very nicely and effectively.
Paramjit Kaur presented the paper entitled ‘Development of Human Face literature database using Text Mining Approach’. Presentation was good and confident. Student presented the approach employed for development of database. The technique was very useful from practical point of view.

Parallel Session 3 (Small Hall- ICSSR)

Session Chaired By: Prof. Kalpana Mahajan & Prof. Sangeeta Arora

Rapporteur: Prof. Sangeeta Arora

Parallel Session 3 was chaired by Prof. Kalpana Mahajan & Prof. Sangeeta Arora and there were six presentations in this session on research areas pertaining to various aspects of Mathematics ranging from Performance rating of Exponentiated Generalized Standard Inverse Exponential Distribution, Estimation of Stress Strength Reliability, Modified class of ratio-cum-dual to ratio estimator, Exponentiated Inverse Power Lindley Distribution, Properties of New Parametric Generalized Entropy of Order Statistics and Coding Theorems of Two Parametric New Fuzzy Information Measure. The summaries of these presentations are as follows:

Kawsar Fatima presented the paper entitled ‘Performance rating of Exponentiated Generalized Standard Inverse Exponential Distribution: An Analytical Approach’. Good presentation with some innovation as well. However, some more application is needed.

Nafeesa Bashir: presented the paper entitled 'Estimation of Stress Strength Reliability'. Reasonably good presentation but concepts need more clarification.

Rafia Jan presented the paper entitled 'Modified class of ratio-cum-dual to ratio estimator for estimating finite population mean using auxiliary information.' Good attempt in the content of sampling. The estimation technique was explained nicely.

Rameesa Jan presented the paper entitled ‘Exponentiated Inverse Power Lindley Distribution’. Some practical application is needed. Overall, good presentation but simulation work was missing.

Rifat Nisa presented the paper entitled: 'Properties of New Parametric Generalized Entropy of Order Statistics'. Good attempt in some new direction but some logical clarity is required.
Safeena Peerzada presented the paper entitled ‘Coding Theorems of Two Parametric New Fuzzy Information Measure’. Good presentation and having new innovative ideas which do need some practical applications.

Parallel Session 4 (Dining Hall- ICSSR)

POSTER PRESENTATION

Session Chaired By: Prof. Devinder Dhawan & Dr. Tiratha Raj Singh

Rapporteur: Dr. Tiratha Raj Singh

Parallel Session 4 was chaired by Prof. Devinder Dhawan & Dr. Tiratha Raj Singh and there were eleven presentations in this session on research areas pertaining to various aspects of Education ranging from Developing computational thinking skills, Brain Based Education, Pedagogical importance of Educational trips and The Use of Comics in the Classroom and Sciences ranging from Anatomical dissection as a teaching method in honours school. Stem Cell-Based Approaches in Tooth and Periodontal Tissue Regeneration, Effect of fuel and temperature on magnetic properties of ferrites, Role of lithium during arsenic induced oxidative stress in rat liver and Determination of Thiophanate Methyl Fungicide by a Differential Pulse Polarographic Method. The summaries of these presentations are as follows:

Alka Monga presented the paper entitled ‘Developing computational thinking skills: with special reference to science education’. Good idea and implementation is also done but it further research in this direction can be enhanced with other parameters. Good knowledge about the subject of computational skill development.

Fatma Gausiya presented the paper entitled ‘Brain Based Education - An Emerging Field in Innovative Education’. Lacking the depth of the concept and could have been more interesting with practical examples.

Kawalpreet Kaur presented the paper entitled ‘Pedagogical importance of Educational trips in effective learning’. This paper explained the importance of educational trips for personality development.

Versha Manakpur presented the paper entitled ‘The Use of Comics in the Classroom’. This paper explained the usefulness of Comics for conveying the objectives of the study.

Kanupriya presented the paper entitled ‘Anatomical dissection as a teaching method in honours school: What are the perceptions of young science
students’? Nice study but needs more data to explore it further. The presentation was well focused and the point was clearly explained that Anatomical dissection at UG level be allowed.

Komal Preet presented the paper entitled ‘Stem Cell-Based Approaches in Tooth and Periodontal Tissue Regeneration’. The idea was good but lacks implementation. The study was just about the concept of stem cells and application in dentistry.

Narayan Dutt Sharma presented the paper entitled 'Effect of fuel and temperature on magnetic properties of ferrites': A new method was developed and proper analysis was carried out.

Priti Bhardwaj presented the paper entitled ‘Role of lithium during arsenic induced oxidative stress in rat liver’. Good piece of work and presented well.

Rajinder Kashyap presented the paper entitled ‘Determination of Thiophanate Methyl Fungicide by a Differential Pulse Polarographic Method’. The idea was good and method maybe of practical application. This paper was very well presented the idea of Determination of Thiophanate Methyl Fungicide particle.

Day One – Third Set of Parallel Paper

Presentation Sessions

The Third Set of parallel paper presentations consisted of the presentation of thirty two papers. Each session was moderated by Chairpersons of the sessions and summaries were recorded. There was a short Q&A session after each of the presentations. The session summaries are outlined below:

Parallel Session 1 - Golden Jubilee Main Hall

Session Chaired By: Prof S.K Chadha, Prof Neeraj Sharma & Dr. Nishi Sharma

Rapporteur: Dr. Nishi Sharma

Parallel Session 1 was chaired by Prof S.K Chadha, Prof Neeraj Sharma & Dr. Nishi Sharma and there were eight presentations in this session on research areas pertaining to various aspects of Management ranging from Ease of Doing Business in facilitating the Investment Decisions, Market Segmentation of Consumers in

The summaries of these presentations are as follows:

**Gayatri Prabhakar** presented the paper entitled 'Importance of improvement in Ease of Doing Business in facilitating the Investment Decisions'. Research talked about case of doing business and importance of improvement to facilitate in decision. The paper was based on secondary data. Some more policy implications could have been incorporated. The researcher shared the status of Ease of Doing Business with special reference to Punjab state. The presentation was primarily focused to secondary data.

**Gurcharan S. Mattoo** presented the paper entitled 'Market Segmentation of Consumers in Malls: A Shopping Styles Analysis'. Excellent presentation based on primary data. Suitable statistical methods were applied and results were presented nicely. An exhaustive presentation dealing with market segmentation based on shopping style and consumer attitude.

**Gurpreet Kaur Saini** presented the paper entitled 'How leader prepare succession processes'. A study highlighted success on planning in Indian companies. The study may be enriched by better sampling.

**Manju Amla** presented the paper entitled 'Emotional intelligence and its impact on Burnout and Happiness: A study on Police Officers of Chandigarh Police, India. 'Based on primary data suitable techniques were used and it was a very good presentation. A primary data based study on Chandigarh's police officer establishing fruitful results among Emotional Intelligence, burnout and happiness.

**Nidhi Kampani** presented the paper entitled 'The Role of Employee Orientation in Building Customer Relations: A Qualitative Study of Organized Retail Stores'. Presentation focused on review of literature but did not mention any research gaps. A presentation having exhaustive literature review highlighted the need of Customer Relation Management for customer retention.

**Rachita Sambyal** presented the paper entitled 'Financial Awareness Index-A Meta Analysis on Literature'. Good method can be of practical application. Very good work, Presented very nicely and effectivelly.
Seema presented the paper entitled ‘Opportunities creations in IT/ITes Industry in India in the dynamics of rightsizing due to emerging computing technologies’. This paper talked about the interplay and highlighting practices and skill building of IT/ITES professionals. A conceptual paper identifying the top skills required for IT professionals due to automation.

Simanpreet Kaur presented the paper entitled ‘New Corporate Laws: A Change in the Existing Corporate Reporting Structure Scenario’. A comprehensive presentation comparing the amended provisions of companies acts with previous provisions.

Parallel Session 2 (Main Hall- ICSSR)
Session Chaired By: Dr. Peter Gray & Prof Deepti Gupta
Rapporteur: Prof Deepti Gupta
Parallel Session 2 was chaired by Dr. Peter Gray & Prof Deepti Gupta and there were eight presentations in this session on research areas pertaining to various aspects of Languages and social sciences ranging from Dogme Language Teaching In Indian Context, English language: ‘Lingua Franca ’of a literate in India, Current Practices of Early Childhood Care and Education. An Error Analysis of Writing Skill of Punjabi Language, Quality of Lifelong Learning, Effectiveness of Computer Supported Intervention on Interest in Science among Students with Learning Disability, Mental Health and Problems and Prospects of Rural Education in India. The summaries of these presentations are as follows:

Aman Preet Kaur presented the paper entitled ‘Dogme Language Teaching in Indian Context: Co Construction of knowledge’. The conclusion should have given pedagogic implications.

Anita Sharma presented the paper entitled ‘English language: ‘Lingua Franca ‘of a literate in India’. The ideas were very practical.

Daniel Gebreslassie Mekonnen presented the paper entitled ‘Current Practices of Early Childhood Care and Education in Ethiopia. This paper was very good, professional and detailed study.
Jagjeet Kaur presented the paper entitled ‘An Error Analysis of Writing Skill of Punjabi Language of 10th Grade Students’. Broader perspective required. The Chairpersons have suggested reading more on DOGME.

Prabha Vig presented the paper entitled ‘Promoting Research Excellence with Quality of Lifelong Learning’. The chair had provided useful suggestions and literature review concerning with lifelong learning.

Shelly Aggarwal presented the paper entitled ‘Effectiveness of Computer Supported Intervention on Interest in Science among Students with Learning Disability: Embracing Science and Inclusion in Research’. Several ideas are worth implementing.

Shelly Sharma presented the paper entitled ‘Mental Health and the Various Psychological Factors Associated with it’. The study was professionally managed.

Tarannum Siddiqui presented the paper entitled ‘Problems and Prospects of Rural Education in India: An Appraisal’. The study includes great collection of data from secondary sources.

Parallel Session 3 (Small Hall- ICSSR)
Session Chaired By: Prof. Narinder Kumar, Prof. Mangey Ram & Prof. Kanchan Jain

Rapporteur: Prof. Mangey Ram

Parallel Session 3 was chaired by Prof. Narinder Kumar, Prof. Mangey Ram & Prof. Kanchan Jain and there were six presentations in this session on research areas pertaining to various aspects of Mathematics ranging from Two Parametric New Generalized Useful Fuzzy Information Measure, Meta-Analysis of Fixed, Random and Mixed effects models, Weighted Nakagami Distribution, The Generalized Gamma Shared Frailty Model, Transmuted Exponentiated Inverse Weibul Distribution and Order Statistics from the Power Lindley Distribution. The summaries of these presentations are as follows:

Saima Manzoor Sofi presented the paper entitled ‘Two Parametric New Generalized Useful Fuzzy Information Measure and its Properties’. The presentation was good, and the results were presented in an organised manner.
Savita Jain presented the paper entitled ‘Meta-Analysis of Fixed, Random and Mixed effects models’. The presentation was very organized, and used a lot of graphical tools to display her results. It has many practical applications.

Sofi Mudasir Ahad presented the paper entitled ‘Parameter Estimation of Weighted Nakagami Distribution Using Real Life Data Sets’. The work was Average as well as average presentation.

Sukhmani Sidhu presented the paper entitled ‘The Generalized Gamma Shared Frailty Model under Different Baseline Distributions’. This paper was excellent with lot of simulation work. The paper has innovative ideas.

Uzma Jan presented the paper entitled ‘Assessing the flexibility of Transmuted Exponentiated Inverse Weibul Distribution’. Introduced a new distribution and explained testing of parameters.

Anju Goyal presented the paper entitled ‘Order moments of Order Statistics from the Power Lindley Distribution and related Inference’. She obtained many new results and demonstrated the methods by simulation.

Parallel Session 4 (Dining Hall- ICSSR)
POSTER PRESENTATION

Session Chaired By: Prof. Sanjeev Puri & Dr. Jayanti Dutta

Rapporteur: Dr. Jayanti Dutta

Parallel Session 4 was chaired by Prof Sanjeev Puri & Dr Jayanti Dutta and there were ten presentations in this session on research areas pertaining to various aspects of Sciences ranging from Radio labelling approach, Thermodynamics of interaction of L-valine, Nitric Oxide: bioactive gaseous inducer of adventitious root formation, Hydrothermal synthesis, crystal structure, and DFT studies, interactions of drug with aqueous and non aqueous solvent. L-leucine on surfactants and Radiation induced therapeutic effects and various aspects of Social Science ranging from Food & Rural Women, Understanding the lexis of “Hanuman Chalisa” and My Smoking, your problem: A study on Smoking Restriction in family Car & Home.

The summaries of these presentations are as follows:

Ravi Ranjan Kumar presented the paper entitled ‘Radiolabelling approach and preclinical evaluation of 99m-technitium labelled bortizomib in experimental rat’. The work was very interesting with several practical applications.
Sandarve presented the paper entitled Thermodynamics of interaction of L-valine with aqueous surfactant solutions of SDS and TTAB'. The work was good with lot of practical applications.

Sangeeta Sharma presented the paper entitled 'Nitric Oxide: bioactive gaseous inducer of adventitious root formation in hypocotyl cuttings of Vigna radiata (L.) R. Wilczek and acting as stress inhibitor'. Attractive and neat presentation but research findings should have been substantiated with adequate evidences.

Sumit Sanotra presented the paper entitled 'Hydrothermal synthesis, crystal structure, and DFT studies of three dimensional supramolecular nickel (II) complex with pyridine-2,5-dicarboxylic acid'. Nice work and practical part was also good.

Taniya Sharma presented the paper entitled 'Study of different properties for investigations of interactions of drug with aqueous and non-aqueous solvent'. The work was at primary stage, can be elaborated more and classification of drugs can be done.

Upasna Magotra presented the paper entitled 'A comparative study of effect of L-leucine on surfactants at different temperatures'. Good piece of work.

Anna Khan presented the paper entitled 'Radiation induced therapeutic effects on the Aβ based rat model of Alzheimer’s disease'. It was a comprehensive study. Well explained and well presented.

Anupama Bharti presented the paper entitled 'Food & Rural Women: How Religion view nutritional Food Practices'. Interesting concept but needs integration between objectives and findings.

Sourabh Bharti presented the paper entitled 'Understanding the lexis of “Hanuman Chalisa” using text mining and sentiment analysis – A cross disciplinary deconstruction approach with R software'. This was a fresh theme with an innovative methodology. Such works convey the true manifestation of research oriented approach.

Viney Dhiman presented the paper entitled 'My Smoking, your problem: A study on Smoking Restriction in family Car & Home'. This was a fresh theme with an innovative methodology. However, practical approach was missing.

Day one of the Conference concluded after the end of the Parallel Sessions.
DAY- TWO OF THE CONFERENCE

An overview of the second day’s Conference Programme is shown in schematic form below.

**PROGRAMME DAY 2: 5 April 2018 (Thursday)**

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<tr>
<td>09.00-09.30</td>
<td>Registration</td>
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<tr>
<td>Special Session:</td>
<td><strong>United Nations Principles for Responsible Management Education (PRME)</strong> organized by LSME (UK)</td>
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<td>09.30-09.50</td>
<td>Introduction of UN PRME</td>
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<td>09.50-10.20</td>
<td>Responsible Leadership Development in Academic Curricula</td>
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<td>10.20-10.45</td>
<td>Academic and Business Communities</td>
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<td>10.45-11.00</td>
<td>Question and Answer: Open Discussion</td>
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<td>11.00-11.15</td>
<td>Address by Professor Arun K. Grover, Vice Chancellor, Panjab University</td>
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<td>11.15-11.45</td>
<td>Tea Break</td>
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<td>11.45-13.30</td>
<td>Paper Presentation Sessions</td>
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<td>Parallel Session 1 (Main Hall- Golden Jubilee)</td>
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<td>Chair: Dr Devinder Pal Singh, Mr. Sanjiv Gupta &amp; Dr Manjushri Sharma</td>
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<td>1. <strong>Heather A. D. Mbaye</strong>: Comparative Responsible Research: UK and US policy makers (SS3)</td>
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<td>2. <strong>Neha Kanda</strong>: New balancing technique for Green cloud computing Environmental Sustainability (BM26)</td>
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<td>3. <strong>Anupreet Kaur Mavi</strong>: Determinants of Educated Unemployed in Rural Punjab (BM28)</td>
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<td>4. <strong>Sachin Kumar Sharma</strong>: Application of Kanban to reduce Over Production &amp; WIP Inventory: A Case Study (BM31)</td>
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<td>5. <strong>Nikhil Bhardwaj</strong>: The Impact of Macroeconomic Variables on Indian Capital Market (SS10)</td>
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<td>6. <strong>Poonam Dhalival</strong>: The Changing Dynamics of Competition Regime - Case Study of Google (SS11)</td>
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<td>7. <strong>Vivek Jadhav</strong>: Measuring The Political Stability and its Impact On Financial Development Of India (SS7)</td>
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<td>Parallel Session 2 (Main Hall- ICSSR) Chair: Prof Sanjeev Puri &amp; Dr Tiratha Raj Singh</td>
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<td>1. <strong>Priya Battu</strong>: serum levels of ApoE in age related macular degeneration (LS25)</td>
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<td>2. <strong>Radhika Khosla</strong>: Can BDNF modify treatment related cognitive impairment in cancer patients (LS27)</td>
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<td>3. <strong>Suman Sharma</strong>: Synthesis and characterization of nano and bulk CoCrFeO4 ferrite by glycine-nitrate combustion method (LS32)</td>
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<td>4. <strong>Vishwendra Singh</strong>: Effect of a Preventive Protocol on Oral Health Status and Salivary Parameters of Type-1 Diabetes Mellitus Patients (LS38)</td>
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<td>5. <strong>Ankita Shukla</strong>: Role of Androgen Receptor (AR) pathway in Prostate Cancer through Gene Expression Studies (LS41)</td>
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<td>6. <strong>Priti Kumari</strong>: Comparison of epigenetic modifications in endometriosis and endometrial cancer. (LS24)</td>
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<td>13.30-14.30</td>
<td>Lunch Break</td>
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<td>14.30-16.20</td>
<td>Workshop on Responsible Research and Innovation (RRI): Session 1 Workshop facilitators: 1. Dr Peter Gray, Norwegian University of Technology</td>
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<td>2. Professor Stephen McKinney, (University of Glasgow, UK)</td>
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<td>16.35-18.00</td>
<td>Workshop on Responsible Research and Innovation (RRI): Session 2 (Contd)</td>
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DAY TWO – FIRST & FINAL SET OF PARALLEL PAPER PRESENTATION SESSIONS

The fourth set of parallel paper presentations were held immediately after the mid-morning Tea Break. Each session was moderated by Chairpersons of the sessions and summaries were recorded. There was a short Q&A session after each of the presentations.

The session summaries are outlined below:

**Parallel Session 1 - (Main Hall- Golden Jubilee)**
Session Chaired By: Dr. Devinder Pal Singh, Mr. Sanjiv Gupta & Dr. Manjushri Sharma

**Rapporteur: Dr. Manjushri Sharma**

Parallel Session 1 was chaired by Dr. Devinder Pal Singh, Mr. Sanjiv Gupta & Dr. Manjushri Sharma and there were six presentations in this session on research areas pertaining to various aspects of Management ranging from Comparative Responsible Research: UK and US policy makers, New balancing technique for Green cloud computing, The Crime Reducing Effect of Education, Application of Kanban to reduce Over Production, Macroeconomic Variables on Indian Capital Market and The Changing Dynamics of Competition Regime. The summaries of these presentations are as follows:

**Heather A. D. Mbaye** presented the paper entitled ‘Comparative Responsible Research: UK and US policy makers’. The study was very good and can help the stakeholders and academia and can bridge the gap between policy and study by the experts. The paper was in congruence with the theme of the conference and the findings can help in bridging the gap between academicians and practitioners.

**Neha Kanda** presented the paper entitled ‘New balancing technique for Green cloud computing Environmental Sustainability’. Review of existing published articles was good. Technology based research but only review of literature.

**Anupreet Kaur Mavi** presented the paper entitled ‘Determinants of Educated Unemployed in Rural Punjab’. A very good research paper in which primary data may further be helpful in proving the justification to the stated hypothesis. Very good, innovative topic and research tools are very good.
Sachin Kumar Sharma presented the paper entitled ‘Application of Kanban to reduce Over Production & WIP Inventory: A Case Study’. This paper needs to be innovative over and above the prevailing Kanban system. The study had demonstrated the application of Kanban.

Nikhil Bhardwaj presented the paper entitled ‘The Impact of Macroeconomic Variables on Indian Capital Market’. Proper analysis with regard to capital market analysis is missing and it requires some refined tool for analysis.

Poonam Dhaliwal presented the paper entitled ‘The Changing Dynamics of Competition Regime-Case Study of Google’. The study was good, simple and rudimentary in nature and it requires further probe of phenomenon.

Parallel Session 2 (Main Hall- ICSSR)

Session Chaired By: Prof. Sanjeev Puri & Dr. Tiratha Raj Singh

Rapporteur: Dr. Tiratha Raj Singh

Parallel Session 2 was chaired by Prof. Sanjeev Puri & Dr. Tiratha Raj Singh and there were three presentations in this session on research areas pertaining to various aspects of sciences ranging from Effect of a Preventive Protocol on Oral Health Status, Role of Androgen Receptor (AR) pathway in Prostate Cancer, and comparison of epigenetic modifications in endometriosis and endometrial cancer. The summaries of these presentations are as follows:

Vishwendra Singh presented the paper entitled ‘Effect of a Preventive Protocol on Oral Health Status and Salivary Parameters of Type-1 Diabetes Mellitus Patients’. The methodology was well planned. All ethical parameters were taken care of and were properly analysed.

Ankita Shukla presented the paper entitled ‘Role of Androgen Receptor (AR) pathway in Prostate Cancer through Gene Expression Studies’. The Bioinformatics approach was very good.

Priti Kumari presented the paper entitled ‘Comparison of epigenetic modifications in endometriosis and endometrial cancer’. The work was nice and the presentation was good. The author was suggested to add more miRNA work on both the disease and then conclude something robust out of it.
At the conclusion of the final set of Parallel Sessions on Day Two, delegates gathered in the Main Conference Room.

**PROGRAMME DAY 3: 6 April 2018 (Friday)**

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**Chair: Professor Stephen McKinney, Dr. Sarita Parhi & Rachita Sambyal**

1. **Mokgale Makgopa**: A critical evaluation of the State of the teaching of Indigenous Languages in the Universities of South Africa: A multidisciplinary and interdisciplinary approach in Social Sciences (SS12).
2. **Gurjit Kaur**: Preeclampsia screening in early pregnancy through biochemical and ultrasonographic markers: diagnostic and pathophysiological implications (LS8)
4. **Bhavneet Bharti**: Where science fails, drawings and storytelling succeeds - Innovative strategy for Translational Research regarding Mobile Anganwadi intervention for underprivileged children (ED5)

**Valedictory Session**

Valedictory Speech by Prof. S. K. Chadha, Director Central Placement Cell & Professor, University Business School, Panjab University

Presentation of Certificates by Chief Guest Prof. Gurmail Singh, Vice Chancellor, Akal University

Vote of Thanks by Dr. Sarita Parhi, Principal LSME

**Lunch**

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**DAY THREE – FIRST & FINAL SET OF PAPER PRESENTATIONS**

**Session 1 - (Main Hall- Golden Jubilee)**

**Session Chaired By: Professor Stephen McKinney, Dr. Sarita Parhi & Rachita Sambyal**

**Rapporteur: Rachita Sambyal**

Session 1 (only session on last day) was chaired by Professor Stephen McKinney, Dr. Sarita Parhi & Rachita Sambyal and there were four presentations in this session on research areas pertaining to various aspects

The summaries of these presentations are as follows:

**Mokgale Makgopa** presented the paper entitled ‘A critical evaluation of the State of the teaching of Indigenous Languages in the Universities of South Africa: A multidisciplinary and interdisciplinary approach in Social Sciences’. This paper had a very systematic introduction. Very clear explanation of the objectives and underlying problem. His findings were interesting as initially the Indigenous languages were not well recognized. Beautifully structured ppt, recommendations was meaningful to provide/make it mandatory for students to take one indigenous long course in Higher Education.

**Gurjit Kaur** presented the paper entitled ‘Preeclampsia screening in early pregnancy through biochemical and ultrasonographic markers: diagnostic and pathophysiological implications’. Very clear explanation of the problem and Highlighted importance of Biomarkers and blood testing. She explained how the risk factors associated with early pregnancy complications can be identified using statistical tools including ROC Curve.

**Manjushri Sharma** presented the paper entitled ‘Failure Mode and Effect Analysis: A valuable Management Tool for Combating Medication Errors’. Very clear explanation of issue. The findings will minimise medication errors and may be useful to the practitioners in future.

**Bhavneet Bharti** presented the paper entitled ‘Where science fails, drawings and storytelling succeeds - Innovative strategy for Translational Research regarding Mobile Anganwadi intervention for underprivileged children’. The intervention has worked well for the malnourished children which emphasizes on the strategies of art to educate the underprivileged children.

After these presentations, a special lecture on new and innovative approaches to RRI was delivered by Dr. Heather A. D. Mbaye, University of West Georgia (USA).
Conclusion

The International Conference on ‘Responsible Research and Innovation in Science, Management and Education’ concluded with valedictory function on 6th April, 2018. Professor Suresh Sharma, Organising Secretary, presented a detailed overview and outcome of the conference and also stated that next conference will be held in London in 2019. The suggestions from participants were also taken to make such events more meaningful and practical oriented in near future. Professor S. K. Chadha emphasizes the importance of research and its usefulness and how one can enrich his/her knowledge by participating in such conferences. Such conferences may open a new door to many of the participants and they can focus on their goals in life in a better way. Prof. Gurmail Singh, Vice Chancellor, Akal University, in his valedictory address discussed the challenges in the area of RRI and how one can overcome these challenges by participating in such conferences and rubbing their shoulders with experts in the area of RRI. Finally, the certificates to the participants were distributed and the function successfully ended with vote of thanks given by Dr. Sarita Parhi, Principal, London School of Management Education (LSME), UK.

The list of the Abstracts and some of the Research Papers presented during the conference are given in next page for ready reference.
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A comparative study of effect of L-leucine on surfactants at different temperatures

1Magotra, U. and 2Sharma, M.
1Assistant Professor, Cluster University of Jammu, Jammu, INDIA.
2Professor, University of Jammu, Jammu, INDIA

Abstract:
A volumetric and acoustic approach was used to study the interactions of L-leucine with aqueous solutions of different surfactants, namely, sodium dodecyl sulphate (SDS) (anionic surfactant), cetyltrimethylammonium bromide (CTAB) (cationic surfactant) and triton X-100 (TX-100) (non-ionic surfactant) over a temperature range of (298.15, 303.15, 308.15, and 313.15) K. Partial molar volume, $\phi_v$, partial molar volume at infinite dilution, $\phi_v^\infty$, its experimental slope, $S_v$ and partial molar volume of transfer, $\Delta_v \phi_v^0$ of L-leucine from water to aqueous surfactant solution were calculated from density data. The data of speed of sound was used to calculate apparent molar adiabatic compressibility ($\phi_K$), limiting apparent molar adiabatic compressibility ($\phi_K^0$), its slope $S_K$ and transfer volume $\Delta_K \phi_K^0$. The results obtained were utilized in the qualitative analysis of the solute-solute and solute-solvent interactions present in the various systems under investigation and it was found that L-leucine showed maximum interactions with SDS in comparison to other surfactants.
Keywords: sodium dodecyl sulphate, cetyltrimethylammonium bromide, triton X-100, partial molar volume, apparent molar adiabatic compressibility.

A critical evaluation of the State of the teaching of Indigenous Languages in the Universities of South Africa: A multidisciplinary and interdisciplinary approach in Social Sciences

Makgopa, Mokgale
Dean of School of Human and Social Science, University of Venda, Thohoyandou, Limpopo, SOUTH AFRICA

Abstract:
This article conducts an intensive survey on the teaching of Indigenous African Languages in the 23 universities of South Africa. The article compares the teaching of Indigenous Languages in the current South Africa with that prior to the new dispensation sanctioned by the first democratic, non-racial and non-sexist general elections of 27 April 1994. In particular, this comparative study focuses on the following
variables: student enrolment and graduation rate, particularly at MA and PhD levels. The article uses a mixed mode approach that is mainly based on phenomenological approach as the most dominant approach for data collection. Information is primarily based on the statistics obtained from the Department of Higher Education and Training (DHET), the Ministry responsible for Higher Education in South Africa. The Higher Education Management Information Systems (HEMIS) will also be used as the main source for information as it provides statistical information about the subject under investigation. The South African legislation on the teaching, documentation and preservation of the Indigenous Languages through the ministry of Arts and Culture will also form part of the study. Analyses of the impact of the new dispensation on the teaching of Indigenous Languages in Higher Education show a worrisome picture; for some sectors of the community and academia. Indigenous Languages appear as an endangered species in the new South Africa despite the financial support through the ministry of higher education and training. The introduction of the Charter for Humanities that led to the establishment of the National Institute for Humanities and Social (NIHS) is a good example to cite.

**Keywords:** indigenous languages, higher education, new dispensation, teaching and learning.

**A New Generalization of Rayleigh Distribution with its Application**

1Malik, Aliya Syed and 2Ahmad, S. P.
1Research Scholar, Department of Statistics, University of Kashmir, Srinagar, INDIA
2Sr. Asst. Professor, Department of Statistics, University of Kashmir, Srinagar, INDIA

**Abstract:**

**Aim:** In many practical situations while dealing with real life data, the established distributions do not provide adequate fit. For example many probability distributions like Weibull, Rayleigh, gamma etc. are widely used in in reliability theory. Still in certain situations these models can be inadequate. The main aim of this manuscript is to study a new Generalization of Rayleigh Distribution known as Gamma Rayleigh Distribution so that more and more data can be analysed using the new distribution thereby increasing the flexibility of the Base model by adding an extra parameter.

**Relevance:** As the theme of the conference indicates that new innovations in science and other fields are being considered, the paper thereby satisfies the given criteria since the given model is a new model in the literature of Probability distributions.
Methodology: the proposed distribution is generated using T-X family of distribution given by Alzetreeh et al (2012). The cumulative distribution function (CDF) of the T-X family is given by \( R(W(F(x))) \), where \( R \) is the CDF of a random variable \( T \), \( F \) is the CDF of \( X \) and \( W \) is an increasing function defined on \([0, 1]\) having the support of \( T \) as its range. This family provides a new method of generating distributions.

Findings: Various statistical properties of the new model including explicit expressions for moments, moment generating function, entropy etc. are derived. Also expressions for mean deviation and median are obtained. The parameter estimation is carried out using maximum likelihood estimation. Three real life data sets are used to demonstrate the usefulness of proposed distribution and it is being established that the proposed distribution is better fit than other models used in comparison. The analysis is performed by using R Software.

Conclusion: In this paper the Gamma Rayleigh Distribution has been defined and studied. Some basic mathematical properties have been rigorously discussed. The model parameters are estimated by using the Maximum Likelihood estimation. The usefulness of this model is shown by using real life data sets. It is being shown that Gamma Rayleigh Distribution when compared with Rayleigh distribution and Weibull Rayleigh Distribution has the least value of AIC, AICC and BIC. Hence Gamma Rayleigh Distribution can be chosen as the best model for all the data set. We hope that the new model will attract wider application in several areas.

Keywords: gamma-X family, Gamma-Rayleigh distribution, Shannon entropy, reliability, estimation.

A revised model for magneto convection in binary nanofluids

1Sharma, J. and 2Gupta, U.

1Assistant Professor, U.I.E.T., Panjab University, Chandigarh, INDIA
2Professor, Dr. S. S. Bhatnagar University Institute of Chemical Engineering and Technology, Panjab University, Chandigarh, INDIA

Abstract:
Motivated by the extraordinary enhancements in heat transfer efficiency of nanofluids at extremely low volume fractions have attracted a lot of attention in identifying the governing mechanisms. Recent investigations on convective heat transfer in nanofluids indicate that the dispersed nanoparticles remarkably change the transport properties. In the year 2006, Buongiorno concluded that nanoscale effects, Brownian motion (random motion of particles within the base fluid) and thermophoresis (diffusion of particles under the effect of temperature gradient) are important slip mechanisms in
nanofluids. Based on his findings, he developed a two-component four-equation non-
homogeneous equilibrium model for mass, momentum and heat transfer in nanofluids.

The double-diffusive convection problems for nanofluids have many applications in
engineering, meteorology, oceanography, astrophysics and geophysics. In recent years,
the class of such problems of stability has been enlarged by the interest in related
hydrodynamic flow equations of nanofluids. Considering the more demanding fluid of
modern technology than conventional fluids; the nanofluids and the geophysical
situations, oil extraction from beneath the earth in particular, we are motivated to
examine the effects of nanoparticles on double diffusive convection under magnetic field
analytically and numerically. The model under investigation is revised in the light of
more realistic boundary conditions of zero nanoparticle flux on the boundaries of the
layer. The effects of the Brownian motion and thermophoresis due to the presence of
nanoparticles and the effects of Dufour and Soret parameters due to the presence of
solute are included in the conservation equations of the system.

To study the present problem, an infinite horizontal incompressible binary nanofluid
layer confined between two horizontal planes is considered. This layer is heated and
solute from below. The conservation equations for the system are non-dimensionalized
and small perturbations are imposed on the basic solution. Linear stability theory is
used to write perturbed equations. Further, normal mode technique and one term
Galerkin method are used to solve the perturbed equations to get an eigen value
equation. For the analytical study, valid approximations are made in the complex
expression for the Rayleigh number to get useful and interesting results. The increase in
the values of thermal Rayleigh number for an increase in values of a particular
parameter establishes stabilizing effect of that parameter on the system while decrease
in values of Rayleigh number with an increase in values of parameter establishes the
destabilizing effect. The results are validated with the previous works of researchers.
The stability curves are drawn for water based nanofluids to analyze the stability of the
system using the software Mathematica.

Due to the inclusion of the magnetic field, Lorentz force term is added in the momentum
equation, which results in strong stabilizing effects of the magnetic field parameter (the
Chandrasekhar number) on the fluid layer. Oscillatory motions are not possible and
hence mode of convection is invariably through stationary mode. Binary nanofluids are
found to be much less stable than regular fluids. Presence of nanoparticles destabilizes
the system significantly. Copper nanoparticles in water based nanofluids are more
stable than alumina. The temperature difference, solute concentration difference and
nanoparticle volume fraction destabilize the system. Higher conductivity and density of
metals make them more stable than non-metals.
Here, it is necessary to mention some prospects for future work. The problem is solved using linear stability theory. Non-linear analysis for convective heat transfer problems for nanofluid can be explored using Fourier series expansion and Finite element method which may lead to some more non-dimensional parameters providing useful results. Higher order Galerkin method can be applied to get the effects of more nanofluid parameters which otherwise are being eliminated in the process.

A study on Smoking Restriction in family, Car and Home: A Real Concern

Dhiman, Viney and Bharti, Anupama
Research Fellow, Centre for Social Work, Panjab University, Chandigarh, INDIA

Abstract:
The aim of the study: The present study examines the prevalence of household and car smoking restrictions, factors associated with these restrictions, and children’s exposure to secondhand smoke in homes with varying levels of household smoking restrictions in Chandigarh city (India).

Relevance with the theme/objectives: The Current research work that is “A study on Smoking Restriction in family, Car and Home: A Real Concern” relates with the theme of “Responsible Research & innovation” as this research work focuses on the new area i.e. smoking restriction in Car/homes; many studies are there on smoking its patterns, trends or consumption in household are available. This present work touches the aspect with the present content of research and innovations i.e. smoking restriction association with two factors like home & family car. As best of researcher knowledge this is the very first study that is conducted in this area and this problem is the most social problem of India. And very fewer studies are there in context with India and its correlates with the objectives of anticipating future trends in research presently there is no legal provisions are there on household & car smoking this research work highlighted this research responsibility. This paper is also including in education sections of the conference schedule. At present, the relative contribution of smoking in the car to overall secondhand smoke exposure is unknown. However, both car & household smoking bans can be viewed as an important component of antismoking socialization. Smoking restriction in Car is very common and a strange issue for the respondents when we were asked about the restriction in the family car. According to GATS (Global Adult Tobacco Survey), there are 111.2 million current smokers in India who expose 52 % adults at home, 30 % adults in indoor workplaces and 29 % adults in any of the public places to the harmful effects of SHS (Second Hand Smoke). 44.7 % adult reported that
Smoking is allowed at home in Chandigarh and 31% of non-smokers exposed to SHS at home. SHS exposure affects those most vulnerable, especially women and children. In 2008, the Government of India adopted national legislation to prohibit smoking in public places. While this tobacco control legislation is an important step towards protecting the health of nonsmokers, compliance to date has been suboptimal. Even if it were effective, smoking regulations in public spaces are hardly sufficient to reduce SHS exposure to women and children, given that most exposure occurs inside the home. But this study adds another dimension of SHS exposure in the family car.

**Methodology:** This research is based on exploratory research design and is quantitative in nature. Purposive sampling has been used to collect data; sector 17 Plaza & sector-22; market area of Chandigarh and it includes fifty-two samples for the research purposes. Face to face interview was conducted with the primary caregivers (Father, mother or guardian) of children (below 15 years) is to be taken.

**Findings & Conclusion:** Smoking restriction in Car are very common and a strange issue for the respondents when we were asked about the restriction in the family car. As Caregivers have little knowledge about the issue of ill effects of SHS on the health of their family members and for their own health. Still smoking restriction was available between some respondents but the major finding of the study was that smoking was restricted by their elders in their home but at the same SHS exposure was created by the smoking practices of elderly.

**Recommendation:** There is need to work on this issue as a part of health promotion and preventive practices to mobiles the community about the benefits of these restrictions which affects the whole family. Also, need of the hour to provide some legal provisions in context with household/car smoking as like other westerns countries where smoking is totally banned in car/home.

**Keywords:** Smoking, Restriction in Car/Home, Family, Chandigarh.

An Error Analysis of Writing Skill of Punjabi Language of 10th Grade Students

Parveen, Surriya and Kaur, Jagjeet

1Research Scholar, Dept of Education and Community Service, Punjabi University, Patiala, INDIA

**Abstract:**
Language is the unique medium of communications by sounds among the individuals of different communities. These communities have different kinds of languages, different ways of expressions to convey message, different scripts and so on. In India, every state has its own official language like in Punjab; people listen, speak, read and write in
Punjabi language. In the present study investigators are concerned about error committed by students in writing skill of Punjabi language because writing is the most difficult skill of language proficiency as most of students tend to make errors in writing skill. In assisting the learners to successfully acquire writing skill, the analysis of errors and the understanding of their sources are essential. Errors are important parts and aspects in the process of language learning. They may provide insights into the complicated processes of language development as well as a systematic way for identifying, describing and explaining errors committed by students. Therefore, the present study has been designed to investigate the errors committed by 10th grade government school students in writing skill of Punjabi Language. For the present study, a total sample of 200 government school students across gender and location was selected from district Patiala of Punjab by random sampling. Self-made test in written Punjabi language was used to find out the different types of errors in terms of gender and location. The results of study revealed that all the students had committed errors in written Punjabi language that pertain content, knowledge, grammar, language efficiency and concept clarity. Greater percentage of boys had committed errors in areas of content whereas more percentage of girls had committed errors in the areas of knowledge and grammar. Almost equal percentage of boys and girls had committed errors in the areas of language efficiency and concept clarity. Results of analysis of variance (2x2) revealed main and interaction effect of gender and location is significant at .01 level. The study also highlights the causes and reasons behind errors committed by students in writing skill of Punjabi language. It is an attempt to provide different strategies to the language practitioners and teachers for making their teaching effective. It also highlights the need & importance of using the meaningful material for language teaching. It provides an opportunity of self-correcting to students by making them aware of their mistakes in writing skill of Punjabi language.

Key words: Error analysis, Writing skill, Punjabi language, Gender, Location.

Anatomical Dissection as a Teaching Method in Honors School – the Perceptions of Young Science Students

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Abstract:

Aim: To study the perceptions of young science students of Panjab University regarding the role of anatomical dissections as a teaching method in honors school after UGC discontinued dissection and animal experimentation in Zoology/ Life sciences.

Relevance: Animal dissection is a contentious pedagogical tool. Dissection gives a hand-on learning environment for appreciation and understanding of anatomy. A review of anatomical dissection as a teaching method in medical schools by Winkelmann, 2007 revealed that dissection of animals is a better method of learning as compared to non-dissection-based methods, though some studies were of a contradictory opinion. In India, dissection and experimentation on animals for undergraduate and postgraduate students were first stopped in the year 2011. Later UGC issued guidelines that debarred students from performing dissections in undergraduate classes and made optional for postgraduate courses. Then, in 2014 UGC issued the notification under section 12(j) of UGC Act, 1956 urging all universities to stop dissection of animals at UG and PG level. It was suggested that other humane alternatives like computer simulators that replicate the dissection experience to be used for teaching. The present survey explored the perceptions of students of Zoology at Panjab University to seek their opinion about the role of dissections as teaching method for learning animal anatomy before and after the ban.

Methodology: We conducted a cross-sectional survey on 60 honors school students of Panjab University using structured questionnaire. The questionnaire sought information about dissections for learning animal anatomy. They were also asked about their personal experience of dissections. Questionnaire was in English and Google forms were used to facilitate online responses. Responses were graded between strongly agree to strongly disagree.

Findings: Out of all the participants 94% of graduate & undergraduate students did not perform dissection whereas 87.5% of Postgraduate & PhD students had performed dissection in our study cohort. This difference was statistically significant (P-value <0.001). Odds of disagreeing that the concepts remain imaginary to the students without performing dissection were 9% lower in subjects in dissection group as compared to non-dissection group (OR 0.91, 95% CI 0.23-3.27; P-value 0.99). Also, odds of agreeing that plastic replica are better than dissection were increased 2.63 in students in dissection group as compared to non-dissection group (OR 2.63, 95% CI:0.54-15.5), however this difference failed to reach any statistical significance (P-value 0.38). Importantly, the performer group had nearly 3 times higher odds of admitting that gulf between theoretical and practical knowledge increased without dissection (OR 3.15; 95% CI: 46-87.2) and this difference reached trend for statistical significance (P-value 0.07). Mean (SD) scores for knowledge quiz were 6.46(1.41) and 6.28(1.83) in students who performed dissections 4 or more than four years ago and did not
performed dissection who are presently studying by memorizing theory. This difference was statistically not significant (P-value 0.67). Students strongly felt that government’s initiative to provide Simulation technology was not been taken care after banning dissection.

**Conclusions and Recommendations:** From the young science students perception it was observed in the survey, that UGC policy about completely stopping of dissection in graduate and postgraduate level requires to be reevaluated. The alternatives such as visual dissection simulations, 3-D models, plastinated specimens, videos etc. did not fill in the void as these methods were not implemented properly. As UGC did not conducted proper awareness and training programs for teachers and students about banning of the dissection leaving the teacher taught relation is in dilemma. It is very ironical that insecticides are readily available in markets to kill the insects like cockroaches, mosquitoes and flies but these insects are not allowed to be used in class for demonstration. Dissection is a kinesthetic experience and develops motor skills so total ban on dissection should be removed. It is high time when these issues require reconsideration and amendments.

**Application of Kanban to reduce over Production & WIP Inventory: a Case Study**

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**Abstract:**
Because of market competition and rapid technology development, managements of manufacturing industries are in pressure to improve productivity and cost effectiveness of their products. This leads manufacturing industries to adopt the philosophy of time-based management of inventory using Kanban technique, an integrated Just in Time (JIT) philosophy. Kanban is one of the primary techniques of JIT philosophy which signals a cycle of replenishment for production and materials. It is one that meets high throughput or service demands with very little inventory. Kanban is a card-based control system to transfer instruction based on logic that nothing will be produced until needed. It maintains an orderly and efficient flow of materials throughout the entire manufacturing process.

This paper presents a case study of Kanban applied to a leading automotive products manufacturing organization & supplying its products to almost all OEMs like Maruti Suzuki, Honda Cars, General Motors, Tata, Toyota Motors, etc. Real life data is used for illustration. It analyses the reduction in over production & reduction in inventory of the company by implementing Kanban technique in between various manufacturing processes of the company. This paper focuses on steps and activities carried out to
implement Kanban system for three most volumetric products of the company namely Emblem Maruti Suzuki, Emblem S mark & Emblem VXI which are supplied to OEM named Maruti Suzuki India Ltd. These steps and activities include developing kanban system for the Injection molding from where product manufacturing starts, & then moved to plating, painting, assembly, final inspection & finished goods store to ensure the optimum daily production qty. & optimum WIP inventory in between processes. The outline of this paper is: Section 1 introduces problems and scope of work. Section 2 provides overview of Kanban technique. Section 3 describes the steps and procedures used in implementing Kanban. Section 4 analyses the outcome of this implementation. The summary or conclusion of this paper is presented in the final Section. As the initial stage, a literature review was carried out to study Kanban Implementation. Next step was to explore how Kanban can be effectively applied in context of an automotive industry. The purpose of this paper is to investigate the applicability of Kanban Implementation in automotive parts manufacturing organization using a case-based approach. The research is administered using personal interviews, secondary data and observations. Evaluation of the Kanban system performance was carried out using lean metric. Three metrics used, are manufacturing Daily Production, WIP Stock / Safety Stock & Process Lead time in days (Daily production Qty. X Cycle time + Change Over Time). The identification of metric was done jointly by process owners and researcher. A comparison between two conditions was carried out to validate if the manufacturing performance had improved or deteriorated. The two conditions are before and after implementation of the Kanban system. it is concluded that after kanban implementation daily production qty. is reduced by 25%, 18% & 15% for emblem Maruti Suzuki, emblem s mark & emblem vxI respectively. Looking at WIP Stock / Safety stock, it is clear that it is reduced by 62%, 75% & 75% for emblem maruti suzuki, emblem s mark & emblem vxI respectively. And if we talk about Process Lead time then it is reduced by 11%, 11% & 9% for emblem maruti suzuki, emblem s mark & emblem vxI respectively. This paper presented a real industrial case study of kanban system implementation at manufacturing site. The research findings show that kanban system is essential in ensuring optimum inventory levels & meeting daily customer demand. Systematic and full commitment in implementing kanban system is crucial in ensuring its effectiveness; ultimately meeting customer satisfaction. The implementation shows that lead time, in-process inventory & finished good area will certainly improve. Subsequently manufacturing pace will be controlled and synchronized with daily customer demand. Therefore, it can be concluded that implementation of kanban system has improved manufacturing system & productivity.
Assessing the flexibility of Transmuted Exponentiated Inverse Weibull Distribution

Jan, Uzma, Fatima, Kawsar and Ahmad, S.P.

Abstract:

Aim: This manuscript considers the transmuted model of the Exponentiated Inverse Weibull distribution. The main purpose of this paper is to study the flexibility and the efficiency of the proposed model over its sub models already existing in the statistical literature. A comprehensive description of the several mathematical properties of the proposed model is given in this article. The various properties which include reliability analysis, moments, quantile function, median, moment generating function, characteristic function and order statistics have been discussed in the paper. The method of maximum likelihood estimation has been used for estimating the parameters of the newly proposed distribution.

Relevance: As it is clearly evident that the paper is based on the new additions in the different probability models by introducing an extra parameter to the parent model and compare its influence over other models as such it corresponds to the theme of the conference which is based on the new innovations in various fields of science along with the applicability.

Methodology: In order to construct the new model, we have considered Quadratic Transmutation Map Technique introduced by Shaw and Buckley in 2009. For obtaining the estimates from different models, we have used both generated as well real life data sets. The performance of the estimates is examined using R programming language. The random numbers have been generated by using the inverse cdf method. Also, the graphical plotting of probability density function, cumulative density function, reliability function and hazard rate have been displayed using R software. In order to compare the different models, criteria like AIC (Akaike information criterion) and HQIC (Hannan–Quinn information criterion) have been taken into consideration. The distribution which provides us lesser values of AIC and HQIC is rendered as best.

Findings: A new probability model has been generated using the transmutation technique and derived different mathematical properties of the proposed model. We have calculated the maximum likelihood estimates of the parameters of the different models along with their standard error. Furthermore, the values of Loglikelihood function, AIC and HQIC have been found. All these calculations have been done using R software.
Conclusion: In this paper, we have studied the new distribution that is transmuted exponentiated inverse Weibull distribution, a generalization of inverse Weibull distribution to improve the flexibility of the parent model by adding an additional transmuted parameter. Different mathematical properties like reliability analysis, moments, moment generating function and characteristic function are derived. The parameters have been obtained using the maximum likelihood technique. In order to analyze the flexibility and applicability of the proposed distribution both the simulated as well as real life data sets are considered. Due to the lesser values of AIC and HQIC in data analysis of the generated as well as real life data sets, it can be easily inferred that the newly developed model has superiority over its sub models especially for the large data sets.

Keywords: Transmuted Exponentiated Inverse Weibull Distribution, Reliability analysis, Moments, Quantile function, Order Statistics, AIC and HQIC.

Bayesian Normal and T-K Approximations for Shape Parameter of Type-I Dagum Distribution

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Abstract:
Aim: In this article, Bayes estimators for the shape parameter of Type-I Dagum is obtained distribution by using Bayesian approximation techniques like normal and T-K approximations. Moreover, different informative priors have been considered and a simulation study and real data set has been considered to study the efficiency of obtained results.

Relevance: Bayesian inference provides a rational method for updating beliefs in light of new information. In this paper we propose the use of Bayesian approximation techniques for obtaining Bayes estimates when the evaluation of the posterior expectation are tedious.

Methodology: In order to obtain the Bayes estimates for the shape parameter of Type-I dagum distribution two Bayesian approximation techniques i.e. normal approximation technique and T-X approximation techniques have been used. The prior distribution is combined with the sample information contained in the likelihood function to obtain the posterior distribution that contains all the probabilistic information about the parameters. Three types of informative priors Mukhjee-Islam, gamma and inverse levy
priors have been taken into consideration. The efficiency of the Bayes estimates and approximation techniques has been compared by using simulated data generated by R-software and using real life data set.

**Findings:** As we have used the Bayesian approximation techniques to obtain the different Bayes estimate along with posterior standard deviations for the shape parameter of Type- I Dagum distribution under different priors. The performance of the estimates has been examined using R programming.

**Conclusion:** In this paper the focus was to study the importance of Bayesian approximation techniques. We presented approximate to Bayesian integrals of Type –I Dagum distribution depending upon numerical integration and simulation study and showed how to study posterior distribution by means of simulation study. We observe that under informative priors, the normal approximation behaves well than T-K approximation, although the posterior standard variances in case of T-K approximation are close to that of normal approximation. Further we conclude that the posterior standard deviation based on different priors tends to decrease with the increase in sample size. It implies that the estimators obtained are consistent.

**Keywords:** Dagum distribution, Bayes estimate, informative prior, normal approximation, T-K approximation.

**Brain Based Education - An Emerging Field in Innovative Education**

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**Abstract:**  
From ancient times to the present era ultimate goal of all education is learning. Learning that enables the learner to be better equipped to sustain the life in best possible ways. There have been constant researches and development of various strategies and methods to improve the learning. But most strategies do not utilize the principle of every individual is unique and hence have their own learning style. The brain based leaning has provided that tool to the teachers to pick, choose, adjust and modify their teaching strategy as per the need of the learner.  

Brain based leaning is based on the fact that each brain is unique and hence the leaning needs to be as per the learner. It is an educational approach based on the assumption that brain naturally learns best (Slavkin, 2004). Brain based learning is the inter relationship between Psychology, Pedagogy and Neuroscience. It takes discoveries in the brain sciences and applies them to educational practices and teaching approaches. Brain-based learning theory provides insight into not just how to structure learning, but how to set up a classroom, support social emotional learning, and assess students.
Brains work best in more colorful classrooms, which incorporate music, movement, and novelty of tasks. It engages the emotions of the students, provides enriched environment, active processing the information, makes meaning and takes maximum participation of learner with high challenge and low threat. Brain based learning strategies aim at improving teaching-learning process keeping in mind the needs of diverse learners.

Moreover brain based instructional strategies are based on the idea that instructional strategies are more effective if they occur in an environment compatible with the fact that brain is designed to learn (Sousa, 2001). Current research in learning theory revealed that implementation of multidisciplinary, multisensory approach enhances one's learning. By bringing the researchers and educators together, from disciplines like Neuroscience, Pedagogy and Psychology it promises to be the holistic approach for effective teaching learning process. Brain based learning is a promising approach to help teachers attain this objective because in the end what matters is not what teachers teach but what the students learn.

**Keywords:** Brain based learning, innovative education.

### Building a Participatory Learning Community through Library Learning Commons

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**Abstract**

This paper is a discourse regarding the evolution of learning commons in research and academic libraries. Attention is given to describe the purposes, influences and emerging trends of spaces required for building learning community. As Koechlin (2009) very well mentioned 'Fostering 'habits of mind’ and ‘learning dispositions’ are conducive to success’. Deep learning and knowledge creation requires that a flexible and responsive approach be adopted by the institutions to provide spaces which are beyond boundaries i.e. virtual and collaborative spaces. Learning is an act of cognition which requires flaming of ideas, concepts and critical thinking. Learning commons are developed to increase student engagement and achievements in a collaborative manner. Library and Information centres have to change their mode of availability by providing spaces for the future oriented researches. Self and participatory learning with a vision to extend resources in a networked environment for a processed and active learning is the need of the hour. Researchers need to be provided with authentic and primary resources with the help of technological tools. In an ever evolving world of Information, competencies need to be developed for learning and innovation skills. A sense of participation among academic researchers would promote collaborative support in order to build thoughts
and ideas as a team member. Staying and confirming a well defined arena of knowledge means the researcher is negating the change and surrendering to the archaic approach which in no way would lead to a comprehensive research. In its wholesome ideology, learning space has to be open and bias free.

**Keywords:** Community Learning, Library Learning Commons, Participative Research.

**Can BDNF modify treatment related cognitive impairment in cancer patients**

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**Abstract:**

**Background:** BDNF (Brain Derived Neurotrophic Factor) is a nerve growth factor that primarily supports survival of existing neurons and promotes the growth and differentiation of new neurons and synapses. It has been found that cognitive decline in amyloid β pathology in Alzheimer’s disease (AD) can be improved by BDNF as shown in our animal studies. BDNF levels can also be related to neuron degeneration in ALS. In animal models, BDNF prevents lesion-induced degeneration of spinal motor neurons and corticospinal motor neurons, and ameliorates motor neuron disease in wobbler mice. Cancer patients after receiving chemotherapy and radiotherapy often experience cognitive decline, depression, fatigue and stress as the side effects of these therapies. This has been reported to be associated with reduced BDNF levels in these patients. It has also been found that in several types of cancer and solid tumours, BDNF was found to be raised. We reviewed literature in order to formulate new interventions that can exert homeostatic effects on BDNF.

**Methods:** Lineage negative stem cells isolated from human umbilical cord blood were shown by us to rescue Aβ model induced learning deficits, mediated by BDNF. Review of literature of the role of BDNF in cognitive dysfunction associated in cancer and degenerative disorders of brain may benefit from yoga and endurance exercises as shown by literature search.

**Results:** Additional literature showed that Yoga intervention resulted in optimised BDNF levels in plasma which could potentially exert positive effects in cognitive loss associated with cancers as well as degenerative disorders of brain and could be further analysed by planning new case studies.

**Conclusion:** On the basis of literature search it can be hypothesised that homeostatic levels of BDNF in plasma are critical in regulating cognitive decline in cancer patients and Mind body techniques could be used to study its effects.
Cephalo-facial and hand measurements in human identification: A new dimension in forensic anthropology

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Abstract:
Introduction: Human identification is an important but challenging issue to be achieved from unidentified human or skeleton remains in forensic anthropology. The estimation of age, sex, stature and ancestry of an individual is an important pursuit to be established in human identification before any further analysis took place. Forensic anthropology is becoming progressively more famous field of specialisation with increase in crime and death in the world, the needs for this speciality is becoming more and more important. Cephalofacial anthropometry is important for facial reconstruction and hence recognition of the victim.

Aims: Present study was conducted with the aims like to obtain the baseline anthropometric data on adolescent children of Ladakhi population; to find the correlation between the hand parameters and cephalo-facial parameters with the stature; and to reconstruct the stature by using linear and multivariate logistic regression analysis among the Ladakhi population.

Methodology: The present study was carried out by descriptive cross sectional random sampling method. The data was collected on 251 adult subjects (117 females and 134 males) above 25 years of age and 206 adolescents (129 boys and 77 girls) aged between 14-18 years of age for stature reconstruction of Ladakhi population. The instruments used were spreading calliper, sliding calliper, anthropometric rod and steel tape.

Results: Multivariate regression and linear aggression analysis of cephalometrics found that only four variables (out of total) and some hand parameters were found better for stature estimation. A significant degree of sexual dimorphism was noted among most cephalo-facial variables and hand variables (P≤0.05). Head circumference and external orbital breadth (R²=0.194) came to be the best predictors of the stature estimation in males and head length, physiognomic facial length and external orbital breadth (R²=0.193) came to be the best predictor for the height estimation in females. The hand parameters were found to be highly significant (P<0.001) in both the sexes for stature estimations. The standard error of estimate (SEE) showed that male hand parameters
were more reliable and accurate in stature estimation of unknown individual than their male counterparts.

**Conclusions and recommendations:** Present study findings have a great significance for forensic anthropology, race biology and medico-legal studies. These results will serve as the first baseline data on cephalometrics and hands parameters of Ladakhi population as no such study has been reported in the literature for this population. The equation established from present study results is population specific based on population body size and structure influenced by environmental and genetic factors.

**Key words:** Human identification, cephalo-facial, forensic anthropology, Ladakhi, hand variables.

**Climate Justice, Women and Intergovernmental Panel on Climate Change (IPCC): Issues and Challenges**

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**Abstract:**

"Injustice anywhere is a threat to justice everywhere. We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects one directly, affects all indirectly."

- Martin Luther King

The fourth assessment report of Intergovernmental Panel on Climate Change (IPCC), published in 2007 unequivocally stated that the past and present human activities have endangered the climate globally. It is evident through the rising average temperature, long term changes in precipitation, high level tides, ocean salinity and acidity, extreme and frequent weather events. This poses serious threat to the biodiversity and ecosystem integrity. But it challenges the human existence in number of ways. It is said that nature does not discriminate, so climate change related impacts should also not discriminate. But this is not true. Some humans are hit harder than the others. This discrimination is manifested in two ways: **spatial differentiation** and **social differentiation**.

Here, spatial differentiation implies that the impacts of current and future climate change are likely to lean toward regions with the least capacity to adapt, in particular Least Developed Countries and Small Island Developing States. Social differentiation implies that the world’s poor, particularly women and children, are especially vulnerable to climate change. Thus the existing inequalities are exaggerated by the
climate change. This results in the injustices (This was well recognized in the IPCC’s fifth assessment reports published in 2014). This gave momentum to the climate justice movement.

The term "climate justice" represents important questions in the climate change governance, such as:-

- Who is responsible for the present state of environment i.e. should historical factors be considered in the blame game or the contemporary usage of carbon be the benchmark?
- Who should and how much should be contributed towards mitigation and adaptation?

The answer lies in distributive justice, relating to the transfer of capacity, finance and technologies to tackle climate change as well as allocation in the global carbon budget. The term is, thus, linked with the "equity and fairness; protection of human rights and how to share the benefits and burdens of a global transition to low-carbon societies". Today climate change is not just an environmental issue but an ethical and political challenge needing urgent solution. But the present international climate governance does not reflect principles of distributive justice. Climate justice, as such, is kept out of any negotiations reached so far and still remains a debatable issue.

The aim of the research paper is to:

(a) Highlight the importance of responsive research done by the IPCC in the field of climate change that gave impetus to climate justice movement.

(b) Give a comprehensive account on the debates surrounding “climate justice” in climate diplomacy.

(c) Study, in particular, how climate justice involves issue of gender justice.

(d) Show that there is need to move towards more responsive innovation in which societal and ethical issues are better anticipated and acted upon up front.

This research paper directly reflects on the objectives of the conference like highlighting the impact of responsive research by IPCC; deal with wider ethical issues in climate change; advocate for more inclusive research governance by including the interest of local communities and women, in particular.

The present research is doctrinal. The sources of the research include the various reports published by the IPCC and various articles analyzing the IPCC reports and climate justice.

The research paper is divided in four parts: first part deals with climate justice and different debates surrounding it. The second part reflects the contribution of IPCC in understanding the issue in more comprehensive way. The third part deals with how women are at the forefront of climate change related impacts and how they can contribute in dealing with various challenges. The fourth part concludes and gives suggestions on the topic.
Keywords: climate justice, climate governance, climate diplomacy, gender justice, ethics, equity.

Coding Theorems of Two Parametric New Fuzzy Information Measure

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Abstract:
Aim: In this paper, we propose a new two parametric fuzzy average code-word length for a fuzzy subset ‘A’. The relation between fuzzy information measure and average code-word length is discussed. We also obtain the bounds of the proposed fuzzy average code-word length in terms of the fuzzy information measure.  
Relevance: As it is clearly evident that the paper is based on the coding theorem for new fuzzy information measure as such it corresponds to the theme of the conference which is based on the new innovations in various fields of science along with the applicability. 
Methodology: We first consider a valid two parametric fuzzy information measure and corresponding to that measure, we obtain fuzzy average code-length. The fuzzy information measure should be valid in the sense that it satisfies all the four properties as given by De-Luca and Termini. By using Kraft’s Inequality, we obtain bounds of the average code-length in terms of that fuzzy information measure. We have proved several theorems in this regard. 
Findings: A new average code-length is developed and is made to satisfy several inequalities. 
Conclusion: In this paper, we have proposed a new generalized fuzzy average code word length and have developed the coding theorems corresponding to this code word length. In addition, the bounds of the fuzzy average code-length are obtained in terms of the two parametric fuzzy information measures. 
Keywords: Coding Theorem, Code-Word Length, Holder’s Inequality and Kraft’s Inequality.
Comparative Responsible Research in Social Science: Governmental Responses to Academics in the UK and the USA

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Abstract:

Aims: “Responsible research” in the social sciences has come to mean connecting our research to the practical concerns of the public in a way that contributes to positive social change. We assume that the public wants our results, our advice, and our insight. My research will expand on previous research on the relationship between policy stakeholders in the USA and local academics to the UK, how we in academic disciplines can best meet their needs, where we fall short, and what we can do to increase support of their efforts in bringing the best possible students to the University.

Relevance: Not only is this study in support of the movement toward responsible research, its necessity and aims, the study is responsible internally: that is, the University of West Georgia is asking the impacted population what it is they need, with a view to actually accomplishing those tasks within the Murphy Center for Public Service.

Methodology: Through an expert survey of local policy makers in the UK, I hope to compare British attitudes toward academic research to those of their US counterparts. This survey replicates one that was conducted two years ago; the survey itself is complete but the data review remains to be accomplished in advance of the paper.

Findings: The details of the findings will emerge when the survey is closed. However, I ask questions about the utility of creating new journals, lecture series, workshops, and various types of outreach packages.

Conclusions and Recommendations: Thus, this study aims to bolster academic infrastructure in support of responsible research by laying the groundwork more practical connections between academics and local government stakeholders, and looks to examine comparative attitudes toward academic research. To that end, the research will make policy recommendations to the University and to grant foundations in terms of accomplishing the goals that emerge in the study. We will move away from our ivory towers toward responsible social change.
Comparison of epigenetic modifications in Endometriosis and Endometrial cancer

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Abstract:
Objective: Epigenetic modifications such as DNA methylation, histone modification and micro RNA/snRNA dysregulations play an important role in pathophysiology and progression of endometriosis and endometrial cancer. Aim of present study is to compare total histone H3 methylation and microRNA 16 expression levels in endometriosis and endometrial cancer tissue samples.

Design: Endometriosis/Endometrial cancer/Normal endometrium tissue samples were obtained from total 12women (n=4 each) undergoing laprotomy/hysterectomy in Gynae operation theatre of Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh. Fully written informed consents were obtained from all the study subjects prior to their participation.

Material and Method: Tissue samples were collected and further preceded for RNA extraction and Total histone H3 protein extraction. RNA is converted in to cDNA by miScript RT kit. Micro RNA 16 level expression levels were checked by qRT-PCR and polyacrylamide gel electrophoresis (PAGE). Total histone H3 methylation levels were checked by Histone H3 ELISA kit.

Results: We observed that miRNA 16 expression levels were significantly higher in subjects with Endometrial Cancer as compare to control study subjects whereas no significant change was observed in subjects with endometriosis in comparison to Control subjects, which depicts that miRNA 16 upregulation in endometrial cancer might play an important role in cell proliferation and angiogenesis by downregulating cancer suppressor genes whereas there is no direct relationship between miR16 expression and endometriosis. Total histone H3 methylation levels were observed significantly higher in both endometriosis and endometrial cancer samples as compared to control samples but significance level was more in endometrial cancer (p<0.01) samples as compare to endometriosis samples(p<0.5).

Conclusion: We concluded that miRNA 16 differential expression might plays an important role in pathophysiology and progression of both the diseases by altering the
expression of its target genes. Significant total histone H3 modifications in both diseases results the importance of histone modifications in their development.

**Keywords:** Micro RNA, Endometriosis, Endometrial Cancer.

**Current Practices of Early Childhood Care and Education in Ethiopia**

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**Abstract:**

The study first of all, attempted to assess and compare the best and non-best government owned Kindergartens (KGs) which are found in Arada and Kirkos sub-cities of Addis Ababa, Ethiopia. Second, it identified some of the current best practices and major challenges of Early Childhood Care and Education (ECCE). Those things that were revealed by the study may contribute their pivotal roles in enhancing children's early stimulation, rearing practices, primary prevention, and reduces the number of children placed in Special Education. Besides, it plays immense role in assuring Education for All (EFA) and Inclusive Education goals. As a means, mixed research method was employed to analyze both the collected qualitative and quantitative data. Comparative study was used to compare the best and non-best KGs through compartmentalising the education system of ECCE in to educational input, process and output. Participants of this study were 122 upper KG children, 32 teachers, 4 caregivers, 8 parents who are members of Teacher Parent Student Association (TPSA). In addition, 4 KG coordinators, 2 ECCE program coordinators from each sub-city and one ECCE expert from Addis Ababa Education Bureau (AAEB) were also participants of this study. In order to select the participants, stratified, census, and purposive sampling techniques were applied. The main data gathering instruments used in this study were observation, questionnaire, interview, and academic achievement tests. Moreover, document analysis was also used to collect supplementary data. Thematic data analysis techniques were used to analyze the collected qualitative data; whereas the quantitative data were analysed by using statistical techniques of chi-square, t-test, analysis of variance and post hoc comparison. The results obtained revealed that the educational inputs were similarly distributed both in the best and non-best KGs. On the other hand, the chi-square analysis implies that the educational process had been better used in the best KGs than the non-best KGs. Besides, the independent sample t-test analysis revealed that there is statistically significant mean difference of educational output that is both on letter and number identification test score between children from the best and non-best KGs. Moreover, the result of the analysis of variance displays that there was statistically significant
differences among KG4, one from the non-best KGs and the other two best and KG3, and another one from the non-best KGs. Besides, Current Best practices and major challenges of ECCE were also identified. Finally, it can be concluded from the analysis of the study that though there was similar educational inputs in the best and non-best KGs, effective utilisation of educational process might have brought statistically significant differences in educational output, that is, in the children letter and number identification abilities. Finally, pertinent recommendations were drawn from the findings and the conclusions of the study.

**Keywords:** Academic achievement, Best and Non-Best Kindergarten, Bestpractice, Early Childhood Care and Education.

**Determination of Thiophanate Methyl Fungicide by a Differential Pulse Polarographic Method**

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**Abstract:**
The environmental pollution caused by the extensive use of the pesticides is of great concern as these lead to potential toxicological risks to non-target organisms and public health. Thiophanate methyl, a bis-thiourea based systemic fungicide which is extensively used for the control of many fungal diseases in fruits, vegetables, field and plantation crops but it is a category III acute toxicant and a suspected carcinogen. A remarkably sensitive differential pulse polarographic method for the determination of thiophanate methyl has been developed which is based on the reaction of the fungicide with copper(II) perchlorate in the presence of butylmethylimidazolium bromide (ionic liquid) in acetonitrile. The reaction product exhibits an analytical useful diffusion controlled peak at -180mV (vs SCE) and the thiophanate methyl has been determined in the linearity range $1.25 \times 10^{-6}$ to $12.5 \times 10^{-6}$ mol L$^{-1}$ with a correlation coefficient of 0.997. The results of analysis indicate that one mole of thiophanate methyl reacts with two moles of copper (II) perchlorate to form most plausibly copper(III)-bis thiourea complex, which generates the new peak at -180 mV in differential pulse polarography. The stoichiometry of the fungicide-copper (II) perchlorate reaction has also been established by potentiometric titrations of thiophanate methyl with copper(II) perchlorate in acetonitrile in the presence of BMIB ionic liquid. The method has
successfully been applied to the analysis of a commercial formulation of thiophanate-methyl for its active ingredient content with recoveries in the range 98.2–99.1% of the nominal content with RSD’s in the range 0.60–0.84%. The proposed pulse polarographic method for the determination of thiophanate methyl is simple, sensitive and reliable and the determination of the fungicide can be done at larger dilution with smaller volume of sample solution without any interference from inert carrier present in formulations.

**Keywords:** Thiophanate methyl, pulse polarography, copper (II) perchlorate, BMIB ionic liquid.

**Developing computational thinking skills: with special reference to science education**

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**Abstract:**
The contemporary world of automation and computer driven technologies have resulted in mandatory acquisition of the skill of Computational Thinking (CT). This term is used to define an extensive array of mental processes fundamental to computer science that aid people find effective methods to solve problems, design systems, understand human behavior, and engage the power of computing to automate a wide range of intellectual processes. It can be referred to as a set of universally applicable attitudes and skills that everyone would be keen to learn and use. CT is a way of thinking that utilizes algorithmic and analytic approaches to frame, analyze and solve problems. It involves the concepts such as problem decomposition, data representation, modelling, abstraction etc. CT has attracted cumulative attention in last decade, giving rise to a huge amount of academic and grey literature.

The importance of acquiring these skills has been widely acknowledged across the literature. But researchers have varied opinions about how can these skills be acquired in the most efficient manner. Numerous propositions include developing CT skills by teaching these through an altogether special course and many researches propose to infuse these skills into the already existing subject curricula. In pursuit of resolving this stigma, the current paper deals with studying and analyzing various tools and techniques, that have been reported in literature, to develop CT skills in the students. Arguments have been presented for and against the inclusion of developing CT skills through separate modules or by infusing these skills in the subjects already being taught.
Acquisition of CT skills helps the students to become creators of technology rather than mere users of it. Development of CT skills has been linked to improved levels of course outcomes as well as to the enhancement in other soft skills. As one of the major objectives of responsible research is to involve school-level science education in research, the results of the study can form the guidelines for the stakeholders to make the policies, designing effective curricular framework and encourage innovative pedagogical approaches that aid in developing CT skills in the students at all levels of school education.

A detailed review of literature has been conducted in order to identify the assortment of tools that have been used to develop the CT skills amongst the students at various levels of their schooling. The critical analysis of the tools used has been conducted in order to determine their applicability and feasibility. Research findings highlight the importance and relevance of numerous interventions reported in the literature to infuse CT skills amongst students. The analysis indicates that most common kind of intervention is based on using programming environment like MATLAB, Engage, Program you Robot, tangible robotics program, and Alice to inculcate computational thinking skills amongst students. Some of the other interventions included designing and introducing computational-thinking modules to demonstrate algorithmic thinking, probabilistic reasoning, heuristics, hypothesis testing, and problem solving; Engage- to collaborate learning with the engaging nature of learning environments based on game play; a variety of in-school, after-school, and summer camp programs in game design; practice to integrate coding and visual blocks programming in different subjects; Alice; Simulation Creation Toolkit; implementing teaching and learning approach based on the computational-inquiry; and Augument-Driven Inquiry.

The findings suggest that there is a clear bent towards using programming as the sure shot tool for developing CT skills amongst students. Some studies suggest the use of kinesthetic activities as an effective way to integrate the CT skills in the pedagogy of science education. The major challenge, to be resolved here, is to enlist some effective way to infuse computational thinking skills in the subject curricula. The attempt should be made to develop strategies to integrate teaching CT skills in the subject pedagogies. This approach can eliminate the difficulties of adjusting separate CT skill teaching modules into the fixed curriculum framework and can also help in improving the understanding of the subject content as well.
Development of Health Application for Promoting Maternal and Child Healthcare: An Innovative Approach in Public Health

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Abstract:
Aim: To Develop Health Application to help the community for easy access of evidence based information regarding Maternal and Child Health.

Objectives: To develop health application for the community for easy access of evidence based information regarding:
- Nearest Hospital Location.
- Promotion of Maternal and Child health.
- Combating anemia.

Relevance: Bringing a new life to the world is a wonder to everyone. The well-being of mother and children determines the health of next generation. The communication technologies like mobile devices can help to improve education, health and economics of people everywhere and anywhere. Hence, can be a useful tool to look upon in developing country like India. Being pregnant can be very challenging to mothers especially if they are expecting for the first time. Many rely on information that is passed down from one to another which may not be accurate as experience can vary from one pregnancy to the other and from one person to another. Although lots of information widely available in printed form but sometimes not accessible. Pregnant women who are living in urban and rural area can have equal access to quality health care. Women in rural area can benefit through this system greatly by preparing for child birth and post-delivery.

Mobile phone usage has proliferated in recent years therefore; mHealth can become a lifeline for developing communities. In today's technology driven world, electronic devices have become an essential one in everyday life. Whether used for official or personal life, these devices influence and shape the way we think, in both thoughtful and accidental ways. The rapid development of internet and communication technologies in the past twenty years has changed the lifestyle of human beings in the entire world. mHealth uses mobile devices to enhance the practice of public health, providing information, facilitating consultation and supplementing care, all through a phone. Mobile devices can be used to provide health information based on geographical
location of the health facility. Mobile phone based pregnancy support can position itself as a major breakthrough approach to educate women on pregnancy. The effect of the use of technology is both positive and significant in mother and child health care. ICTs have a good capacity to influence community demand of health information. Smartphones and smartphone proxy systems using simpler phones, equipped with the capabilities to identify location/time and link to the web, are increasingly available and likely to provide an excellent platform to support healthcare self-management, delivery, quality, and supervision. Mobile devices can be used to provide health information based on geographical location of the healthcare facility. The app will be beneficial to mothers to control common childhood diseases like diarrhoea and pneumonia. The app provides the location of the nearest hospital so that medical care to mother and child can be provided immediately in case of need. It tells about the immunization schedule for the children as well as women. It tells the reader about high risk pregnancy, antenatal check-ups and postnatal check-ups for the pregnant women.

Tools and Methods:
- Android Studio 2.3.3 for windows.
- SDK emulator.
- PHP and MySQL.
- Evidence based information provided by Technical Team of USAID.

Expected Results:
1. The app “Maternal and Child Health” will help for easy access of nearby healthcare facility in emergencies to reduce the risk of maternal, infant mortality and pregnancy related complications.
2. To provide reliable information regarding antenatal and postnatal delivery.
3. It will help for compliance of immunization schedule.

Conclusion and Recommendations:
Community awareness is essential component of health communication which is an important intervention to reduce maternal and child mortality and morbidity. Advanced Information and Communication Technology should be used to create awareness about health issues in community. The app will contribute towards easy implementation of National Policies like RMNCH+A.
Development of Human Face literature database using Text Mining Approach

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Abstract:
Face is an integral part of human body by which an individual communicates in the society. Its importance can be highlighted by the fact that a person deprived of face cannot sustain in the living world. The research on various aspects of human face has led to the collection of enormous amount of literature concerning it. The amount of experiments being performed and the number of research papers being published under the domain of human face have upsurged in the past few decades. Several scientific disciplines, which are conducting research on human face include: Anthropology, Information technology (Biometrics, Robotics, and Artificial Intelligence etc.), Psychology, Medical Science, Forensic science, Neuroscience etc. This alarms the need of collecting and managing the data concerning human face so that the public and free access of it can be provided to the scientific community. This can be attained by developing databases and tools on human face using bioinformatics approach. In the current research, a database concerning literature data on human face has been developed. The database can be accessed on the basis of specific keywords, journal name, date of publication, author's name etc. Text-mining refers to the process of mining knowledge from the unstructured data. The extracted keywords will be used in indexing the literature. The collected research papers will be stored in the form of a database. Hence, the database will be beneficial to the research community as at one place the comprehensive information dedicated to human face could be found. The front end has been developed using HTML (Hyper Text Mark-up Language) and CSS (Cascading Style Sheets). The back end has been developed using PHP (Hypertext Pre-processor). The JAVA Script has used as scripting language. MySQL (Structured Query Language) is used for database development as it is most widely used RDBMS (Relational Database Management System). XAMPP (X (cross platform), Apache, MySQL, PHP, Perl) open source web application software has been used as the server.

Keywords: Database, CSS, MySQL, RDBMS, XAMPP, PHP, Artificial Intelligence.
Dogme Language Teaching In Indian Context: Co Construction of knowledge

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Abstract:
Language is a primary medium to exchange our views. Despite continuous pressure from nationalists, importance of English cannot be neglected. It is widely used in media, in education, in day to day life and where not. But large number of students find themselves unable to express in English. Many reasons can be attributed to this failure of learning one of those is wrong methods of teaching. The existing methods of English teaching like silent way, Natural way and direct method have somehow not found very successful because so much emphasis is put on the text books. Teachers use inappropriate methods for those who study English as a second language.

Dogme Language Teaching is revolutionary step In English teaching and learning process. In the modern era of logic when questioning has become part and parcel of life. Teaching methods should also be changed with the same speed. Dogme is a step taken for this change. Dogme language teaching is both a methodology and a movement in English learning. In 2000 Scott Thornbury published an article in IATEFL (International association of teacher of English as a foreign language, issue 153), titled a “Dogme for EFL” which triggered a debate among English teachers to adopt this approach.

Aim of my research is to highlight the concept that learning of English language should emerge from communication between learner and the mentor. Methodology which I used is experimental practice. The experiment was carried out in the classroom with my students and the results of traditional teaching method and Dogme teaching method varied to large extent. When Dogme teaching method was implemented it was found that understanding of language was better and quick. Through this research paper I want to emphasise how Dogme teaching method is going to improve the performance of the students and it is going to make learning of second language acquisition accessible and enjoyable. This method of teaching English is going to alter and progress educational theory.

Learning should be based on Development of knowledge inside the classroom which should come out of conversation between student and teacher. In this method of teaching, teacher & students themselves bring the material. Teacher has to work with the material which students bring, So in this way externally prepared material is not forced on students. In Dogme teaching, Topics selected by the students are given priority. Preselected grammar is forbidden. Grammar is emerged from the conversation. Students tend to learn new words quickly & interestingly as compare to learning through old
teaching Methods. The crux of this method is to use dialogues in the class and these dialogues will generate further dialogues, grammatical exercise & pronunciation drills. This method specially works wonderful in multicultural countries like India.

The pertinent aspect of Dogme teaching is that material is locally generated, because learners themselves choose their topic of study and texts. Dogme is also economically very efficient for educational institutions which lack finance as it adopts material light approach. By foregrounding dialogue and personal narrative of the learners, it has brought change in the process of language learning. Learner becomes co-constructor of learning process which is the most significant aspect. Scott came to the conclusion that teaching should be done using only the resources that students and teacher bring to the classroom themselves. Dogme focuses upon making language learning as an experience which comes out from spontaneous interaction between learner and teacher. This method challenges not only the way teaching is viewed but the way of looking at the role of teacher is also challenged.

**Educational and Psychological Needs of Individuals with Disabilities**

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Abstract:

An individual’s wellbeing is an essential component of his or her ability to function well, not only at the workplace but in all life domains. Many studies have researched about the wellbeing and mental state of an individual but empirical studies which talk about the special educational and psychological needs of individuals with disabilities are few in number. An estimate of around 200 million individuals worldwide experiences various forms and types of disability. The aim of the research paper is to draw attention of the entire society towards the educational and psychological needs of individuals with disabilities. These needs are not only of children but also of adults. Primary research has been used to chalk out the communication of individuals with disabilities with other people and then analyzing their response, attitude, and effect thereto. Survey method has been used as a primary tool of research and for secondary research, help has been taken by extracting data from various different research reports conducted by government authorities worldwide.

Every person is important and special irrespective of his or her mental or physical state. It is the responsibility of the government of the respective countries to cater to their needs. This research paper focuses on the relevance of the notion of love and care which
must be projected towards these individuals in accordance with the varied methodologies such as IRIS modules and distinct educational aides. Individuals with disabilities are themselves a community of people which are often treated a little differently from the rest of the class of people. The extant literature portrays the various difficulty factors which include the physical, psychological, and educational vulnerability of individuals with disabilities in disaster. Other factors include higher poverty rates, increased exposure to financial and emotional risk, more and more vulnerability to the traumatic loss or separation from the caregivers and more strain for the parents in case the individual is a child.

It attempts to deal with the issue of seclusion and the lack of empathy against these individuals in the contemporary world. The results of the study suggest that a developing country like India sometimes falls short in the arena of providing protective environment to them who want nothing but tender love, care, and support. These results can be used to determine how future instructors and teachers can be trained and these results can highlight the need for future teachers to engage in certain field experiences as well. Special recommendations such as the necessity of inclusion of vocational courses into the education of individuals with disabilities must be given the highest priority. Vocational courses relating to art must be taught so that they can earn their own livelihood. Since this is the world of digital era, they must be trained in computing and internet skills. This would act as a double-edged sword. Firstly, they will be able to find online jobs which would permit the individuals to work from home and would be a boon for those who cannot actually venture into the field jobs. Secondly, because of the jobs, they would be able to keep themselves busy in their respective lives. They would be able to detach themselves from the harmful emotional diseases such as anxiety, depression and so on. Furthermore, they will not even be near to being called as a liability for their parents or other family members. Financial stability is the greatest stability by far. Financial stability means half of the life’s problems are over.

This paper also delves with the need to give special attention to the law which deals with the protection of such individuals. The paper not only tries to explore the jurisprudence and the genesis which has led to the present law, but also enquires into the loopholes associated with it. Lastly, this paper proposes imperative changes to eliminate the existing flaws in the System further making it more effective.

**Keywords:** Disabilities, IRIS Modules, Law, Financial Stability, Vocational and Computing Skills.
Effect of a Preventive Protocol on Oral Health Status and Salivary Parameters of Type-1 Diabetes Mellitus Patients

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Abstract:

Aim: To evaluate the effect of an oral health preventive protocol on salivary parameters and dental caries status of type 1 diabetes mellitus patients over a period of 6 months.

Relevance: Poorly controlled type 1 diabetic children exhibit poorer oral health status as compared to the general population. The current concept in diabetic care allows a less restricted diet which promoted deleterious oral health conditions. However, no preventive protocol exists for attending to the oral health needs of such children.

Methodology: 50 newly diagnosed children with type 1 diabetes mellitus, aged 6-12 years, were selected from Advanced Pediatric Centre, PGIMER, Chandigarh and divided into two groups. Both the groups received similar oral hygiene instructions at baseline. In addition, children in group 1 were provided with a comprehensive oral health preventive protocol, based on the preventive protocol of University of Milwaukee. The baseline parameters were compared at 3 and 6 months intervals.

Findings: The intervention group showed favorable improvements with the mean unstimulated salivary flow rate and salivary pH increasing from 0.36±0.21 mL/min to 0.58±0.15 mL/min and 6.9±0.33 to 7.65±0.10 respectively. Salivary viscosity showed a decrease from 1.95±0.40 to 1.17±0.08. Streptococcus mutans counts declined from 1052.32±1258 x10^4 CFU/mL to 4.35±2.8 x10^4 CFU/mL. The dental caries status also decreased from 6.80±3.62 to 1.36±1.65.

Conclusion and recommendations: The preventive protocol used in the present study showed a statistically significant improvement in the salivary parameters and dental caries status of type 1 diabetes mellitus patients who usually ignore their oral health on pretext of their systemic illness. Thus, interdisciplinary coordination between specialties is essential for preventive interception and institutes should have a set protocol for prevention of oral diseases in patients who are medically compromised.
Effect of alkali metal doping on the structural and PHYSICAL PROPERTIES of mixed-valence perovskite oxide

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Abstract:
In the present study, mixed-valence perovskite manganite oxides have been synthesized by solid state reaction method. The room temperature X-ray diffraction data were analyzed with the Rietveld analysis program GSAS for the structure determination. The structure was refined with rhombohedral cell in the space group R-3c, assuming a pseudo-Voight (pV) peak shape function. The crystallite size was estimated from XRD data using Scherrer equation. Electric transport properties have been studied as a function of temperature from 5-300K and magnetic field from -8T to 8T using four probe method. Magnetic properties have been studied as a function of temperature from 10-300K using SQUID magnetometer.

Keywords: Rietveld analysis, Electric and Magnetic properties.

Effect of calcination temperature on structural and magnetic properties nanosized perovskite oxide La0.5Sr0.5Fe0.5Ti0.5O3

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Abstract:
Synthesis of super paramagnetic La0.5Sr0.5Fe0.5Ti0.5O3 by modified polymeric precursor method and the effect of temperature on its structural and magnetic properties is reported. The structures of the phases, calcined at different temperatures, were refined in the space group Pbnm with orthorhombic setting. The crystallite size and specific surface area during the decomposition process were monitored up to 1100°C. The field dependence of magnetization (M–H) measurements indicate that all the samples exhibit weak ferromagnetic behaviour due to slight canting of the adjacent Fe3+ spins. Magnetization increase significantly with decreasing particle size, while there is sharp decrease in coercivity.

Keywords: Rietveld refinements; TEM; Magnetic properties.
Effect of fuel and temperature on magnetic properties of ferrites

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Abstract:
Combustion method was used to prepare Nanocrystalline samples by using different fuels as glycine, urea and polyvinyl alcohol and the effect of temperature on their physical properties has been studied. The thermal study of the precursor gels was done by using Thermogravimetric and Differential thermal analysis (TG-DTA). The super paramagnetic behaviour was observed showing an increase in the blocking temperatures with the particle size in case of all fuels. All the samples showed ferromagnetic behavior and the nanoparticles prepared by using glycine as a fuel were found to have largest crystallite size and relatively stronger A-O-B interaction compared to others.

Effectiveness of Computer Supported Intervention on Interest in Science among Students with Learning Disability: Embracing Science and Inclusion in Research

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Abstract:
Aim: With the aim of involving school level science education in research and promoting inclusion, the study was conducted. The main objective was to study the effect of Computer supported interventions on Interest in Science among students with Learning Disability in Chandigarh.
Relevance: Studying in a regular school, is a win-win situation for each student, only if a divyang see no head turning towards his unique behavior and everyone in their surrounding learn the lesson of tolerance and empathy. ‘Inclusivity’ should not only be a theoretical term but its appropriate application in the practical situation is must. This could be achieved by mainstreaming the differently able children and along with that, providing them the cordial environment. The need is to understand that every child is unique and possesses his or her own style of grasping information and a little helping hand can surely help the tender buds to do wonders.
In view of promoting inclusion and providing technology access to students with learning disability, the study was conducted. The children with learning disability face the biggest difficulty in retaining and recalling the concepts, especially in the subject of Science, which is based on chain learning i.e. one concept leads to the other. If the child gets stuck at one point then he is unable to understand the whole chapter and consequently the subject becomes a burden and he lags behind. The use of computers and technology, specifically focusing the requirement of the students with learning disability, has the potential to facilitate the student's ability, as Computers and multimedia deals with multi-sensory approach in which maximum number of senses are involved in the learning process. In the teaching of Science, the phenomenon of universe, reactions of chemistry and the real life biological mechanisms can be very well explained via computers. Application of Communication technologies, hyperlinks and Multimedia Environments provides new ways to access the information and apply it in a better way.

Methodology: The present study was conducted among the seventh and eighth grade students with learning disability, studying in the Government schools of Chandigarh. A sample of sixty-four students with learning disability, studying in normal classroom under the scheme of inclusive education, was taken. Out of these, thirtytwo students were taught the subject of science via computer supported interventions and the other thirty two students were taught by normal class room, lecture based instructions. Pre-test and post-test experimental design was followed in the study to assess the effectiveness of Computer supported intervention on Interest in Science among students with learning disability. Psychological tool based on Interest in Science was administered prior to the intervention as well as afterwards and the results were analyzed. The main motive of the research was to make the e-learning and technology accessible to the students with learning disability.

Findings: There was significant difference between the mean gain scores on Interest in Science of Experimental group taught through Computer based learning method and Control group at 0.01 level.

Conclusion: The results of the present study indicate strengthening of selfpaced learning, improved interest in science learning, among the students with learning disability. Hence the introduction of Computer supported learning proved to be beneficial, specifically for the students with learning disability.

Recommendations: The results of the present study holds implication for school administration and curriculum framers, according to which they can frame computer based curriculum, targeting the requirement of our special children, who need our little support to express them in the best possible way.
Efficient Class of Ratio-Cum-Regression Estimators using Non-Conventional Parameters for Estimating Population mean

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Abstract:
Aim: This manuscript utilizing the information on the population mean of auxiliary variable, using various parameters related with its properties in simple random sampling using Non-Conventional Parameters. The main purpose of this paper is to study the Mean square error and efficiency of the proposed class of estimator over the classical presented in the literature. A brief description of the proposed model is discussed in this article. The large sample properties of proposed estimator have been studied up to the first order of approximation that is the mathematical expressions for the bias and mean square error (MSE) of the proposed class of estimators have been obtained. The optimum values of the characterizing scalar, which minimize the MSE of proposed estimator, have been obtained.
Relevance: As it is clear, that the paper is based on the new improvements in the different Ratio-Cum-Regression estimators by introducing an extra parameter and Non-conventional parameters to the classical estimators and compare its influence over existing estimators as such it concludes to the theme of the conference which is based on the new innovations in various fields of science along with the applications.
Methodology: In order to construct the new estimator, we have considered Abid, Abbas, Sherwani and Nazir (2016). For calculating the estimates from different estimators, we have used real life data set to examine the performance of the estimators. In order to compare the different estimators, criterion like Mean Square error (MSE) have been taken into consideration. The estimator which provides us lesser MSE is rendered as best.
Findings: A New Ratio Cum Regression class of estimators has been obtained using the unknown scalars and Non-Conventional location parameters and are derived under different mathematical properties of the proposed class of estimators. We have calculated the mean square error of the estimators of the different classes along with their Bias. Furthermore, the values of constants have been found.
Conclusion: In this paper, we have studied the new efficient class of estimators that is ratio cum regression estimators using new unknown parameter, using Decile Mean and Mid Range to improve the flexibility of the classical model by adding an additional
parameter. Different mathematical properties like Bias, Mean Square Error and Efficiency Comparisons are derived. The unknown parameter has been obtained using the optimality conditions. In order to demonstrate the flexibility and applicability of the proposed estimators, the real life dataset are considered. Due to the lesser values of MSE in real life data set, it can be easily verified that the newly introduced estimators has proved best over its existing estimators especially for the large data set.

**Keywords:** Study Variable, Auxiliary Variable, Bias, Mean Squared Error, Efficiency, Decile Mean, MidRange.

**E-health services in India: Evaluation of patient outcomes and data protection**

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**Abstract:**

**Background:** Developing countries, like India are moving towards achieving digitalisation in almost every aspect of life, including healthcare. E-health, is relatively recently coined term, dating back to at least 1999. It is used for information and communication technology in support of health and health-related fields, including health-care services, health surveillance, health literature, and health education, knowledge and research. Evaluation of impact of e-health on patient outcomes is extremely difficult in developing countries like India because of various infrastructural limitations and lack of research in this particular aspect. Although in developed countries, evaluation of electronic health records have shown benefits of e-health are decrease in rates of clinical visits by 5-9 percent, improved outcomes for renal disease patients, provided a five-year benefit of US$86,400 per provider at a large academic hospital, and improved efficiency by 6 percent per year in a large hospital network.

**Aim:** This paper aims to evaluate effect of e-health (information and technology) on patient outcomes in Indian healthcare scenario and what would be future consequences of e-health services.

**Methodology:** Various electronic databases such as Pubmed, Google Scholar were searched using combinations of key words such as ‘e-health’, ‘telemedicine’, ‘m-health’, ‘electronic health records’ and ‘patient outcomes’. This paper included only those studies which are conducted in India and which reported impact on e-health services on
patient outcomes. Various types of e-health services include electronic health record, telemedicine, m-health, laboratory information management system, monitoring, evaluation and patient tracking system, patient reminder system. Reference lists of retrieved articles were checked for additional studies not identified in the original database searches.

**Results:** In preliminary literature search 96 articles were shortlisted which included studies only conducted in India and were using any of the e-health services. Abstracts of all these 96 articles were assessed and out of those only 28 papers were selected. Five paper were excluded which were not found relevant to this study. Further, 8 papers paper assessed the e-health services either on basis of accessibility or on basis of feasibility of implementation. Three papers only reported designs of randomised controlled trials. Three papers included use of e-health services to improve diagnostic tools. Only 9 papers assessed patient outcomes as one the main outcomes. It should be noted that in set up like India, accessibility and implementation issues are one of the major challenges in adoption of e-health services.

It has been reported in literature that use of e-health services lead to improved clinical outcomes such as improved medication adherence and monitoring. Also, telemedicine service like teleophthalmology and tele-ECG allows specialist to provide care over larger region and access to remote portals, thereby improving patient outcomes. Diagnostic tools like teleophthalmalogy appears to be very useful in improving eye care delivery and screen diabetic retinopathy. The programmes like International Quality Improvement Collaborative has shown improvement in key outcomes measures following congenital heart surgery such as decline in bacterial sepsis, surgical site infection and duration of ICU stay. There is lack of feedback, digital clinical data and follow up of e-health services, which makes evaluation of various e-health services challenging in Indian set up.

**Future considerations:** Though this e-health datasets can help us in various ways but it will also open the new Pandora box of problems in handling personal information. The information technology rules in India have certain grey areas in protection of digital data. Recent judgement of Aadhar Act has regained the momentum for having specific legislation on data protection. In future besides improving the data content of information system to analyse the impact of various services provided to the patients, we will have to relook the legal system to protect the data.
Emotional intelligence and its impact on Burnout and Happiness: A study on Police Officers of Chandigarh Police, India

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Abstract:
Purpose: The research was carried out to investigate the relationship between emotional intelligence, burnout, and happiness on police officers of Chandigarh police, India. The effect of socio-demographic variables with respect to emotional intelligence of Chandigarh police officers was also studied.
Relevance: The present research is a responsible research as it deals with the Indian police personnel which are the important part of our society. The humans in “Khaki” are the one who toils for 24/7, just to maintain law and order and helps in making the citizen responsible toward their society. It is our duty to save the lives of the one who save us all.
Design/Methodology/Approach: By judgemental sampling method, 120 police officers who were currently posted in Chandigarh, India, were selected for the study. The data were collected from three questionnaires, Wong and Law (2002) Emotional intelligence scale, Burnout by Maslach Burnout Inventory-GS, and Happiness by Oxford Happiness Questionnaire (1989). Socio-demographic variables were analyzed by ANOVA and t-test. For relationship and impact among variables, Pearson correlation and Regression analysis were carried out.
Findings: The results showed a significant positive relationship between emotional intelligence and happiness ($r=0.627$) and a significant negative relationship between emotional intelligence and burnout ($r=-0.327$). The level of significance in this study was $P<0.01$.
Research limitations: The research is limited to only one union territory with limited sample size ($n=120$), the results cannot be generalized to a larger extent.
Practical implications: Achieving a high score in EI may hold a key to a greater happiness and helps in diminishing burnout level in police officers. Police departments should invest in promoting EI by implementing developmental programmes. Encourage employees to celebrate their free time with family and friends so that stress can be reduced.
Originality value: The study offers value to police organization as it focuses on police officials, and explores their EI level and its subsequent effect on burnout and on happiness.

Keywords: Emotional intelligence, Burnout, Happiness, Chandigarh Police.

English language: `Lingua Franca` Of a literate in India

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Abstract:
The journey of English Language which began with Anglo-Saxon in 5th and 6th centuries in Europe has been phenomenal. Because of its absorbency, flexibility and adaptation it reached as international status within a span of thousand years. Even Nehru favoured it in the context of globalization. LPG (Liberalization, Privatization and Globalization) has become the mantra of progress like `Satyam Shivam Sundram' for our country. This process has given a status symbol to the `lingua franca' of India and International communication because it has made dissemination of information easier and quicker, especially when used with computers and internet. No other language in this country, with the exception of Sanskrit, is capable of allowing us to pursue higher education and research. But it is a classical language and has very few users even in this country. On the contrary English the `associate officiate language' of our country has a common problem which vary among states as how to generate interest among students for English. After independence English is as much our language as are the other 17 languages, including our national language, Hindi, after the 71st amendment to the constitution. It had established its string roots in all walks of life of the Indian society becoming a status symbol and medium of instruction at the university level. English, `the language of thoughts' occupies the cognitive domain of the individual whereas the mother tongue become `the language of emotions' to all bilingual Indians. The present paper is an attempt to `rethink' how to make learning English more meaningful without indulging in negative talk about its foreign origin.

Keywords: English, Classical, liberalization, Privatisation, Globalization.
Estimation of Stress Strength Reliability

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Abstract:
Aim: The term "stress-strength reliability" when it appears in statistical literature typically refers to the quantity \( (X > Y) \), where a system with random strength \( X \) is subjected to a random strength \( Y \) such that a system fails, if the stress exceeds the strength. This paper aims to estimate the stress-strength reliability parameter \( R = P(Y < X) \), when the Strength \( X \) follows Extended Inverse Lindley, Exponentiated Inverse Power Lindley Distribution and Stress \( Y \) follows Inverse Power Lindley distribution and Inverse Lindley distribution. The methods of Estimation like Maximum likelihood estimation (MLE) and Bayes Estimation has been used to estimate reliability parameters. Finally a real data set has been analyzed in R software for illustrative purposes.

Relevance: In this paper, we have addressed the problem of estimating \( R = P(Y < X) \) considering the two different cases for stress strength. The expressions for the reliabilities of a system are obtained and compared. Reliability estimates of parameters are obtained by maximum likelihood estimation method and Bayes estimation and as such it corresponds to the theme of the conference which is based on the new innovations in various fields of science along with the applicability.

Methodology: The problem of increasing reliability of any system become more significant in many fields of industry, transport, communications technology, etc. with the complex mechanization and automation of industrial processes. Underestimation and overestimation of factors associated with reliability may engender great losses. The term "stress-strength reliability" when it appears in statistical literature typically refers to the quantity \( (X > Y) \), where a system with random strength \( X \) is subjected to a random strength \( Y \) such that a system fails, if the stress exceeds the strength. In this paper we consider two cases:
1) When stress follows Inverse Lindley Distribution and strength follows Extended Inverse Lindley Distribution.
2) When stress follows inverse Power Lindley Distribution and strength follows Exponentiated Inverse Power Lindley Distribution.

We discuss the estimation procedure for stress strength reliability by the method of maximum likelihood estimation and Bayes Estimation.
Findings: In this paper the stress strength estimates has been obtained when the strength X follows extended inverse lindley, exponentiated inverse power lindley distribution and stress Y follows Inverse Power Lindley distribution and Inverse Lindley distribution. The methods of Estimation like Maximum likelihood estimation (MLE) and Bayes Estimation has been used to estimate reliability parameters. Further, we have discussed real life example and plot the graphs of reliability function and hazard rate for various values of $\alpha$.

Conclusion: In the proposed model we have studied the stress-strength reliability parameter $R = P(Y < X)$, when the strength X follows extended inverse lindley, exponentiated inverse power lindley distribution and stress Y follows Inverse Power Lindley distribution and Inverse Lindley distribution. Estimates of parameters are obtained by maximum likelihood estimation method and Bayes estimation. We have computed the Bayes estimate of Reliability based on the independent gamma priors. The flexibility of the proposed model has been demonstrated by showing the behaviors of Probability density function and hazard functions.

Keywords: Inverse Lindley Distribution, Inverse Power Lindley distribution, Extended Inverse Lindley Distribution, Exponentiated, Inverse Lindley Distribution, Maximum likelihood estimator, Bayes estimator, Prior distribution, Posterior distribution.

Exponentiated Inverse Power Lindley Distribution

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Abstract:
Aim: This article considers the Exponentiated Inverse Power Lindley distribution. The proposed distribution is observed to be more flexible and efficient than the probability distributions already existing in the statistical literature. Various statistical properties such as moments, moment generating function, hazard rate, quantiles, stochastic ordering, entropy measure has been derived. The method of maximum likelihood estimation has been used for estimating the parameters of proposed distribution. Finally, a real data set has been analyzed for illustrative purposes.

Relevance: The paper involves the addition of new parameter to the parent model which is more influential over other models and which is based on the new innovations in various fields of science along with the applicability.
Methodology: The proposed model has been formulated by taking the exponentiated version of parent model. The estimates of different models has been obtained for real life data and the estimates are analyzed using R programming language. Further the graphical representation of probability density function, cumulative density function, hazard rate function has also been obtained. In order to compare the different models criteria like AIC (Akaike information criterion) and BIC (Bayesian information criterion) has been taken into consideration. The distribution which provides us the lesser value of AIC and BIC is considered to be best.

Findings: The new three parametric probability distribution has been obtained by exponentiation and comprehensive description of several mathematical properties of the proposed model has been given. Different properties of the proposed model as moments, moment generating function, hazard rate, quantiles, stochastic ordering, entropy measure has been obtained. For the estimation of parameters of the model, Maximum Likelihood Estimation (MLE) technique has been employed. Furthermore, the random numbers have been generated by using the inverse cdf method.

Conclusion: The new family of distributions named as Exponentiated Inverse Power Lindley distribution has been introduced. The flexibility of the proposed model has been demonstrated by showing the behaviors of Probability density function and hazard functions mathematically as well as graphically. Since the exponentiated distributions are able to accommodate both monotone and non-monotone hazard rates therefore the proposed model can be used to model reliability data. The maximum likelihood estimates of the parameters and variance covariance matrix has been derived. A real data application of the Exponentiated Inverse Power Lindley distribution shows that it could provide a better fit than the set of usual statistical distributions considered in life time data analysis.

Keywords: Exponentiated Inverse Power Lindley distribution, Moments, Quantile function, Hazard rate, Stochastic ordering, Maximum likelihood estimation.

Failure Mode and Effect Analysis: A valuable Management Tool for Combating Medication Errors

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Abstract:
Worldwide, the health care delivery system has been ailing from a preventable, but seemingly uncontrollable problem; that of medical errors. Various studies have found out that out of all medical errors, it is the medication errors that are the culprits in a considerable fraction of such events. The usual approach to tackle these errors by most
of the organizations till now has been retrospective root cause analysis (RCA), i.e. to penalize the individual responsible and to create additional checking steps. An increasing focus on patient safety by accreditation authorities, coupled with enhanced patient awareness, warrants more concrete efforts by healthcare institutes to bring such occurrences to minimum. Failure mode and effect analysis (FMEA) is a proactive approach to risk reduction that improves patient safety in high risk health procedures and processes. While most of the industries have been using this tool for process and system improvement, this is a relatively new concept in health care. Application of FMEA to medication management can yield considerable risk reduction and better compliance to quality standards of patient care.

The present study was conducted to understand the current medication management process in the emergency department of a 300bed tertiary care Public Hospital at Panchkula, identify major stakeholders of this process, identify the failure modes, assign the risk priority number on the basis of severity and likelihood of occurrence/detection, and finally develop an action plan to prevent these potential failures.

After the completion of brain storming sessions amongst interdisciplinary team members, throughout the process mapping and failure mode analysis steps, it was realized that FMEA has brought in a high level of objectivity in designing the preventive actions. This in turn resulted in designing a measurable and efficient medication management system that could be implemented without incurring major financial expenditure.

Financial Awareness Index-A Meta Analysis on Literature

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Abstract:
This paper presents a systematic and comprehensive meta-analysis of the literature on financial awareness. We focus on financial education/literacy/awareness studies designed to strengthen financial awareness and behaviour of individuals. We identify 105 papers and articles which present impact results of interventions designed to assess individuals' financial awareness and / or skills, attitudes and behaviours. These papers are diverse across a number of dimensions regarding the constructs of financial awareness including Awareness and Skills. However, there are several outcome indicators where a subset of papers are comparable including those addressing Financial Situation including Banking Products and Micro-Finance Awareness, Sources of Income & Sources of Expenditure; Adequacy of Protection which includes Insurance & Savings; Tax Planning; Investment and Accumulation Goals; Retirement Plans;

This paper is part of the background research conducted for the ICSSR Major Research Project on 'Financial Awareness Index: An Empirical Study of Chandigarh (U.T.).' The results from the meta-analysis indicate the importance of generating the Financial Awareness Index. The major gap that has been identified in the meta-analysis of literature is that most of the available literature analysed the allied areas like financial literacy, financial education, financial skill or financial inclusion. However, no formal attempt has been made to develop a comprehensive index of Financial Awareness which can help in categorising individuals into various segments depending upon their financial awareness levels. This index can act as a tool for clustering the population according to different levels of financial needs /demand which will help in focussed policy interventions by the policy makers. It will not only allow policy makers to compare different individuals' awareness but would also highlight the areas of knowledge and skill where the policy makers should pay attention for future financial literacy interventions. The Index would also help in meeting the overall objective of financial inclusion of Government of India.

**Food & Rural Women: How Religion view nutritional Food Practices**

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**Abstract:**
**Background:** Religions have not only culturally valorised nourishment, but they have rendered it sacred in very different ways, regulating the use of food with diets and food taboos as varied as humankind itself, setting out rules about what the members of a given religion may or may not eat and specifying, at times in great detail, the circumstances under which certain kinds of food can be consumed or be used in religious rituals as well as in everyday life. Religion is based on tradition, faith and historical institutions, whose members, rituals and sacred sites are of interest to travellers. Spirituality has to do with the personal development of travellers and is exclusively referred to as philosophy (Siv Ellen Kraft, 2007). Religiosity, in its broadest sense, is a comprehensive sociological term used to refer to the numerous aspects of religious activity, dedication, and belief. Another term that would work equally well, though less often used, is religiousness. Religiosity deals more with how religious a person is, and less with how a person is religious (in practicing certain rituals, retelling certain stories, revering certain symbols, or accepting certain doctrines about deities.
and afterlife). Religious practices may include meditation, mindfulness, prayer, and the contemplation of Sacred texts; ethical development. Love and/or compassion are often described as the mainstay of spiritual development (Dalai Lama, 1999). Women have better mental health and greater adaptability to stress if they are religious. For many women, religion and culture are a significant part of who they are.

**Aim of the Study:** To study the impact of religion & culture on the nutritional food practices of the rural women and its effects on the daily dietary intake.

**Relevance:** It also covers the theme of conference i.e. “Responsible Research & Innovation” as it is a research which deals with the venerable section of the society and more innovative in nature because it shows how religion is important in their life. The present study is responsible research in nature because it deals with the venerable section of the society and the nutritional practices affect the overall growth & development of the women in all stages of the life. In this manner, there is a different criterion with which a religious traditional approaches food practices and innovative area of study.

**Methodology:** The present study is exploratory in nature. For the purpose of the study 55 rural women were taken with the help of convenient sampling. A semi structured interview schedule was used to collect the general information from rural women of Himachal Pradesh (smela village of Kangra district), a part of this 24 hours dietary method and food frequency method was also used. A woman from all age group (18-60 years) has been taken for the study.

**Findings:** Thus, the study shows how culture, religion and traditional knowledge shape local diets, food preferences, intra household food distribution patterns, and health and sanitation practices affects the overall development of the women or in context with the nutritional growth of this venerable rural section of the society.

**Conclusion & recommendation:** Even though culture, religion and traditional knowledge may affect food and nutrition in important ways, they should be put into perspective. The role of culture, religion and traditional knowledge as drivers of food and nutrition practices should not be viewed in isolation, but evaluated within the context of other drivers of food & culture. The knowledge embedded in traditional food intake can contribute to the improvement of food and nutritional practices but is currently under-researched and underutilized as in with relation to culture.

**Keywords:** Religion, rural women, Culture, Dietary Practice & Food.
Future of Mobile Commerce: An Exploratory Study on Factors affecting Mobile Users’ Behaviour Intention

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Abstract:
Aim: Mobile commerce (M-commerce) being the subset of e-commerce, signifies a new field of business opportunity. The future of mobile commerce depends on how the mobile users’ intend to adopt this new technology induced business model. With the success of e-commerce in India, there is a huge potential for m-commerce growth. As m-commerce technologies grow and mature, it is the users’ experience and adoption of m-commerce that will drive its growth. The users’ acceptance of m-commerce depends upon various factors which influence his/her behaviour towards m-commerce.

From business point of view, every business wants to grow and expand in a unique way but it is very difficult because of huge competitive market. Mobile commerce provides a unique way to expand the business by reaching new segment of consumers’ i.e. mobile users. For adopting this new technology induced business model the business needs to consider those factors which drive mobile users to use m-commerce in the Indian scenario. The current research is an effort to study such factors that affect behaviour intention of mobile users’ towards m-commerce.

Relevance: Innovation is involved in every field, being it science or management. To survive and grow in the business world, the organizations need to continuously innovate and adapt to the changing business environment. In India, with the tremendous growth in internet penetration and advancement in wireless and mobile technologies, mobile phones are reshaping the modes how corporates do business and; also the ways how consumers interact with businesses. Consumers are the vital part of society who use mobile devices not only for telecom services but also for other services that includes listening to music, surfing on internet, social media etc. So it is important to study mobile commerce factors which influence the mobile users’ behaviour intention which furthermore, can contribute to the better future of growing adoption of M-commerce.

Methodology: Based on previous literature, a research model was developed, which included m-commerce behavioural intention factors i.e. perceived usefulness, perceived ease of use, perceived cost, perceived enjoyment, trust and social influence as independent variable and mobile users’ intention as dependent factor. The model was then empirically assessed to test the hypotheses using a survey questionnaire from 150
internet mobile users of Chandigarh using convenience sample approach. Reliability of the questionnaire was tested using Cronbach’s Alpha measurements and validity of the data was verified by applying Exploratory Factor Analysis. The data was analysed using correlation and multiple regression analysis.

**Findings:** The correlation analysis showed that Perceived usefulness, Perceived ease of use, trust, perceived enjoyment and social influence were positively and significantly correlated with mobile users’ behaviour intention towards m-commerce. While perceived cost was negatively correlated with behaviour intention. The correlation between perceived enjoyment and behaviour intention was the strongest, followed by perceived usefulness and perceived ease of use.

Hypotheses were tested using multiple regression analysis and it was found that perceived usefulness, trust, perceived cost, perceived enjoyment have significant relationship with the mobile users’ behaviour intention towards m-commerce. Perceived ease of use and social influence was not found to have significant effect on behaviour intention of mobile users'. These results are consistent with prior researches done on m-commerce adoption.

**Conclusions and Recommendations:** M-commerce is at a very preliminary stage in India, so the need to understand the intention of mobile users’ towards m-commerce is very important. The foremost objective of this study was to empirically examine the extended Technology Acceptance Model (TAM) given by various authors in context of mobile commerce and specifically in the Indian scenario because there has been very limited studies which consider Indian users’ intention towards mobile commerce. Other than original TAM variables i.e. perceived ease of use and perceived usefulness; perceived cost, trust and perceived enjoyment was found to be significant.

For mobile commerce providers, this research provides empirical results which will help them formulate strategies to improve m-commerce adoption. For example, strong relationship of trust with behaviour intention of mobile users was found which implies that service providers should focus on the security and privacy protection of mobile users which ultimately develop their trust towards m-commerce. Furthermore, strategists should also consider the cost related to m-commerce as to attract more mobile users to use m-commerce by reducing cost and developing different promotion and pricing strategies.

Perceived ease of use and social influence were found to have insignificant relationship with behaviour intention of mobile users which implies that since majority of mobile users belong to young generation and have the experience of using internet on their computers so they found using internet on mobile devices very easy. The strategists should focus on developing usable applications and systems which are valuable and exciting to increase the adoption of mobile users’ towards m-commerce.

**Keywords:** Behaviour Intention, Mobile commerce, Mobile users, User adoption.
Generalisation of Weighted Maxwell-Boltzmann Distribution

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Abstract:
Maxwell-Boltzmann distribution simply known as Maxwell distribution is a special probability distribution introduced by James Clerk Maxwell and Ludwig Boltzmann. This distribution is used to describe the speed of the particles in idealised gases moving in a three dimensional space. It explains the basic principle of the kinetic theory of gases, which illustrates the fundamental properties such as, pressure and diffusion of gases. Mixture of distribution occurs frequently in the theory and applications of probability and Statistics. One of the best ways to obtain the new probabilistic models in applied probability and other research areas is the mixture of distribution. In this paper, we develop the mixture model of the Maxwell-Boltzmann Distribution (MD) and the Weighted Maxwell-Boltzmann Distribution (WMD) called as Mixture Weighted Maxwell-Boltzmann Distribution (MWMD). Weighted distributions given by Fisher (1934) and Rao (1965) play an important role in research related to reliability, bio-medicine, ecology and several other areas. Various structural properties of the derived model including moments, moment generating function, characteristic function, reliability function, hazard rate and reverse hazard rate have been studied. We also derive the Renyi's entropy of the said model. The estimation of the parameters is performed by maximum likelihood method of estimation. Expression for probability density function of first order and nth order statistics has also been derived.

Keywords: Maxwell-Boltzmann Distribution (MD), Weighted Maxwell-Boltzmann Distribution (WMD), Mixture Weighted Maxwell-Boltzmann Distribution (MWMD), Moment Generating Function, Reliability Analysis, MLE and Order Statistics.

How leader prepare succession process

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Abstract:
Aims: My research aim is to define succession planning process and how leader plan their succession plan. Both these element leader and succession plan are connected to each other. The best candidate can be selected through the efficient succession process and the board should have a successful succession plan and should have best leadership development plan so that the selected candidate can be trained as a future leader.
Succession planning is a dynamic process. It should span job levels and geographic boundaries, and aim to create a pool of talent that will meet the needs of the organization at multiple levels. A strong succession planning process enables an organization to understand the skills and behaviours it needs to execute its business strategy, see the talent gaps and then determine how best to fill them. As a company changes its business model, or the economy forces revaluations of the business, leaders should take a hard look at the roles that are critical to the organization’s success – as well as the talent needed for these roles. And in doing so, they need to focus on more than just the top layer of the business.

The reality is that the demands of leadership are greater than ever, resources are stretched thin and leaders don’t have much time to think about their next move or how to backfill their position. That said, leaders that think ahead will be rewarded. Why? Because, often, the greatest obstacle to progression is not being able to move on due to a lack of active effort to identify and develop potential successors for the roles they are leaving.

Leadership has become important issues in the changing scenario of India. No company can ignored it if they do they cannot stay in the market for a long period of time. It’s CEO duty that he should be ready with the next generation leader. Every company should have their specific succession plan. As some of the top companies keep prepared their succession plan and they keep inform their employees regarding the succession plan strategies like Tata group, P&G, Microsoft, General electrical etc.

A team leader is someone who provides guidance, instruction, direction and leadership to a group of other individuals (the team) for the purpose of achieving a key result or group of aligned results. The team leader reports to a manager (overseeing several teams). The team leader monitors the quantitative and qualitative result that is to be achieved. The leader often works within the team, as a member, carrying out the same roles but with the additional ‘leader’ responsibilities – as opposed to higher level management who often have a separate job like to prepare the next generation leader. Leader is not to guide the followers but also search, define, refine, select and finally trained him/her as a future leader.

Succession planning is important issue need to be tackle by the manager, a board, CEO’s and leader. Before planning a succession plan they need to know their organization generation gap because in the organization. Diversity is a new challenge for CEO/Manager and it is related with succession plan. Succession planning creates synergy relationship with diversity. And diversity include change it can be regarding Behaviour, needs, ethics, values, education or generation change in the company workforce. If Manager skip diversity vital the generation diversity then there succession plan would not work effectively. These are the issues which today’s Indian companies are facings.
Succession planning, generation diversity but there are other diversity factors like Gender, Culture etc are necessary to absorb before succession plan. 

**Keywords:** succession planning, generation gap, leadership.

Human Resource Accounting Disclosure Practices of Top Commercial Banking Companies in India

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**Abstract:**

**Purpose** - Human resources (HR) are the most important assets of any organisation, whether it is manufacturing or services based organisation. However, this statement does not seem to be true by reviewing their financial statements, annual reports or any other subsidiary reports. At present all expenses related to human resources are shown as expenditures instead of capitalising and writing off them on annual basis. Current accounting treatment of HR expenses do not follow the ‘matching principle’ that requires revenue to be matched with expenses incurred to earn that amount of revenue. Even International Accounting Standards Board (IASB) has not given any standard to evaluate and report human capital. HR are evaluated with Human Resource Accounting (HRA). It states measurement and reporting for most important asset of the company that is human resources. According to committee report of American Accounting Association (1973) HRA is the process of identifying, measuring and communicating this information to interested stakeholders. At present Human Resource Accounting disclosure (HRAD) in India is voluntary in nature, similar to most of the other developing countries. Due to which HRAD made by companies in India are unstructured, inconsistent and incomparable across companies and industries (Kaur et al., 2016). Hence, there is a dire need to explore this area, so that policy makers can set standardised evaluation method and reporting practices for human capital. The present research was conducted to explore the HRAD level of the Indian commercial banking sector. The study also investigates the association of the HRAD level with specific attributes of selected commercial banks.

**Relevance** - Business environment is very competitive at present due to globalisation. Organisations need to have sustainable competitive advantage over other to survive and grow in this environment. Human skills are potential source of competitive edge for
them. As they have invested so much time, money and effort to develop its human resources so it is very important for the management to retain these skilled human resources within their organisation. Management needs innovative HR practices to retain these employees. HRA is result of such innovative thinking and research. As HRA evaluates employees, these employees came to know about their value for the organisation. They felt valuable and important and get motivated to remain in that organisation and to enhance their value with nourishing their skills further. But this practice is not followed by most of the organisations as there is difficulty in the valuation of HR. There is need of more innovative research in this area so that government can make its evaluation and disclosure mandatory by setting a universal valuation model.

**Methodology** - The sample for the study is top 10 commercial banks listed to BSE, selected on the basis of market capitalisation. HRAD level of the selected banks was examined by analysing their annual reports using HRAD index. This HRAD index was created after extensive review and is consists of 36 items. The study also found the association of this disclosure level with specific attributes of these banks. The data on these attributes was extracted from Centre for Monitoring Indian Economy (CMIE) PROWESS data base. The data were analysed with the help of descriptive statistics, correlation and regression analysis.

**Findings** - The results revealed that most of the banks are aware of HRAD and voluntarily disclosing some of the information related to the human resources in annual reports. However, this disclosure is confined to a very limited in scope.

**Conclusions and Recommendations** - The government should make HRA valuation and disclosure to be mandatory. It should also come out with a specific valuation method for HR that will bring consistency in HRA disclosure and valuation across companies. It will make comparison between companies and industries to be easy and meaningful. This would also help investors in making optimal investment decisions. In addition HRAD helps companies to retain talented and experienced employees in the organisation. It would lead to increased morale, loyalty and initiative among the employees, creating in their mind a sense of belongingness towards the organization and would act as a great incentive, giving rise to increased productivity (Saremi and Naghshbandi, 2012).

**Keywords:** Human Resource Accounting, Disclosure Practices, Disclosure Index, Corporate Attributes.
Hydrothermal synthesis, crystal structure, and DFT studies of threedimensional supramolecular nickel (II) complex with pyridine-2,5-dicarboxylic acid

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Abstract:
Hydrothermal synthesis and crystal structure of tetraaquapyridine-2,5-dicarboxylatonickel(II) monohydrate,[Ni(pydc)(H₂O)₄].H₂O (H₂pydc = pyridine-2,5-dicarboxylic acid) is reported. The compound has distorted octahedral geometry around the metal centre. The nickel(II) is bonded to pyridine N atom, carboxylato O atom in 2-position of pyridine-2,5-dicarboxylic acid, and four O atoms of water molecules. Hydrogen-bonded interactions create a three-dimensional supramolecular porous network. The supramolecular structure accounts for the porous structure of the compound as is evident from the Brunauer, Emmett & Teller (BET) surface area of 90 m² g⁻¹. Quantum mechanical computations of the compound [Ni(pydc)(H₂O)₄].H₂O for the equilibrium geometry and detailed vibrational analysis were performed through the Density Functional Theory (DFT). The calculated results give a good explanation of the week interaction. The well-directed hydrogen bonds give exceptional stability to supramolecular network as is indicated by thermal stability of compound up to 373 K.

Keywords: Nickel(II) complex, Pyridine-2,5-dicarboxylic acid, Supramolecular coordination compound, Density functional theory.

Identifying Key Quality Dimensions Impacting Customer Satisfaction for Bottom of Pyramid Population in Punjab

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Abstract:
Aims: The aim of this research paper is to identifying key quality dimensions impacting customer satisfaction for bottom of pyramid population in Punjab.
Relevance: Inclusive Growth is the biggest challenge that our nation faces today. Thus, one of the tools that Government of India has encouragingly adopted for achieving inclusive growth is Financial Inclusion. Reviewing the state of financial inclusion in India, in 2017, we can see improvement in indicators of financial inclusion such as number of bank accounts, number of bank branches, and number of ATMs etc. but out of the large number of accounts opened only few accounts are being meaningfully operated and remaining are inoperative. This shows that our well developed financial system have not succeeded to be all inclusive. One of the reason for why most of the accounts remain inoperative, even when the regulator is doing its bit, could be various dimensions of quality impacting customer satisfaction for bottom of pyramid population in Punjab. So, it is the right time to study key dimensions of quality in financial inclusion and to find out which quality dimension has significant impact on customer satisfaction for bottom of pyramid population in Punjab. Likewise, despite the existing literature on service quality, till now, to the best of the authors’ knowledge, no such studies have been found relative to service quality dimensions and customer satisfaction specifically for bottom of pyramid population in Punjab. It is further believed that the present study of service quality and customer satisfaction will provide a platform to future studies in the same area.

Methodology: Nonprobability sampling i.e. judgmental sampling technique for sample size 250 has been used. The data has been collected through administering questionnaire on five dimensions of SERVQUAL i.e. Tangibility, Reliability, Responsiveness, Assurance and Empathy from the account holders of the commercial bank branches opened under financial inclusion programme in Punjab. The study will not cover cooperative banks. Data analysis is done in the form of Cronbach Alpha for reliability purpose, Confirmatory Factor Analysis is used for validity purpose and likewise for validating the hypothesis One way ANOVA is used.

Findings: The findings concluded that highest of Cronbach alpha value has been found in case of the variable Tangibility i.e. 0.948 and the minimum of the same has been found in case of Responsiveness i.e. 0.865. Likewise in case of CFA, estimates of maximum dimension items have been found strong with values above 0.5. The findings revealed that Tangibility and Assurance dimension of SERVQUAL Model along with different demographic variables such as gender, age, educational qualification, marital status, type of family, occupation and monthly individual income proved its importance by showing the highest contributing factor in the overall model whereas remaining three dimensions i.e, Responsiveness and Empathy showed insignificant results.

Conclusions and Recommendations: An interesting finding is the negative influence of Reliability, Responsiveness and Empathy on customer satisfaction. The
recommendation demands for the redesign of the existing communication network of the banks.  

**Keywords:** Inclusive Growth, Financial Inclusion, Servqual, ANOVA, CFA, Cronbach Alpha.

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**Importance of improvement in Ease of Doing Business in facilitating the Investment Decisions**

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**Abstract:**  
The World Bank Report estimates on Ease of Doing Business (EoDB) reflect the state of governance in an economy compared to the best performance by any economy at any point of time. The measurement takes into account the data for most of the indicators for which clearances are required before setting-up the business by an investor. These indicators include process to register land ownership or rent agreement, dealing with construction permit, getting electricity, procedure for obtaining licenses or hiring contract labour (domestic market or migrated), procedure to get credit, enforcing contract and resolving insolvency. In addition, it also covers procedure for trading across borders and paying taxes. The labour indicator is considered, but not included in the overall score or ranking on the ease of doing business. These indicators, thus, take into account the social and environmental concerns.  
The investor before arriving at a particular conclusion wishes to know the procedural complications, time required to get all kind of approvals, cost involved and kind of incentives and subsidies available apart from the requirement of minimum fund for starting a business. The Government has, thus, facilitated the processes for investors easier by putting all these details on the website and by processing the application through Single Window System (SWS). In addition, the norms and regulations are also revised to facilitate the working of business by modifying outdated regulations such as asking for too much unnecessary documentation and removing several unnecessary inflexibilities in laws such as labour, pollution and getting credit etc. In addition, it is felt that providing logistic support and infrastructure availability is the prime responsibility of the Government in order to provide the power and road infrastructure to investors at a reasonable cost. This is where ensuring such crucial services at reasonable cost is considered essential for long term viability of various projects.  
The business community is, thus, enthusiastic to know improvement India’s World Bank ranking on EoDB by 30 points in 2017 i.e. from 130 to 100. This has been achieved by
reducing the time required to start a business to 30 days. It was 127 days 15 years ago. The country’s corporate law and securities regulations have been recognized as highly advanced, placing India in the 4th place in the global ranking on Protecting Minority Investors. The time taken to obtain an electricity connection in Delhi has dropped from 138 days four years ago to 45 days now, almost 20 days less than the 78 days average in OECD high-income economies. India stands at 29th place in the global ranking on the Getting Electricity indicator.

The wide criticism of this is that the improvement which India achieved is mainly through quick fix arrangements rather than going into the depth of the problem and resolving the same. The number of procedures is still cumbersome to start a business as one need to go through 12 procedures as against 5 for OECD high-income economies. Doing Business through these indicators provides a narrow perspective on the infrastructure challenges that the firms face, particularly in the developing world. Similar to the indicators on trading across borders, the time and cost required for the logistical process of exporting and importing goods is captured but they do not measure the cost of tariffs or of international transport.

Another problem is that this improvement is based on the data of only two cities which in case of India are Mumbai and Delhi. The data has also not taken into account the impact of most important tax reform as reference was from 2nd June, 2016 to 1st June, 2017 i.e. before the implementation of GST.

In order to have an idea about the progress made by various Indian States, DIPP has undertaken similar exercise for all the states based on twelve indicators almost similar to world Bank Indicators. There is a race among the States to perform best on EoDB index. The limitation, however, could be that it can lead to relaxation of certain important norms and regulations such as maintaining pollution or labour welfare norms. There are certain regulations which cannot be processed merely through online processes unless the inspection process by concerned officials is completed. The fire safety regulations require apart from submitting application and fees, the physical verifications of instruments and processes by officials in the presence of architect and representative from owner. There is though urgent need to improve the system and bring transparency, but it requires a lot of detailed meticulous planning and efforts to design environment free of hassles and at the same time not compromising compliance. India lacks far behind the desired level in enforcing contracts and any quick fix such as fast track tribunal are just cosmetic changes not designed to remove the root cause which is achievable by overhauling the judiciary system. Achieving that kind of governance should be desirable goal. This article, thus, reviewed the advantages and limitations of such indicators and efforts and warns against ending up the bars crucial for serving social and environmental concerns.
Importance of Natural Language Processing and Unsupervised Learning on Biofilm Literature

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Abstract:
Biofilms are dense, highly hydrated cell clusters that are irreversibly attached to a substratum, to an interface or to each other, and are embedded in a self-produced gelatinous matrix composed of extracellular polymeric substances. Research in biofilm field has become very significant, as biofilm has shown high mechanical resilience and resistance to antibiotic treatment and constituted as a significant problem in both healthcare and other industry related to microorganisms. The massive information both stated and hidden in the biofilm literature are growing exponentially therefore it is not possible for researchers and practitioners to automatically extract and relate information from different written resources. Also the biofilm data present in the written recourses is unstructured therefore it becomes very difficult and expensive to obtain annotated material for its literature. So in order to overcome these problems Natural Language Processing (NLP) and Unsupervised Learning approaches are used. Natural Language Processing approach is the part of text mining which is the discovery by computer of new, previously unknown information by automatically extracting and relating information from different written resources, to reveal the otherwise 'hidden' meanings. The Unsupervised Learning approach is where no annotated training is necessary and it is more about exploring the data to find insights. Both these approaches can be used to find knowledge from written textual data in the form different interactions like protein-protein, gene-gene, gene-protein, etc which could be further used to develop classifier which in future automatically extract the knowledgeable information from literature, answering questions arising in the biofilm research. So here we discuss methods involved in plain texts analyzing and processing, categorizes current work in biofilm information extraction, and provides examples of these methods. Challenges in the field are also presented and simultaneously possible solutions are also discussed.
Investigating mutation spectrum of Dystrophin and PSEN1 genes in the Beckers Muscular Dystrophy subjects

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Abstract:
Background: Duchenne muscular dystrophy is (DMD) is an X linked recessive disorder, in which truncated Dystrophin protein is formed due to inframe deletions/ duplications in the exonic regions of the dmd gene.
Aim: To investigate association of additional genes of the dystrophin gene and its association with cognitive impairment in DMD patients.
Methodology: MLPA is a molecular approach that involves annealing of two adjacent oligonucleotides to a segment of DNA followed by PCR to analyze the deletion/duplication changes in the gene. The experiments were performed for the exclusion of similar phenotypic manifestations and cognitive impairment caused by other gene mutations including PSEN1 gene.
Findings: Dystrophin gene mutations are being screened to correlate and confirm the BMD. Analysis of additional genes will enable us to screen the dystrophin induced cognitive impairment.

Investigating SMN and APP gene mutations in the patients with Backers Muscular Dystrophy

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Abstract:
Background: Muscular dystrophy is a group of disorders which involves in a progressive deterioration of muscle cells and consequent loss of strength. Duchene muscular dystrophy (DMD) is an X-linked recessive neuromuscular disorder caused by mutations in the dystrophin gene. Mainly deletions and duplication mutations are prevalent which result in the truncated dystrophin protein leading to impaired muscular function. BMD is a milder form of DMD where the protein is partially functional.
Aim: The aim of this study was to identify mutation pattern of the DMD gene in DMD and BMD patients and association of these mutations with the cognitive impairment mainly in North Indian population.

Methodology: Mutation spectrum was analyzed using Multiplex Ligation-dependent Probe Amplification (MLPA) to detect deletions and duplications in the 79 exons of DMD gene. MLPA can detect copy number variation up to 50 DNA sequences. Neuropsychological assessment was performed to evaluate the cognitive abilities of the patients and controls after obtaining the consent.

Finding: DMD gene is being analyzed to exclude disorders with similar clinical manifestations related to muscular and cognitive impairment caused by other gene mutations including SMN and APP genes.

Keywords: DMD, BMD, Dystrophin, MLPA, Neuropsychological assessment, Deletions.

Investigation of Synthesized new disubstituted phosphorodithioates by spectroscopic, single crystal X-ray and DFT analysis

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Abstract:
Disubstituted phosphorodithioates of the type \([(2,5-CH_3)_2C_6H_3O)_2PS_2HNEt_3\] (1) and \([(3,5-CH_3)_2C_6H_3O)_4(PS_2)_2\] (2) were synthesised and characterized by IR and NMR (\(^1H, ^13C\) and \(^31P\)) spectroscopic studies and as single crystal X-ray analysis. The compound 1 crystallizes in orthorhombic space group \(P2_1/n\) whereas compound 2 crystallizes in triclinic space group \(P\bar{1}\). The X-ray analysis reveals that in compound 1 phosphorus atom is coordinated to the two S and two O atoms to form tetrahedral geometry. The structure is stabilized by cation–anion N–H⋯S hydrogen bonded interactions. In compound 2, the two phosphorus atoms have a distorted tetrahedral geometry coordinated to two \((3,5-CH_3)_2C_6H_3O\) groups. The molecule possesses a crystallographic center of symmetry and consists of zig-zag array of \(S=O\) linkages with two diphenyldithiophosphate moieties in the trans configuration. Molecular geometries, HOMO-LUMO analysis and molecular electrostatic potential of compounds 1 and 2 are investigated by theoretical calculations using B3LYP functional with the 6-311G basis combination set in the ground state and compared with the experimental values.
Market Segmentation of Consumers in Malls: A Shopping Styles Analysis

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Abstract:

Purpose: This paper aims to investigate consumer behaviour dependent market segmentation typically based on their shopping styles in terms of buying motives, lifestyles, attitude, beliefs, and values.

Design/methodology/approach: A sample of 616 respondents was taken from 13 shopping malls in 6 different cities of northern India with an objective of market segmentation using cluster analysis technique. The data was collected based on their response to statements related to consumer’s shopping styles while shopping in Malls.

Findings: The results show that some group of consumers gives importance to product quality and best selling brands having fashionable and attractive styling. The other set of consumers are moderately price conscious or confused due to competing brands offered in the market place. Some prefer to buy when sales are announced others have a primary interest in value for money. While there is a significant difference between individual clusters, they have also displayed certain common characteristics.

To roughly identify the number of clusters, we used dendrogram by using hierarchical procedure. After that non-hierarchical procedure was used. Based on cluster analysis, four clusters were identified with cluster membership as follows.

- Cluster 1: 129 members (21%)
- Cluster 2: 241 members (39%)
- Cluster 3: 83 members (14%)
- Cluster 4: 163 members (26%)

Research limitations/implications: The sample does not match with the population (census 2001) quite closely in terms of gender (sample being male dominated, particularly in case of one of the mall located at Panipat), may not represent the population on an all India basis adequately.

Originality/value: Literature review shows that ample studies have been done to understand the consumer’s retail format choice by studying the effect of their demographic, geographic and psychographic dimensions. The paper attempts to identify, select one or more shopping style based clusters and segment them depending on size of the cluster, as a target market for offering a distinct marketing mix.
Keywords - Cluster analysis, consumer behaviour, malls, market segmentation, shopping styles.

Measuring the Political Stability and Its Impact on Financial Development of India

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Abstract:
This paper studies the impact of political structure and instability on the financial development of India. It discusses the various measurements of political stability by constructing the indices for political coalition and political concentration. HHI (Herfindahl-Hirchman Index) is used to construct the effective number of political parties in the political system that reflects the degree of government coalition. Ethnic and religious coexistence is important for political stability. Fractionalization index measures the religious diversity while polarization index is constructed to identify the separation between different religion-groups. Stock market capitalization per GDP and total corporate liability are used to measure the financial health and development of corporate world. Finally Praise-Winsten time series regression is run to find the impact of political instability on financial development. Overall results indicate that the political stability is required to have proper financial development. Social and political development and stability is important for financial management.

JEL classification: O11; O16; O53; D72; Z12

Keywords: Effective number of political parties, Social development, Political development, Economic management, Political stability.

Mental Health and the Various Psychosocial Factors Associated With It

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Abstract:
This research investigates the mental health of secondary school students and various associated psychosocial factors. The cases of various mental health problems are rising at an alarming rate. Looking at the severity of rising mental health cases World Health Organization (WHO) had put mental health as one of the sustainable development goals (i.e.)SDG Target 3.4 calls for the promotion of mental health and well-being. Stress is determinant of health (Backé, Seidler, Latza, Roßnagel, & Schumann, 2012; Steptoe,
1991. Depression and suicide take a major toll on the health of the population. Nearly one in 10 people in the world suffer from a mental disorder. An estimated 804 000 deaths due to suicide occurred worldwide in 2012 (WHO report). As per data by WHO, India is among the countries with highest suicide rate. So, in a country like India with a lot of youth, mental health issue is one of the issues which need to be tackled with utmost sincerity so as to save our youth from landing into severe mental health issues.

The study was conducted on adolescents from 9th class in schools of Chandigarh. Some students did not provide complete information. Thus, sample size for each sort of data varies due to missing information. The Standard Stress scale by Gross and Seebab, 2014 was used to collect the data about mental health of adolescents. To view the role of psychological hardiness on mental health data was collected using the Psychological hardiness scale by Novack 1990. The correlation has been found between mental health and psychosocial factors. From this research it can be concluded that Indian adolescents have shown stress levels because of various psychosocial factors like family status, expectations, acceptance by others, lack of motivation, psychological hardiness and low self esteem. Being the future of India they need to be guided to learn effective coping techniques at school levels so that they can prove to be healthy citizens of growing India. Awareness about mental health issues need to be raised through science education so that students can learn that mental health problems happen like any other disease and they need to be treated rather than to be hidden. The misconception of considering visiting mental health professionals a taboo on their lives need to be removed by the science educators at school levels.

Meta-Analysis of Fixed, Random and Mixed effects models

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Abstract:
Meta-Analysis is the use of statistical methods for combining results of individual studies. This allows one to make the best use of all the information collected in a systematic review by increasing the power of the analysis. By statistically combining the results of similar studies, the precision of estimates of treatment effect can be improved and it can be assessed whether treatment effects are same in similar situations. Age-related macular degeneration (AMD) is a common degenerative disease among the elderly population, leading to distorted central vision in the early stage and severe visual loss in the advanced stage. AMD is a complex disease with multiple genetic and environmental factors. We analyse the data set with the results from 20 studies on the effectiveness of the treatment against AMD disease using fixed, random and mixed effect
models. The treatment is statistically significant for all the models. Various plots Forest, Funnel, Radial, QQ norm are also fitted for fixed, random and mixed effects models.

**Keywords:** meta-analysis; fixed-effects model; random-effects model; mixed-effects model.

**New balancing technique for Green cloud computing Environmental Sustainability**

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**Abstract:**  
Cloud Computing is becoming increasingly popular in distributing environment. Data storage and processing using cloud environments is becoming a trend worldwide. The growing demand of Cloud Computing Infrastructure has increased the energy consumption of data centers, which has become a critical issue. 
Data centers hosting cloud computing applications which consume huge amounts of energy, contributing to high operational costs and leads to high carbon emissions which are not environmentally friendly. Therefore we need to propose a green cloud load balancing (GCLB) solution that intended to reduce energy consumption in cloud data center while maintaining the service level agreement (SLA) between the customer and the cloud service provider. In order to design such solutions, deep analysis of Cloud is required with respect to their power efficiency. Thus, in this paper, we discuss various elements of green clouds which contribute to the total energy consumption and how it is addressed in the previous studies. We also discuss the implication of this solution on the energy efficiency (EE) and the quality of service (QOS).

The energy-efficient load balancing techniques on cloud computing aims to maintains and enhances both quality of service (QOS) and resource utilization while reducing the power consumption to achieve the environmental sustainability concept.

The generally definition of cloud computing (CC) comes from The National Institute of Standards and technology (NIST) as follows: “cloud computing is a model for enabling convenient, on-demand network access To a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.”

**Keywords:** Load balancing, green cloud computing, energy Efficiency, quality of service and data center.
New Corporate Laws: A Change in the Existing Corporate Reporting Structure

Scenario

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Abstract:
With the advent of new corporate reporting structure, many changes have come across. Companies are required to disclose more elements with greater transparency and accountability. With the introduction of Company Act 2013, the scenario of Corporate Financial Reporting has changed a lot.
Corporate financial reporting is one of the important aspects of Companies Act. Proper reporting is ensured with the help of laws and legislations; and then penalties are imposed for non-compliances. Financial Reporting includes the disclosure of financial information by the companies regarding its financial performance to its various stakeholders.
It serves as a backbone to facilitate financial planning, benchmarking and decision making, and further helps to analyse the performance of the organisation as helps in comparison with its competitors.
Though, the existing Company Act 1956 included several provisions to govern the companies, but time demands change. With the advent of globalization and expansion in businesses and organisations, new changes in law regime for governing companies were also required.

Aims: The present paper seeks to study the changes in the new corporate reporting structure. It aims to examine the key changes in new corporate laws with respect to corporate financial reporting. It further attempts to study the implications of changes in corporate financial reporting brought in by the new corporate reforms and also to make a comparison of the new corporate laws with older corporate law regime.

Relevance: With the changes taking place worldwide, there was a need to review and modify the existing company laws and bring in new and improved laws and regulations in corporate sector in India. This is the innovation in the field of reporting which can most aptly be named as Company Act 2013. With the advent of globalization and expansion in businesses and organisation, new changes in law regime for governing companies were also required. Therefore, the Company Act 2013 came into being. Also, many other Company Rules were modified, which are studied in the present paper.
**Methodology:** The study is descriptive in nature. Data has been collected from secondary sources. It studies the new provisions under Company Act 2013, Company (Appointment and Qualification of Director Rules) 2014, Company (Accounts) Rules 2014, Company (Appointment and Remuneration of Managerial Personnel) Rules 2014, Companies (Corporate Social Responsibility Policy) Rules, 2014 and Regulation 25(7) of SEBI (Listing Obligation & Disclosure Regulations) 2015. In addition to this, various journals, magazines and articles were also studied.

**Findings:** The Company Act, 2013 acts as a landmark for the changing scenario of corporate financial reporting. The findings of the present study have shown that there were number of new provisions added. The main amendments are changes in Extract of Annual Returns, Consolidated Financial Statements, Risk Management policy, Internal Financial Controls, Corporate Social Responsibility, Internal Audit, Woman Director, Independent Director, Audit Committee, Nomination and Remuneration Committee and Stakeholders Committee, Related Party Transactions, Prohibition on insider trading of securities, Secretarial Audit by Bigger Companies, Meeting of Independent Directors, Financial Summary and Highlights & Details of Directors appointed/resigned, Disclosure of remuneration and Familiarization Program of the Independent Directors.

**Conclusions and Recommendations:** The Act advocates transparency and honesty to communicate true and fair image of the financial state of the company. The new act is a further step to remove inconsistencies, provide greater clarity in defining roles and an aid to better governance. These steps of changes in the acts and laws will further recommend bringing uniformity in the disclosure practices of Indian reporting environment with that of the global standards. A sound financial reporting system automatically promotes healthy competition among companies as well countries. Hence, the changes brought in by Company Act and the subsequent laws have acted as a value addition function to the existing corporate environment.

**Nitric Oxide:** bioactive gaseous inducer of adventitious root formation in hypocotyl cuttings of *Vigna radiata* (L.) R. Wilczek and acting as stress inhibitor

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Abstract:

**Aims:** To evaluate the role of nitric oxide (NO) in root formation by raising the plants of *Vigna radiata* (L.) as hypocotyls (explants) under laboratory conditions either without or with exogenous supplementation of NO (as sodium nitroprusside - SNP, a NO donor).

**Relevance:** NO is a ubiquitous gaseous biomolecule which acts as a central regulator of growth and development in plants. Available data indicate that exogenous supplementation of NO mediate a variety of metabolic processes in plant system. Thereby, looking into the active participation of signaling molecule NO in various plant physiological processes, the current study was planned to provide insights into the role of NO in regulating the root formation by measuring changes different rooting related parameters and the oxidative metabolism in *Vigna radiata*. The study is of utmost relevance to the present-day work since NO is a signaling and messenger molecule that plays a significant role in regulating plant pathophysiological processes.

**Methodology:** Seeds of *Vigna radiata* (L.) R.Wilczek (hereafter, mung bean) were imbibed in distilled water for 8 h and laid in 30 cm × 20 cm × 7 cm enamel trays lined with a moist cotton wad and Whatman No. 1 filter sheet in an environmentally controlled growth chamber at 26±1°C and 75±1% relative humidity under a continuous light of ~ 240 μmol m⁻² s⁻¹ PFD. After a week, uniform and similar sized seedlings were selected. The hypocotyls, 3.5 cm below the cotyledonary node, were cut keeping the epicotylar region intact. The cotyledons were carefully removed from the node of each cutting. The hypocotyl cuttings were then subjected to the following treatments: a) distilled water alone; b) 0.5 µM SNP; c) 1 µM SNP; d) 2.5 µM SNP and e) 10 µM SNP. Five hypocotyl cuttings were dipped in respective treatment solutions in a glass vial. Five independent replicates were maintained for each treatment. The top of each glass vial was covered with an aluminium foil. These vials were placed in a growth chamber set at 25±2°C temperature and a continuous light of ~240 μmol m⁻² s⁻¹ PFD. The volume of the treatment solution including that of control was maintained by supplementing the loss caused due to transpiration by adding the respective treatment solutions. The root formation was assessed in terms of root number, length at root initiation (primordial formation), root expression (root appearance) and post-expression stage. The rooted portion was harvested and used for further biochemical estimation. Changes in terms of oxidative stress markers (such as MDA, H₂O₂ and superoxide ions) were also monitored as per Singh et al. (2009). Biochemical estimations such as conjugated dienes (Boveris et al., 1980) and the activities of antioxidant enzymes were also studied (Singh et al., 2009). Histochemical detection of lipid peroxidation, root plasma membrane integrity, in-situ localization of superoxide (O₂⁻) and in vivo H₂O₂ localization was done as per Singh et al. (2008).

**Findings:** SNP negatively affected the rooting potential of mung bean (*V. radiata*) at higher concentrations (1−10 µM) but the response was positive at lower concentration
(0.5 μM). As per the hypothesis, NO helps in root formation and does not cause oxidative stress at lower concentrations in *Vigna radiata*. Further to explore this, the current investigation was elaborated where NO acted as a signaling molecule; an antioxidant and prooxidant; thereby reducing ROS generation in terms of oxidative stress markers (hydrogen peroxide, malondialdehyde, conjugated dienes and superoxide anion content). Additionally, an alteration in activities of antioxidant enzymes (superoxide dismutases, catalases, peroxidases, and glutathione reductases) was also noticed with exogenous supplementation of NO. Histochemical changes upon exposure to different concentrations of exogenous NO as SNP in H₂O₂, MDA, Superoxide anion and membrane integrity via *in situ* localization were also observed. Thus, all these oxidative events and changes induced by NO affected the root formation at all the three stages.

**Conclusions and Recommendations:** NO (both exogenously and endogenously) confers protection to plant system either by directly scavenging ROS or indirectly by up-regulating the genetic expression of antioxidant enzymatic activity under extreme environmental conditions. In conclusion, our results showed that at lower concentrations, NO promoted most of the biochemical parameters (antioxidants, oxidoreductases) studied and at higher concentrations the effect was inhibitory whereas at lower concentrations NO supplementation in the form of SNP improved root formation and reduced the ROS accumulation in hypocotyls of mung bean.

**On Two Parametric Shift-dependent Generalized Dynamic Entropy Measure for Lifetime Distributions**

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**Abstract:**
A very useful tool in information theory for measuring the average uncertainty of a probability distribution is the notion of entropy which was first introduced by Shannon (1948). In this type of measure, the importance of the occurrence of the events is not taken into account and are considered of equal importance. But, sometimes the elementary events of the probabilistic experiment have different importance which is usually known as weight. Consequently, an alternative measure for such type of problems was introduced by Belis and Guiasu (1968) and is known as weighted entropy. In this paper, we propose a new two parametric generalization of Shannon's entropy. Considering this new and important generalized measure, we derive its weighted and dynamic weighted versions and call them shift-dependent generalized information measures. These are "length-biased" shift-dependent information measure in which the
larger values of the observed random variable are given the higher weight. We derive the expressions of some well-known lifetime distributions on the basis of these two measures. It is also shown that the shift-dependent dynamic information measure determines the survival function uniquely. The important properties of the proposed measure are also studied. The monotonic behavior of the measure on the basis of exponential distribution is also studied.

**Keywords:** Shannon's entropy, Residual entropy, Generalized entropy, Shift-dependent dynamic information measure, Characterization.

**Opportunities creations in IT/ITes Industry in India in the dynamics of rightsizing due to emerging computing technologies**

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**Abstract**

**Aims:** 21st century is the century of knowledge and only those individuals or organizations which harness this knowledge would only be successful in their endeavours. New and unique technologies are coming everyday and trying to capture as much market-share as possible rendering the existing one’s as obsolete. This gives rise to an important question of the time that what would be the future of those individuals who are working in this information technology industry and trying hard to remain competitive with various kinds of up-gradations in their existing intellectual knowledge base.

**Relevance:** While analysing the recent lay-offs in the IT industry in the financial year 2015-16 and 2016-17 by big players like Cognizant, Cisco, Capgemini SA, it can be inferred that jobs are being automated very rapidly and IT industry may soon cut down its human workforce to bare minimum requirements. This makes the IT workforce look for various alternatives for their survival and future security. This has been investigated many times by various analysts that jobs are being eradicated quickly in the IT industry but only a few have critically examined the new opportunities that can be or are being created due to these dynamics of industry. This paper aims to bridge this gap.

**Research Methodology:** A qualitative multi-reports analysis has been used in this paper for data synchronization to gain fruitful insights into this issue. Collection of data has been done from real case studies which are available in the literature and in the internet resources.
Findings: It has been found that although the speed of workforce cut-down with big players in the market has been exponential but parallely there has been a creation of new kind of jobs for whom special kind of knowledge, skills and competencies are required. Individuals working in this industry are looking for various coping strategies to remain abreast with the dynamics of rightsizing of the organizations. They prefer either of the alternatives from Skill Diversification, Skill Enrichment, Planning and working towards new ventures, Going to Academia parallely for knowledge enhancement etc.

Conclusion: This has been found out that all this can only be possible if an individual is excellent at multi-tasking. This is giving rise to a new phenomenon of multi-jobbing which is also referred to as moonlighting in the context of emerging human resource development. Organisations are also trying to keep track of the moonlighting practices of their key knowledge workers for ensuring their retention because key knowledge workers are the primary assets of the firm which decide its growth and prosperity even when there are unpredictable dynamics in the industry.

Recommendations: The following recommendations can be made on the basis of the findings;

1. The potential of doing multitasking needs to be measured at the time of recruitment itself in order to minimise the lay-offs.
2. Right fitment of individuals is necessary for optimum utilization of work-potential.
3. Organizations need to plan in advance the transition of jobs and the job incumbents as per the changing requirements of the market.

Keywords: Moonlighting, Knowledge Workers, Knowledge economy, IT/ITES professionals, emerging computing technologies, Job challenges in IT industry.

Order moments of Order Statistics from the Power Lindley Distribution and related Inference

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Abstract:
Power lindley Distribution has been proposed recently by Ghitany et al. (2013) as a simple and useful reliability model for analysing lifetime data. This model provides more flexibility than the Lindley distribution in terms of the shape of the density and hazard rate functions as well as its skewness and kurtosis. For this distribution, exact explicit expressions for single moments, product moments, marginal moment generating
functions and joint moment generating functions of each of these order statistics are derived. By using these relations, we have tabulated the expected values, second moments, variances and covariances of order statistics from samples of sizes up to 10 for various values of the parameters. In addition, we use these moments to obtain the best linear unbiased estimates (BLUEs) of the location and scale parameters based on Type-II right-censored samples. In addition, we carry out some numerical illustrations through Monte Carlo simulations to show the usefulness of the findings. Finally, an application of the distribution to a real data set is presented and estimated the parameters of the power lindley distribution.

**Keywords:** Power Lindley distribution; order statistics, single moment, double moment, Type-II right censoring, best linear unbiased estimator.

**Radiation induced therapeutic effects on the Aβ based rat model of Alzheimer's disease**

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**Abstract:**

**Aim:** To study therapeutic effects of low dose fractionated X-irradiation on the Aβ based rat model of Alzheimer’s disease.

**Relevance:** Alzheimer's disease is a growing public health problem worldwide and is a chronic, progressive most frequently occurring cognitive impairment in aged human populations characterized by the presence of numerous senile plaques, neurofibrillary tangles as well as marked atrophy in the brain. As the percentage of the population over the age of 65 years increases, the prevalence of the disease is anticipated to increase proportionately, making the treatment of AD a major health priority. The pathophysiology of AD is linked to the formation of Amyloid-β plaques in brain. Low dose fractionated radiation therapy plays an important role in the complex management of primary and secondary brain tumors and has been used therapeutically in both malignant and benign conditions in multiple organ sites, including symptomatic
amyloidosis. However, the neuroprotective potential of Low dose fractionated therapy is still underexplored.

Knowing that the Conventional pharmacologic interventions target symptoms, but fall short of addressing underlying contributing factors for Alzheimer’s disease, the need to investigate an entirely novel strategy to treat AD pathologies is absolutely crucial. Hence to alleviate the sufferings of this neurodegenerative disorder of such a high global prevalence, this innovative study seeks to investigate the low dose fractionated cranial X-irradiation induced therapeutic effects on Aβ based models of Alzheimer’s disease.

**Methodology:** S.D. female rats received an intracerebroventricular injection of amyloid-β peptide (1-42) at stereotaxically defined points. Experimental sessions were conducted by randomly dividing animals into 4 groups viz. Sham operated, β Amyloid injected, β-Amyloid injection followed by cranial X-irradiation and only cranial X-irradiated. Anaesthetized animals received 5µl synthetic Aβ peptide injection with a 10µl Hamilton microsyringe with the needle kept in place for a period of 2min following injection. Sham-operated group received 5µl of bidistilled water instead of Aβ peptide. Animals were treated 6 weeks post-surgery with fractionated radiation of 2Gy for 5 days. Aβ plaques were assessed at 2-6 weeks post RT in histological sections. Neurobehaviour studies (Elevated Plus maze, Morris water maze, Active and Passive Avoidance tests) were undertaken to confirm memory impairment along with biochemical indices involved in the antioxidant defence system.

**Findings:** Fractionated treatment proved to be effective in significantly reducing the amyloid deposits in the post-irradiated group confirmed by histopathological studies of the cerebral cortex. These results were in concordance with the neurobehavioural tests that showed a significant improvement in Aβ induced memory impairment in the animals subjected to the fractionated dose. Restoration of activity of enzymes involved in the antioxidant defence system (LPO, GSH, Catalase, SOD, GR) further supported our results.

**Recommendations:** In an exclusive study performed by Marples et al. (2012), whereby radiation therapy as single exposure (5-10 Gy) as well as fractionated dose (1Gy for a total of 5-10 Gy) has demonstrated a 50-80% reduction in Aβ plaques in both the hippocampus and cortex of transgenic murine models via an unknown mechanism. This experimental study used a hemi-brain treatment technique, which allows for comparison between irradiated and non-irradiated brain within individual subjects that exhibit different amyloid-β plaque burdens. The team has hypothesized that modest doses of RT are associated with a local inflammatory response, which ultimately leads to a reduction in the burden of amyloid-β plaques. Fractionated radiation mediates early inflammatory changes that down regulate Aβ precursor-like protein gene expression and significantly decrease Aβ plaque formation.
Additional studies of the early inflammatory and transcriptional mechanisms are warranted to gain further insight for this novel approach to the treatment of AD.

Conclusion: This study highlights the unexplored role of radiation in treatment of neurodegenerative diseases as it reduces the amyloid plaque burden suggesting a novel treatment for AD-associated pathologies.

Parameter Estimation of Weighted Nakagami Distribution Using Real Life Data Sets

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Abstract:
Theory of weighted distributions was given by Fisher (1934) and Rao (1965) gives a consolidated approach for the problems of model specification and data interpretation. Fisher (1934) studied how the methods of ascertainment can influence the form of distribution of recorded observations. Then Rao (1965) introduced and formulated it in general terms in connection with modeling statistical data when the usual practice of using standard distributions were found to be unsuitable. Weighted distributions play an important role in research related to reliability, bio-medicine, ecology and several other areas. In this paper, we estimate the scale parameter of weighted Nakagami distribution (WND) through classical and Bayesian methods of estimation. In Bayesian method of estimation we use different loss functions namely squared error loss function (SELF), quadratic loss function (QLF), precautionary loss function (PLF) and Al-Bayyati’s loss function (ALF). The posterior distributions which are an updated version of information are derived by considering the different types of priors namely uniform prior, Jeffrey's prior and extension of Jeffrey's prior. Also the posterior risks and posterior estimates are calculated under different loss functions. For the comparison of different priors we calculate the posterior variance and the prior under which the posterior distribution has the minimum value of posterior variance is supposed to be the best one. In our case it is the extension of Jeffrey’s prior which is preferable one as the posterior variance under this prior has the least value. The value of posterior risk decreases with the increase in the value of weighted parameter and it is also observed that quadratic loss function (QLF) totally dominates the other loss functions in terms of having least posterior risk. It is also revealed that on fitting weighted Nakagami distribution to the considered real life data sets, it is better to consider the combination of extension of Jeffrey’s prior and quadratic loss function due
to its least possession of posterior risk. The simulation study is conducted in R-software using two real life data sets.

**Keywords:** Weighted Nakagami distribution, loss functions, priors, real data sets and R-software.

**Pedagogical importance of Educational trips in effective learning**

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**Abstract:**

**Aim:** The major aim of study is to understand the perception of teachers regarding the utility of educational trips in different fields at College/ university level and further comprehend the barriers for the taking students for educational trips.

**Relevance:** The purpose of education is to develop the collaborative learning, knowledge or skill of students, which may not be restricted to our classrooms or textbooks. Teaching Faculty often struggle to find ways to facilitate students understanding of theoretical concepts. In the Higher Education environment, we may neglect the “hands-on” strategies used so effectively in earlier educational trainings. Therefore, they not only required better pedagogical tools to have a better knowledge and have a command on what they are studying.

**Methodology:** In this descriptive research deductive and inductive methods are used. Data was collected from 100 college and university teachers for using a pre tested questionnaire and information was collected using 5 point likert scale in measuring respondent’s opinion or attitude related to the educational trip.

**Findings:** Overall effectiveness of the educational trip was reported as very effective by 31% of the respondents and 16% scored less than 3 undermining the effectiveness of educational trips in their field of expertise. The respondents reporting futility of educational trips belonged to the field of languages, biotechnology, mathematics and computer sciences. The positive benefits derived from field trips include hands-on, quality of education, increase in observation and knowledge has been indicated by 69% of respondents and student teacher interaction has been indicate by 80% of the respondents, enabling teachers to utilize other learning strategies such as cooperative learning.

**Conclusions:** The use of educational field trips has long been a major part of the education program. Educational trip can be a valuable tool to provide hands on training and effectively enhances the learning process in order to become more resourceful in
theoretical as well as practical assessment as has been indicated by 31% of the respondents. However, cost, safety and time constraints could be constrain for educational trips. In spite of these concerns, this study indicated that well-planned field trips can be a valuable tool which can be used as hands on experience and an effective pedagogical tool.

Performance rating of Exponentiated Generalized Standard Inverse Exponential Distribution: An Analytical Approach

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Abstract:

Aim: This paper considers the Exponentiated model of the Generalized Standard Inverse Exponential distribution. The main idea of this article is to study the performance and the efficiency of the new model over its base model previously presented in the statistical literature. A comprehensive description of the various Statistical properties of the new model is given in this paper. Some properties which include reliability analysis, moments, quantile function, median, moment generating function, characteristic function and order statistics have been discussed in this article. The method of maximum likelihood estimation has been used for estimating the parameters of the newly proposed model.

Relevance: In this manuscript, an additional parameter is added to the already existing base model to assess the flexibility of the proposed model. As such it clearly indicates the new additions in the different probability distributions already present in literature which corresponds to the theme of the conference which is based on the new innovations in various fields of science along with the application in real life phenomenon.

Methodology: In order to construct the new model, we have considered Exponentiation Technique introduced by Mudholkar and Srivastava (1995). For comparing the proposed model with its several base models, both the simulated as well as real life data sets have been taken into account to obtain the estimates. The required numerical evaluations are carried out using the Package of R software. The method of inversion has been used for generating the random numbers using R software. The graphical representation of various probability density function, cumulative density function, reliability function and hazard rate have also been given in the article. For the comparison of the Exponentiated generalized standard inverted exponential
distribution and generalized standard inverted exponential distribution we have taken into consideration the criteria like AIC (Akaike information criterion) and BIC (Bayesian information criterion). The distribution which has lesser values of AIC and BIC is considered as better.

**Findings:** We have devised a new probability model using the exponentiation technique. Different statistical properties of the proposed model have been discussed in the paper with details. Furthermore, the maximum likelihood estimates of the parameters of the different models along with their standard error have been computed. In addition to this, the values of Loglikelihood function, AIC and BIC have been obtained. All these calculations have been done using R software.

**Conclusion:** In this paper, we have defined a two-parameter Exponentiated Generalized Standard Inverse-Exponential (EGSIE) distribution and studied the various properties of the distribution. The applications of the distribution have also been demonstrated for both real life and simulated data sets. From the results, we observe that the Exponentiated Generalized Standard Inverse-Exponential (EGSIE) distribution has lesser values of AIC and BIC in simulated as well as real life data sets. These results are compared with one-parameter generalized standard inverted exponential distribution, showing that the Exponentiated Generalized Standard Inverse-Exponential (EGSIE) distribution provides a better fit than the Generalized Standard Inverse-Exponential (GSIE) distribution.

**Keywords:** Exponentiated distribution, GSIE distribution, Maximum likelihood estimation, Real life data, Simulation study, AIC, BIC.

**Phylogenetic analysis of Notopterus notopterus** (Pallas) and *Chitala chitala* (Hamilton-Buchanan) from Harike Wetland using mitochondrial 12S rRNA gene

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**Abstract:**
Identification and classification of animal species is a key pre-requisite for many biological studies. Species identification strictly on the basis of morphological characters alone is quite unreliable on account of the confusing and overlapping characters. Study
by Herbert et al., (2003) indicated four main significant limitations for species identification based on morphological characters. First, species recognition using phenotypic plasticity and genetic variability in the characters can lead to incorrect identifications. Second, this method overlooks morphologically puzzling taxa, which are common in many groups. Third, many individuals cannot be identified since the morphological keys are often effective only for a particular life stage or gender and fourth, misdiagnoses of the species still can occur.

Application of techniques based on molecular markers especially mitochondrial markers is the current trend in resolving phylogenetic and taxonomic issues. *N. notopterus* (Pallas, 1769)and *C. chitala* (Hamilton-Buchanan) belongs to class Actinopterygii, Order Osteoglossiformes and family Notopteridae. The status of the *N. notopterus* (Pallas) and *Chitala chitala* (Hamilton-Buchanan) belonging to family Notopteridae has been controversial on account very few morphological characters which have been used to differentiate these two fish species. In the present study, an attempt has been made to study the phylogenetic relationship of these two fish species from Harike wetland (A Ramsar site in Punjab) using mitochondrial 12S rRNA gene. The fish muscle samples were collected from Harike wetland in the month of November 2016. DNA was isolated using standard procedures and Isolated DNA was checked for its quality and quantity by spectrophotometric analysis and Agarose Gel Electrophoresis respectively. They were then amplified using Forward primer (5’-CAA ACT GGG ATT AGA TAC CCC ACT AT-3) and Reverse primer (5’-GAG GGT GAC GGG CGG TGT GT-3). The samples were then sequenced from Chromas Biotech, Bangalore, and analysed using MEGA6 software. In phylogenetic analyses using 12S rRNA, the outgroup species were well separated from the other species. One of the two obtained clusters showed species of Genus *Chitala* while the other cluster showed *N. notopterus*. The two phylogenetic trees constructed on the basis of 12S rRNA showed the same topology. The present study thus reinforces the belief that these two fish species i.e. *Notopterus notopterus* and *Chitala chitala* have been rightfully separated by Jayaram (2010) to be belonging to different genera and not just to one genus *Notopterus* as earlier described the Talwar and Jhingran (1991).

**Keywords:** Notopteridae, molecular markers,12S rRNA, Phylogenetic Relationship.

**Preeclampsia screening in early pregnancy through biochemical and ultrasonographic markers: diagnostic and pathophysiological implications**

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Abstract:

**Aim:** 1. To correlate the first trimester biochemical and ultrasonographic markers (viz. Pregnancy Associated Plasma Protein-A, Placental Growth Factor, Doppler Pulsatility Index) with establishment of preeclampsia in pregnant women.
2. To correlate obstetrical complications (fetal growth restriction, pre-mature delivery, risk of miscarriage, still-birth) with first trimester biochemical and ultrasonographic markers.

**Relevance:** As preeclampsia is pregnancy associated with multi-systemic, multifactorial complications which manifest symptoms after 20 weeks of gestation, thereby it makes the diagnosis more complicated and challenging. This study primarily aimed for the identification of highly specific and sensitive biochemical and ultrasonographic markers that would allow early detection of patient at risk of Preeclampsia and thus help in providing proper pre-natal care.

**Methodology:** On the enrollment of the pregnant woman, after pre-test counseling and obtaining the desired consent, 5ml of venous blood was collected aseptically in a plain vial. The serum was separated and stored at -20°C till further processing. A serological analysis for Pregnancy associated placental protein-A (PAPP-A) has been carried out in the 9th – 13th week of pregnancy using AutoDelfia, Perkin Elmer. Placental growth factor (PlGF) was also assessed in the serum of all the enrolled pregnant women to further study the correlation between levels of the markers and the development of preeclampsia using AutoDelfia, Perkin Elmer. Also further evaluation has been carried out using Doppler ultrasound to determine uterine artery pulsatility index. All these biochemical and ultrasonographic markers was studied for their association with development of preeclampsia in pregnancy.

**Findings:**There was ascending pattern of blood pressure from first trimester to third trimester of pregnancy up to delivery. In this study a detailed statistical analysis was carried out between two groups i.e. control group (were those pregnant women who did not develop any complication during pregnancy) and women who developed preeclampsia. The statistical analysis disclosed that there was significant difference in pregnant women with preeclampsia and control with respect to weight, BMI, SBP-2, DBP-2, POG, SBP-3 and DBP-3. However, there was no significant difference in age, height, SBP, DBP, Mean Arterial pressure (MAP), MAP Multiple of Median, PAPP-A Concentration, PAPP-A Median, Placental Growth Factor Concentration, Placental Growth Factor Median, Pulsatility Index, POG and Pulsatility Index Multiple of Median (p>0.5) in cases of preeclampsia and control. The predictive risk for preeclampsia was determined using Logistic Regression model development which clearly demonstrated that three variables namely PAPP-A concentration, PAPP-A median and SBP-3 were found to be significantly associated with preeclampsia and can be used as predictor markers for Preeclampsia. During this study various other complications were observed.
during the course of pregnancy namely Preeclampsia along with Fetal growth restriction, miscarriage, premature delivery and IUD. The predicted risk for these other complications was determined using the same logistic regression model and it showed that three variables i.e. SBP-3, BMI and POG were significant and can be used as predictive markers for these complications.

**Conclusion:** The finding of present study are of great significance as a predictive biomarker for indentifying preeclampsia women and other complications are PAPP-A, SBP-3, POG and BMI which are significantly associated with preeclampsia and other complications. The study revealed that these biomarkers have significant role in predicting pregnancy outcomes. The present study was a pilot scale study and the outcome revealed moderate sensitivity and specificity which may be due to the less number of subjects. This study indicated that PAPP-A, PI, POG and BMI have significant association in pregnancy complications and to establish a true fact a larger study has to be planned keeping in view the lacunas of this study for better understanding.

**Problems and Prospects of Rural Education in India: An Appraisal**

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**Abstract:**  
**Aims:** The aim of this paper is to analyse the problems of education in rural India and to find-out remedial measures to improve quality of education in rural part of the country. This is generalisation that quality of education in rural part of the country is poor and not up to mark as compare of urban areas. The reasons cited for this problem in surveys of Annual Status of Education Report (ASER), is the increasing number of single classroom to educate students from more than one grade. In some states attendance of teachers and students is also declining. There are a number of reasons why schools have failed to educate rural India. Quality and access to education is the major concern in rural schools as there are fewer committed teachers, lack of proper text books and learning material in the schools. Though Government schools exist, but when compared to private schools then quality is a major issue. Majority of people living in villages have understood the importance of education and know that it is the only way to get rid of poverty. But due to lack of money they are not able to send their children to private schools and hence depend upon government schools for education.  
**Relevance:** Around 68 per cent of India’s population still lives in villages and so the topic of rural education in India is of utmost importance. To quote Gandhi ji ‘The soul of
India lives in its villages. Unless we are not covering rural India in all aspects including education the inclusive development of the country is not possible. It is relevant to find out the reasons of poor education in rural part of the country and then to suggest remedial measures to avoid hindrances in the way of better education in rural areas.

**Methodology:** This paper is based mainly on secondary data and information. Data and information regarding the rural education in India has been taken from published and unpublished sources. The published sources like Department of School Education and Literacy, MHRD, New Delhi, The National Institute of Educational Planning and Administration (NIEPA), Annual Status of Education Report (ASER), Censes data and DISE data etc. has been utilised.

**Findings:** Paper found a number of problems are there for the poor condition of rural education in India. Quality of education is one of the top issues in rural parts of the country. Students are not at all encouraged to think but they are asked to memorize predefined questions for exams. So, for many students clearing examination at the end of the session, passing their exam becomes more important than gaining knowledge. Also, as per the new education rule, every student is supposed to be promoted to the next class irrespective of marks in their examination. Hence majority of students do not bother to study, which means a decline in their education level. Neither students nor teachers take any interest in studies which is why the level of education is declining in India especially in rural parts despite many efforts. Every village is not provided with school which means that students have to go to another village to get education. Owing to these parents usually do not send their daughters to school, leading to a failure in achieving rural education in India. Poverty is another setback. Government schools are not as good and private schools are expensive. This results in a very low number of students actually clearing their secondary education and taking admission in some colleges for further studies. So, the drop-out-rate at the secondary level is extremely high in villages.

**Conclusions and Recommendations:** Paper concludes that the quality of education is very poor particularly in rural India due to a number of reasons. The foundation to turn India into a strong nation has to be laid down at primary and rural levels and so the quality of education right from the beginning should be excellent. Education and text books should be made interesting. For rural students’ textbooks related to their culture, their traditions and values should also be there so as to create their interest in studies. The reasons behind so many drop-outs in spite of free education should be found out as this is a hurdle on the road to progress. Improvement in the condition of government schools, education quality, committed teachers and more salaries to these teachers should be part of development.

**Keywords:** Appraisal of rural education, Elementary education in rural India, Quality of rural education
Promoting Research Excellence with Quality of Lifelong Learning

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Abstract:
This paper characterizes the strategies to promote research excellence by promoting quality of lifelong learning. The excellence in research is conceived as a notion that it becomes the vision of a learning society.

Aims: To examine the quality of research excellence with lifelong learning by taking into account the dimensions like; creativity, investment in learning and empowerment. The present paper will highlight the research questions a) research excellence is gained most when attached to creative aspect of learning; b) research be related to investment in learning because it gain most when one worked with greater depth and understanding and c) empowerment as enlightenment and more awareness to the subject in which the researcher is dealing with.

Relevance: To promote research excellence by promoting quality of lifelong learning. In order to stimulate research excellence, the process of conscious continuous learning must take place throughout the life of an individual which will direct him towards individual as well as needs relevant to the community to make his research more relevant and useful. According to Commission of European Committee (2003); quality control mechanisms make learning more accessible on the basis of promoting excellence.

Methodology: Tracing back with review of related literature to derive results as an outcome that; research excellence can be promoted by quality of lifelong learning

Findings: Researchers like; Csikszentmihalyi (1990); Susan Geertshuis (2013); Geertshuis (2012); University of Warwick (2017); Victoria University (2016) emphasized that quality of lifelong learning will open and expose to deeper research understanding which undoubtedly will help to achieve research excellence by full engagement and absorption by following measurable criteria of performance that is excellence.

Conclusion: This research paper underlies the principle of today’s educational debate given by Paulo Freire (1970); lifelong learning is the torch which highlight the way towards the creation of more learning society. This led us to conclude that with lifelong learning excellence can be attained most by research.

Recommendation: Take in depth study before planning a research topic which covers research recognized by community as a vision of a learning society.

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Abstract:
Aim: This manuscript considers a new two parametric generalization of information measure. On the basis of this measure, we express generalized entropy of \( j^{th} \) order statistics of exponential distribution and study some of its important properties. A comprehensive description of the several mathematical properties of the proposed measure is given in this article. The various properties which include survival function, residual entropy, generalized residual entropy, lower bounds have been discussed in the paper. Some preliminary results regarding increasing and decreasing generalized residual entropy IGE (DGE) of order statistics are also obtained.

Relevance: As it is clearly evident that the paper is based on the new two parametric generalization of information measure as such it corresponds to the theme of the conference which is based on the new innovations and applicability in various fields of science.

Methodology: In order to construct the new two parametric information measure, we have considered probability integral transformation and studied it for order statistics. By using residual generalized entropy for exponential distribution we have derived an expression for residual generalized entropy of order statistics. We also derive the lower bound for this measure. It is shown that the difference between the generalized residual entropy of lifetime of a series system and residual generalized entropy of the life time of each component is independent of time by using the exponential case. Some preliminary results regarding increasing and decreasing generalized residual entropy IGE (DGE) of order statistics are also obtained.

Findings: A new two parametric information measure has been proposed using the probability integral transformation technique and derived different mathematical properties of the proposed measure. We also find bounds, residual entropy and IGE(DGE) of order statistics.

Conclusion: In this paper, we have proposed a new generalized two parametric entropy of order statistics. On the basis of this measure various characterizations are also studied. In many practical situations generalized entropy plays a vital role in different areas of engineering, electronics etc. We have derived some preliminary results of
generalized residual entropy. The measure proposed in this paper can be of interest in future.

**Keywords:** Shannon's Entropy; Order Statistics; Probability Integral Transformation; Residual Entropy; Generalized Information.

**Radiolabelling Approach and Preclinical Evaluation of 99 m-Technitium Labeled Bortizomib in Experimental Rat**

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**Abstract:**

**Aims:** The present study is aimed to label 99m-Technitium($^{99m}$Tc) with bortizomib, quality control, physiochemical characterization, pharmacokinetics and bio-distribution of radio complex ($^{99m}$Tc-bortizomib) in in experimental rat.

**Relevance:** Radiopharmaceutical is one of the most frequent applications of radioisotope in health. Current radiopharmaceutical research enables novel applications such as invasive in-vivo imaging and targeted therapy. So here my work is to develop a novel agent for invasive tumor imaging. Bortizomib is an anticancer drug which specifically bind to the over express proteosome in tumor cells. We have done the preclinical characterization bortizomib with radioisotopes ($^{99m}$Tc), further I am here to demonstrate initial steps towards developing a new targeted radiopharmaceutical.

**Methodology:** A method for radio labeling bortizomib with Tc-99m was standardized using stannous reduction method. An amount of 20μg of stannous chloride (0.1N HCL) added to 100μg bortizomib after optimization by using various concentrations at different setting of pH and time of these two constituents. Labeling efficiency was checked by using instant thin layer chromatography (ITLC) and charge of radio complex is determined by paper electrophoresis using sodium phosphate buffer solution of pH 6.8 and Whatman No.1 paper. The sample was run at a constant voltage of 300V for 1.5hour. Expected structure of $^{99m}$Tc labeled bortizomib drawn by the knowledge of donating lone pair with help of chemdraw software. Further, in vitro and in vivo stability of $^{99m}$Tc labeled bortizomib studying serum stability, plasma protein binding and Lipophilicity. $^{99m}$Tc labeled bortizomib was also evaluated for blood kinetics and bio distribution profile in normal rat.

**Finding:** Bortizomib was successfully radionabeled with $^{99m}$Tc using stannous chloride
and labeling efficiency observed 95%. Maximum radiolabelling observed at 20 min and get stable another 120 minute. Paper electrophoresis showed that the $^{99m}$Tc-bortizomib neither moved to cathode nor to anode while $^{99m}$Tc moved to anodic side when compare with radio complex, therefore it exhibit the neutral charge on the radio complex. The $^{99m}$Tc labeled bortizomib was found to be stable up to 12 hours in rat serum (93.2%) and 0.9% saline (90.8%) at 37°C. However, it gets dissociated from bortizomib and shows to 80% after 24 h. The lipophilicity of radio complex was found to be 23.11% ± 0.58%, which indicate developed radio complex is mostly in hydrophilic in nature. The blood kinetics of the $^{99m}$Tc-bortizomib followed a dual phase clearance pattern whereby fast release phase was observed at 45 seconds and a slow release phase was observed after 1 hr of administration. The plasma protein binding of the radio complex observed was 73.7%. For bio-distribution studies, the $^{99m}$Tc-bortizomib was injected in the penile vein of the normal rats and its distribution in various organs was calculated in terms of percentage-injected dose, following one 1 hr of injection. The highest percentage injected dose calculated was observed in kidney followed by liver and spleen.

**Conclusions and recommendation:** Through our study we report direct radiolabeling of bortizomib with $^{99m}$Tc by viable method with high radiolabeling efficiency and stability along with its bio distribution in normal experimental rat. Further this study has to evaluate in tumor model rat to establish the potential use as a radiopharmaceutical of developed $^{99m}$Tc labeled bortizomib. This developed radio complex may have a diagnostic application by *in vivo* imaging of tumor cells.

**Rayleigh-Bénard Convection for Nanofluids for More Realistic Boundary Conditions**

(Rigid-Free and Rigid-Rigid) Using Darcy Model

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**Abstract:**

The impact of vertical magnetic field on the thermal instability of a horizontal porous nanofluid layer using Horton-Rogers-Lapwood model is considered for the two types of boundaries: both rigid and rigid-free. Brownian motion and thermophoretic forces are introduced due to the presence of nanoparticles and Lorentz’s force term is added in the momentum equation along with the Maxwell’s equations due to magnetic field. Normal
mode technique and single term Galerkin approximation is employed to investigate the instability and derive the eigen value problem. It is found that the mode of instability is through oscillatory motions for bottom heavy suspension of nanoparticles and for top heavy arrangement of nanoparticles it is invariably through stationary convection. The critical Rayleigh number shows a substantial fall for top heavy configuration of nanoparticles while the rise is comparatively small for bottom heavy configuration as compared to regular fluids. The critical Rayleigh number for alumina water nanofluid has an appreciable rise in its value with the rise in Chandrasekhar number and it increases moderately as we move from rigid-free to both rigid boundaries. The effect of Lewis number, modified diffusivity ratio, porosity, concentration Rayleigh number and heat capacity ratio on the onset of thermal convection has been investigated. Porosity is found to hasten the onset of convection for the two types of boundaries. 

**Keywords:** Darcy’s Law; Brownian motion; Magneto-convection; Chandrasekhar number.

**Rietveld Refinements of A_{2}BO_{4}-Type Phases**

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**Abstract:**  
Ln_{0.3}Sr_{1.7}Mn_{0.4}Fe_{0.6}O_{4} phases (Ln = La, Nd, Gd, and Dy) have been synthesized by standard ceramic method from La_{2}O_{3}, Nd_{2}O_{3}, Gd_{2}O_{3}, Dy_{2}O_{3}, SrCO_{3}, MnO_{2} and Fe_{2}O_{3} (All were Aldrich made, purity 99.9%). The samples were characterized by room temperature X-ray powder diffraction (XRD) measurements (Bruker AXS diffractometer type D 76181 Karlsruhe, Germany using CuKα radiations) for phase purity and crystal structure determination. The XRD patterns were obtained between 10° and 100° in steps of 0.02° with a counting time of 2s per step and analyzed by Rietveld refinements using the GSAS program. The bond angles and bond distances have been determined on the basis of structural parameters derived from structural refinements.

**Robust Bayesian Analysis of a Family of Lifetime Distribution**

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Abstract:
The objective fulfilled in the present paper is to give a robust Bayesian analysis of the family of lifetime distribution under the consideration of an e- contamination class of priors. ML-II Bayes estimators of the parameter, reliability function and the hazard rate function are derived by considering the Type-II censoring scheme and the sampling scheme given by Bartholomew. Consideration is given to both the Square Error Loss Function (SELF) and the General Entropy Loss Function (GELF). Both the cases when the scale parameter is known and unknown have been solved. Markov Chain Monte Carlo (MCMC) Simulation techniques viz., Metropolis Hasting Algorithm including Gibbs Sampler has been used to solve the complex equations. Numerical findings, real data analysis and the simulation results have been presented in the nice tabular form with interpretations.

Role of Androgen Receptor (Ar) Pathway in Prostate Cancer through Gene Expression Studies

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Abstract:
Prostate cancer is the most common form of malignancy among men over 50 years of age; it is the second leading cause of male cancer death. The cancer co-opts a unique set of molecular pathways in cells that initiate its progression; it includes androgen-receptor (AR), mechanistic target of rapamycin (mTOR), and Mitogen-activated protein kinase (MAPK), Phosphoinositide-3-kinase/AKT (PI3K/AKT), Janus Kinase/signal transducers and activators of transcription (JAK/STAT), Wnt pathway, Nuclear factor-κB (NF-κB) pathways. Amongst all associated pathways, androgen receptor (AR) signaling is most important in the progression of the majority of prostate tumors. This is because it is primarily involved in transcriptional regulation in prostate epithelium cells. Therefore, the penalty of the ensuing alterations in its activity is pleotropic and thus contributes to malignancy in multiple forms. Despite being efforts towards prostate cancer profiling, the genetic alterations and biological processes related with disease progression remain rather elusive. The emergence of gene-expression technologies and proteomics application may augment our knowledge regarding the disease initiation, development and progression. In this study, we have conducted gene expression studies along with their neighboring interactions for the androgen-receptor (AR) pathway. In total four datasets (GSE2443, GSE8702, GSE21887, GSE33316) comprising AR pathway
were taken for analysis. From these datasets five potential biomarkers (RPL23, RPL29, RPS6, RPS8, and RPS20) were generated via gene-expression analysis and intra-pathway connections. Our study suggests that gene expression analysis and inter-connections among genes allows detection of the molecular markers that can be putative targets with earliest detection and better prediction for their role in progression of prostate cancer.

**Keywords:** Prostate cancer, gene-expression, androgen-receptor, signaling pathways.

### Role of lithium during arsenic induced oxidative stress in rat liver

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**Abstract:**

**Background:** Lithium therapy which is extensively being used for the treatment of depression and bipolar disorders is known to be associated with many side effects which include hypothyroidism, hypertrophy, renal failure, tetratogenic effects. On the other hand, patients who undergo lithium therapy may get exposed to contaminants like arsenic in drinking water. Arsenic is a toxicant and leads to hyperpigmentation, black foot disease and keratosis. The present study was designed to investigate the effects of lithium on oxidative stress in liver of rats subjected to arsenic treatment.

**Methodology:** 32 male S.D. rats were segregated into 4 different groups viz., Group I (Normal control), Group II (Arsenic treated), Group III (Lithium treated) and Group IV (arsenic + lithium treated). Arsenic was given in the form of sodium arsenite in drinking water at a dose level of 100 ppm and lithium carbonate was given at a dose level of 1.1g/kg feed for 10 weeks. Antioxidant defence system, liver marker enzymes and histoarchitectural studies were undertaken to assess the effects of lithium and arsenic treatment.

**Results:** Both arsenic and lithium treatment resulted in a significant increase in the LPO levels. Further, marked reduction in the GSH content as well as in the activities of SOD, Catalase, GPx, GR and GST were observed in all the treated groups when compared to the normal control. Liver marker enzymes (ALP, ALT and AST) showed noticeable increment in their activities in arsenic as well as lithium treated group when compared with normal control group. Histo-architectural analysis by haematoxylin and eosin staining demonstrated the alterations such as necrosis, binucleated cells and vacuolization in the arsenic and lithium treated rats. However, when arsenic treated rats
were simultaneously subjected to lithium treatment then all the above biochemical indices showed pronounced adverse effects.

**Conclusion:** Our study concludes that lithium administration along with arsenic enhances the toxicity in the liver. It can further be inferred from our study that lithium therapy to the patients thriving in the arsenic contaminated area would further aggravate the adverse effects inflicted by arsenic.

**Serum levels of Apo E in Age related macular degeneration**

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**Abstract:**

**Background:** Age related macular degeneration is a degenerative disorder associated with ageing that affects central part of the retina called macula and causes irreversible blindness. Common phenotypes of AMD occur as Dry and wet forms. Dry is associated with deposition of Drusen (fatty acids and proteins, Apolipoproteins along with complement factor) between Retinal pigment epithelium and choroid. Whereas in wet blood vessels grow from choroid behind the retina which can leak exudate and cause haemorrhaging. Apolipoprotein is class of proteins involved in transportation of lipids in the systemic circulation of body. We aimed to estimate the levels of ApoE in AMD in comparison to age matched control participants.

**Methodology:** 50AMD patients and 50 healthy controls were enrolled for this study. The diagnosis of AMD participants was based on AREDS criteria. The fundus image and OCT were done to diagnose the AMD phenotype. ApoE levels were determined by enzyme-linked immunosorbent assay (ELISA) after normalization with total serum protein.

**Results:** We found the serum levels of ApoE were found to be elevated in AMD as compared to controls.

**Conclusions:** The result signifies the role of lipid metabolism and their transportation which could initiate AMD pathology.
Social media advertising: a new perspective in the Indian context

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Abstract:
It is being increasing acknowledged around the world that social media is largest growing medium in the world and more and more B2C and B2B platforms in the world are turning towards it for advertising their products and services. A lot of theories are gradually being built around this medium as the immense reach of 1.2 billion users and ever-increasing base is too hard to ignore for any advertising or marketing professional. This paper is an application of three main variables namely – personal extensibility, image transferability and network capability in the Indian context. The paper aims to apply these theoretical constructs propounded by Shintaro Okazaki and Charles R. Taylor in their research paper published in 2013. This paper can give pertinent insights into the social media users’ behavior and go a step further in building the perspective of the Indian customer.

Aims: To understand the theoretical application of three variables - personal extensibility, image transferability and network capability in the Indian context.
Relevance: these variables will help future social media advertisers the behavior patterns of the Indian consumer.
Methodology: Administering a fifteen point questionnaire to a group of high social media users and quantitatively analyzing using CFA and EFA techniques.

Social media and Teacher: Role, Responsibilities and Ethical Dilemmas

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Abstract:
The point of composing this exploration paper is to comprehend the role of the teacher in spreading data through social media by dealing with their obligations and to beat
their moral quandaries. This literature study aims to understand the roles and responsibilities of teachers in using social media as an educational tool and also to throw some light upon the ethical challenges that they are facing at present. There is no doubt that online networking, when utilized as a part of a worked together way, gives an entry to individual association, professional enhancement, imparting perspectives to each other and encourages adapting together. Even so, its such huge numbers of advantages still, educators are hesitant in using it as an instructive device as its performance brings new troubles and ethical dilemmas. Doug Johnson, a specialist in instructive innovation, recognizes that innovation in the classroom can be to a great degree problematic. He contends that in our endeavor to instruct kids to become computer literate, we push them into the cyber space without any guidance. How might we anticipate that they will know how to carry on the web in an ethical manner, with their personality covered up, when we haven't completely shown them to act morally in real life situations? Along these lines, here comes the requirement for the educators to understand their roles and responsibilities in uncovering the advantages and disadvantages of utilizing social media as an instructional tool. For the purpose of this article, the approach embraced is the review of related literature. This paper is a humble effort to reflect on the research findings. Numerous investigations uncover the effect of social media in a positive and negative sense. After going through critical review of the research studies, we came to the conclusion that, social media sites give an incredible stage to find instructive assets, joining informative groups and collaborating with each other. Yet then again we, as an educator need to manage its negative outcomes moreover. In the wake of encountering each one's investigation given in the paper, it is recommended that educators should abandon their apprehensions and begin utilizing online networking as an apparatus for directions as it is very intuitive and furthermore, there ought to be some preparation given to the instructors with respect to the utilization of web-based social networking in training.

**Stem Cell-Based Approaches for Tooth and Periodontal Tissue Regeneration**

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**Abstract:**
The continuously increasing progress in stem cell biology has expanded our horizons into the principles of health and disease. This new acquired knowledge and the recent advances in the field of biotechnology have formed the substrate for translation into novel therapeutic solutions. Indeed, traditional dental therapies have successfully incorporated a good number of new materials that are more compatible and friendly to
dental and Periodontal tissues. Although these treatments are suitable and satisfactory for long lasting dental restorations, the idea of stem cell-based tissue regeneration is tempting and represents the decisive objective of introducing new therapeutic approaches in the clinics. Teeth develop through continuous and reciprocal interactions between cranial neural crest derived mesenchymal stem cells during early embryogenesis. These highly mineralised organs are composed by collagenous and non-collagenous extracellular matrices. The alveolar bone is another collagenous hard tissue, which through its close interaction with the Periodontal ligament supports tooth stability and function. Tooth vitality is ensured by blood vessels and nerve fibres within the dental pulp and periodontium.

Regenerative Approaches include the formation of new enamel, dentin, pulp, Periodontal ligament and alveolar bone after tooth damage due to genetic pathology, traumatic injuries, caries, and periodontal lesions. Therefore, the recent progress made in the fields of stem cell biology, tissue engineering and nanotechnology offers promising opportunities to repair damaged or missing dental tissues. Several considerable efforts have been made recently in the dental field and new concepts concerning dental treatment strategies have arisen with the hope to translate basic research findings into the clinics. Repairing teeth by autologous Cell grafting is highly desired, but some ethical, economic, legislative issues must be resolved.

The cranial neural crest derived dental stem cells or stem cells from other tissues can be used with success for dental, periodontal and craniofacial repair purposes. The appropriate selection of stem cells in conjunction with the creation of an adequate and respective microenvironment is essential for a successful clinical outcome. Therefore, the identification and characterisation of stem cell niches within dental tissues and the analysis of niche derived signals during Tooth homeostasis and repair is of prime importance. The exploitation of various adult stem cell populations localised in the different tooth components is challenging. Furthermore, success depends on well controlled and coordinated cytodifferentiation and mineralization process during tissue repair and regeneration.

Small scale engineered biomaterials and tailor made empty scaffolds that will attract specific endogenous stem cell populations can be designed for the regeneration of the periodontium as well as of various tissues within the craniofacial complex. Innervation of craniofacial tissues including teeth, is essential for ensuring their morphology, physiological function and regeneration. Equally blood supply of craniofacial structures and teeth are important for their function, vitality, and longevity and therefore it is important to develop methods for analysing angiogenesis in regenerating tissues. The tissue engineering concept for dental pulp regeneration implicates stem cells, scaffolds and signalling molecules. Pulp derived stem cells have the potential to differentiate into odontoblasts and other cell types and thus could be used for clinical applications.
Odontoblasts produce nitric oxide with antibacterial activity, which is an important tissue for successful tissue regeneration purposes. During Tooth homeostasis and pathology, communication between odontoblasts is activated via specific channels. Hydrogels may be used as stem cell seeded matrices for pulp and periodontal tissue repair purposes in the clinics. Polymerized resin based materials could effect cellular physiology and induce cell apoptosis.

Several pathologies exist that lead to root malformations and consequently affect tooth eruption and physiology. Tooth eruption is a complicated event that differs from species to species. Resorption of the alveolar bone that surrounds the tooth root could be an actor of periodontal development and remodeling. Orthodontic forces affect alveolar bone remodeling and periodontal ligament regeneration through defined molecular mechanisms. The outcome of tissue engineering strategies for bone formation depends on the origin and the culture conditions of the applied stem cells.

Amelogenin, one of the most important organic elements, is reexpressed during dental pathology and repair, indicate that it can act as a signaling molecule for dental tissue repair events. Injection of stem cells at dental pathological sites may enhance the possibility of de novo enamel formation.

Repair and regeneration of dental tissues using stem cell based approaches combined with new biotechnological tools is an exciting and highly relevant area of research.

**Study of different properties for investigations of interactions of drug with aqueous and non aqueous solvent**

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**Abstract:**

In order to have insight into the nature of molecular interactions several measurements, especially thermodynamic and physico-chemical ones, are being investigated to understand drug action in aqueous as well as mixed aqueous solutions. These investigations also attract the inquisitive minds of researchers owing to the important role that drugs play to understand the nature and the extent of the patterns of molecular aggregation that exist in liquid mixtures. Volumetric, viscometric and acoustic properties have been found to be of much helpful in understanding these interactions. The apparent molar volume, \( V_\phi \), limiting apparent molar volume, \( V_0^\phi \), the slope, \( S_\phi \), partial molar volume of transfer, \( V_0^\phi \), limiting apparent molar expansivity, \( E_0^\phi \), and Hepler’s constant, \( (\partial^2 V_\phi / \partial T^2)_p \), have been calculated from density data. The apparent molar isentropic compression, \( K_\phi \), limiting apparent molar isentropic
compression, $K_{\phi,s}$, its slope, $S_s$, and partial molar isentropic compression of transfer, $K_{\phi,s,tr}$, have been calculated from speed of sound data. The results have been discussed in terms of solute-solute and solute-solvent interactions and structure-making/structure-breaking tendencies.

**Synthesis and characterization of nano and bulk CoCrFeO$_4$ ferrite by glycine-nitrate combustion method**

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**Abstract:**

Cost effective and low temperature glycine-nitrate combustion method was used to prepare chromium incorporated nanocrystalline and bulk cobalt ferrite CoCrFeO$_4$. The structural properties and phase identification of the samples were studied using X-ray powder diffraction and the Rietveld analysis. Rietveld refinements revealed that both the samples possess cubic symmetry corresponding to the space group $Fd-3m$. The refinement results also confirm that the cationic distribution over the tetrahedral and octahedral sites in the spinel lattice of both nano and bulk samples is partially inverse. Cr ions invariably occupy the octahedral (B) site while Co and Fe ions are distributed over both A and B sites. The results of M-H hysteresis curves revealed that the value of saturation magnetization ($M_s$) of nanosample is smaller than that of bulk sample. A much larger value of coercivity ($H_c$) of nanosample (3616G) compared to that of bulk (64G) indicating that they are hard and soft magnets respectively. Magnetization measurements exhibit non-collinear ferrimagnetic structure for the samples.

**Keywords:** Combustion method, Rietveld refinements, TEM and Magnetic properties.

**The Changing Dynamics of Competition Regime - Case Study of Google**

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**Abstract:**

Recently, Competition Commission of India imposed a fine on the search engine giant, Google, of 5% of its earnings generated in India amounting to Rs 136 crores, for engaging in anti competitive activities. The case underscores the complications of contemporary competition laws to India’s digital economy where anti competition
violations may be distinctly observable yet difficult to evince. Anti competition bodies throughout the world appear to be grappling with the presence of big market players in the cyberworld, which due to their absolute expanse mimic a monopoly. The main area of conflict appears to be the position of Google as a service provider, gatekeeper and marketplace, all at the same time. Whilst the regulatory agency quite sensibly navigated away from crushing the innovative spirit, its judgement is seen by some critics as a left out chance, since it could have been an opportunity to formulate anti competition guidelines customised for the emerging digital ecosystem of India.

**Keywords:** Google, anti competition, laws.

### Determinants of Educated Unemployed in Rural Punjab

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Punjab has been known for its human capital as a prized resource since times immemorial. There has been an increase in the number of unemployed persons in Punjab. The present paper tries to investigate the determinants of unemployment situation in Punjab with special reference to Rupnagar, Amritsar and Bathinda districts. For the analysis, primary data was collected using the multi-stage stratified sampling technique; and secondary data has been collected from the various published and unpublished sources like NSSO publications, Census of India, various issues of Statistical Abstract of Punjab, magazines and journals. The data used for further analysis were generated using a well designed questionnaire administered on the sample households at personal level. The estimated results show that higher the educational qualification of father or higher the log years of schooling of father, higher ids the educational qualification of the individual concerned. It was also concluded from the data so collected that higher the age of the individual, lower the unemployment intensity. Another important conclusion regarding the job preference was that those respondents who had opted for stronger preference for self-employment were residing in a village closer to the main road. On the other hand, the respondents who had opted for a government job preference belonged to villages farther off from the National Highway. Finally, the paper suggests that government needs to consider various household level factors such as age, education level, job preference for updating and formulating employment enhancement policies. Further, it urges that macro level policies need to be strengthened by emphasizing on micro level policies, giving due consideration to the development status for increasing employment opportunities.

**Keywords:** Educated Unemployment, Rural Punjab, determinants.
The Effect of Perceived Ethics of Online Retailing on Customer Trust in E-Retailer

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Abstract: Technological development has led to a large number of opportunities in the area of retailing. One of them is E-retailing. The complexities and intangibility of web environment lead to certain ethical issues. The purpose of the study is to gain a clear understanding of the relationship between such ethics issues of e-retailing and customer trust. The data was obtained from 120 customers of Patiala region who have purchased at least an item in last 2 months. For the purpose of the study a conceptual model was proposed and relationship between the two variables was estimated. Factor Analysis was performed to extract the most relevant factors affecting consumers' perception and correlation was then applied. The results revealed that there is a significant relationship between dimensions of ethics of e-retailing including security, privacy, non deception, fulfillment and customer trust. The limitations of the study and the suggestions for further research were also presented.

The Generalized Gamma Shared Frailty Model Under Different Baseline Distributions

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Abstract: Shared Frailty Models are often used in survival studies where event times are grouped together in clusters as they share some common factor. Such data may be observed in clinical studies, medicine, public health, demography and epidemiological studies among many other fields. For example, in cases where we have recurrent times to infection, observations from family members, patients under a common treatment or doctor, or individuals with exposure to the same environment, the frailty variable that accounts for the randomness in the data or heterogeneity caused by unknown covariates, is assumed to be shared by all observations in the same cluster but is independent for different clusters.

In this article, we study three different baseline distributions while describing the frailty variable using the generalized Gamma distribution. The frailty term acts multiplicatively on the baseline hazard function, modifying it for each individual. As the frailty term is unobserved, we describe the frailty distribution using a flexible distribution whose
density function can take various shapes. The generalized gamma distribution has many sub models as its special cases, including the Weibull, exponential, log-normal and gamma distribution. Hence, using this distribution to describe the frailty term enables us to save time and cost incurred in fitting the survival data to each of these sub models individually in order to suggest the most efficient model.

For the baseline distribution, the hazard functions of the generalized exponential, log-logistic and Gompertz distribution have vastly different shapes and these distributions are suitable for studying datasets only in certain cases. We look at the various shapes taken by the hazard function and explore the applicability of using different baseline distributions in different situations.

The three models under the three baseline distributions are applied to real life datasets and Bayesian estimates of the parameters are obtained using the Metropolis-Hastings algorithm. Bayesian methods of estimation allow us to incorporate any prior information available about the parameters. Also, these methods may fair better than other computationally lengthy numerical approximation techniques used to obtain maximum likelihood as these algorithms can be run for shorted durations to diagnose problems like multiple modes of the likelihood or non-convergence earlier.

The models are compared using the Akaike Information Criteria, Bayesian Information Criteria and the Bayes Factor and the most efficient model is suggested. We analyse different datasets and conclude the most appropriate baseline for each dataset.

Finally, recommendations are given regarding the applicability of each distribution in different studies.

**Keywords:** Metropolis-Hastings algorithm, Akaike Information Criteria, Bayes Factor, generalized exponential baseline hazard, log-logistic baseline hazard, Gompertz baseline hazard.

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**The Impact of Macroeconomic Variables on Indian Capital Market**

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2Research Scholar (Economics), Department of Evening Studies, Panjab University, Chandigarh, INDIA

**Abstract:**
The financial market plays a major role in the foundation of a stable and efficient financial system of the economy. The relationship between macroeconomic variables and capital market is well documented in the existing literature. This paper makes an attempt to extend the existing literature in the Indian context. The paper is an attempt to
understand the relationship between three macroeconomic variables and their impact on Indian capital market. The independent variables considered in the study are Inflation, Foreign Direct Investment (FDI), Index of Industrial Production (IIP) and the dependent variable is BSE Sensex and S & P CNX Nifty. To estimate this relationship Granger causality is used and to check for the stationary augmented dickey fuller test is used. The time period taken into consideration is the post-crisis period. Results show that inflation negatively affects the stock prices while FDI and IIP positively affect stock prices. This study will help investors to take effective investment decisions by taking note of the significant macroeconomic variables which could impact the Indian stock market.

**Keywords**: Macroeconomic determinants, Sensex, S & P CNX Nifty, Granger causality test.

**The Indian Expatriates’ Experience: Adjustment and Job Performance with reference to their Cultural Intelligence**

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**Abstract:**

**Aim:** Globalization has integrated the whole world and it has become an undeniable reality today that has reduced time and space between the countries. This change in scenario has encouraged many people to enter into the geographical boundaries of other countries which have furthermore resulted into increased opportunities and exposure for the best talents. Along with the opportunities, people have to face challenges deriving from these cultural differences also. People with high cultural intelligence (CQ) may be ideal for working in the global contexts. Therefore, the present study is an effort to understand why and how some individuals work and perform more effectively than others in inter-cultural settings.

**Relevance:** Growth and change go hand in hand; the gap between these two has the potential to make any organization succeed. If the organizations have to grow, they need to change and adapt according to the changing environment. Globalization is one such big change which has revolutionized the whole world. It, further, has expanded the aspects of human capital requirements. Besides, the traditional human capital requirements of technical skills and expertise, the experience and other kind of
competencies associated with working in the culturally diverse settings is becoming increasingly important in order to attract, select and retain the best talents. Furthermore, the multinational organizations are planning and preparing hard to make their international assignments successful. The increasing demand of Indian expatriates in international assignments has developed the need for research in the area of global human resource to understand how the individuals can work effectively in culturally diverse settings, which further, can help in the success of global assignments.

**Methodology:** This research assessed cultural intelligence, expatriate adjustment and overall performance of expatriates, individually and their dimensions also; and further investigated the relationship between cultural intelligence and these two most important dimensions of expatriate effectiveness of Indian professional expatriates working abroad. In order to examine these objectives, a descriptive study was conducted on 120 Indian expatriates, working abroad in the IT sector. To make the measurement more manageable, a reasonable number of cultures were selected: Australia and Canada. The data was collected using the convenience sampling approach. The reliability of the questionnaire was tested using the Cronbach's Alpha measurement. The analysis of the data was done using the correlation and multiple regression analysis.

**Findings:** The findings suggested that cultural intelligence was positively correlated with all the three dimensions of cross-cultural adjustment. The cognitive and meta-cognitive dimension of cultural intelligence was also found to be positively related to job performance, especially to its contextual performance dimension. The motivational dimension of cultural intelligence had come out to be the strongest dimension which had the higher positive relation with the other dependent variables which include expatriate adjustment and job performance.

The hypotheses of the current study were tested using multiple regression analysis and it was found that meta-cognitive CQ and motivational CQ were significantly related to general and interaction adjustment. Further, this meta-cognitive CQ was also having a significant relationship with task and contextual performance. The findings of the present study are consistent with the prior studies related to expatriate effectiveness.

**Conclusions and Recommendations:** This study contributed to the understanding of global mobility of Indian expatriates and how the cultural intelligence of Indian expatriates abroad will affect their performance in their professional field. This study has practical implications for the Indian expatriates and the organizations dealing with them; that will further be helpful in contributing towards the success of the international assignments.

The significant positive relationship between motivational CQ and cross cultural adjustment implies that individuals who are motivated to accept and embrace the diverse cultures find it easy to adjust in such environment. Such individuals are an asset for their organizations. It gives an insight to the organizations to work on this dimension.
of human behaviour. This motivational CQ and meta-cognitive CQ was also found to have a significant relationship with job performance which implies that such people not only adjust better in general and work environment but also perform effectively be it their task or contextual performance; which is the main goal of any multinational organization.

**Keywords:** Cultural Intelligence, Expatriate Adjustment, Expatriate Performance, International Assignment.

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**The Role of Employee Orientation in Building Customer Relations: A Qualitative Study of Organized Retail Stores**

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**Abstract:**

**Background:** Maintaining and retaining relations with the customers is the utmost goal of the organizations. Building strong relations involve the development of trust and commitment with the customers which ultimately reflects in the form of satisfaction and loyalty. For an organization to increase customer retention, it needs to develop strategies that contribute towards the value enhancement for the customers. These strategies provide the companies a competitive advantage. However, the role of an employee becomes indispensable during the process of building relations with the customers. From initiating to maintaining the high contact services require the employees to guide the customer at every stage. In doing so, employee satisfaction and involvement comes into action. An organization readiness to serve its customers well could be assured if the employee assures affective and continuance commitment with the organization. So, it becomes imperative to understand the role of employee orientation in building customer relationships.

**Objectives:** At present, there is a little understanding on the way employee orientation is practiced and its impact on building relationships with customers. So, the present study aims to identify the relationship between employee orientation and building customer relations.

**Methodology:** A qualitative approach based on in-depth interviews with 14 customer relationship officers and 14 Human Resource Executives from various retail outlets, was conducted to get an insights on employee orientation and building customer relations.
Findings/Results: Organization’s culture plays a vital role in shaping employee’s behavior. Employee engagement practices boosts motivation and a sense of achievement that drives belongingness of an employee towards the organization. These kinds of initiatives make the employee understand the dynamics of an organization and make them ready for organizational changes. If initiatives like employee engagement practices or proper training and development are provided for the sake of employee orientation within fixed intervals of time, it will ensure a more focused approach towards dealing with the customer which may turn the customer into a delighted customer and the customer may go for further repurchase. An organization’s performance depends a lot on the customer’s feedback for which employee’s dealing with the customer is one of the major determinants. An efficient way to retain customer could be done by knowledge management. Addressing customer complaints and also providing quick response to the grievances of customers will leave a good impact on the customer which eventually affect customer’s perceptions regarding repurchase intentions. It boosts up the customer loyalty for a particular store which could be reflected in cognitive, behavioral and attitudinal aspects of the customer. The challenge lies in retaining customers due to the change in trends and competition which requires the assurance of effective implementation of customer relationship practices to retain them. The outlook of a customer towards any product could be modified by doing well articulation of the benefits of the product by the employees which could make a prospect customer in to a potential customer for the organization. An employee should always strive to understand the need of buying a particular product of a customer. By efficiently maintaining such consistency while delivering customer services it would lead to achieve customer satisfaction. The employees are one of the elements whose interactions with the customer act as a moderator for having a profound impact in trusting distinct practices introduced by various firms for building customer relations.

Keywords: Employee Orientation, Building Customer Relations, Organized Retail Stores.
These are the million dollar questions for all of us, particularly for us teachers and teacher educators. In the present age of digital technology, children tend to get bit distracted from the stereotypical chalk and talk method of teaching. When pressurized by teachers and parents, children try their level best to either mug up or memorize the whole concept, but that will not help them to develop their reasoning and critical thinking. After such practices in the teaching and learning process, how can we expect to produce scientifically well equipped human resources that will later face the global challenges? So the need of the hour is to modify and develop our teaching and learning system in the light of the new researchers. We need something that would accelerate our learning and understanding to keep pace with the fast-changing world. Many educational researchers also point that student-centric pedagogical innovations should be used to foster creativity in young minds and for this, the 1st step should be the development of the student-centric instructional material which is engaging and has the ability to develop critical thinking in the students.

This research paper focuses on the effectiveness of using comics as a learning tool. To validate this proposition various researchers have been conducted by different researchers in their respective fields. Most of the reported studies employed quasi-experimental design with pre-test post-test non-equivalent group design. In the reported studies the students were divided into two groups and both groups received different treatments. The experimental group was exposed to the Cartoon or Comics based instructional modules whereas the control group was exposed to the traditional method of teaching i.e. the textbook. The results of the reported studies showed that there was a significant increase in the achievement of the pupils in the experimental group. The ability of the students to remember the facts and their higher order thinking skills have also been reported to increase with the use of Comics as an instructional tool.

The findings clearly indicated that cartoons and comics are very effective and easy medium for communicating ideas and concepts at all levels. It has proved to communicate different political, social, economic and educational messages effectively even with little space and minimum use of words. Here the pictures are used as a language and the expressions, colors and gestures of characters provide meaning, learning and pleasure to the readers.

Cartoons and Comics are a wonderfully versatile media for enhancing the teaching and learning process. Learning through the textbook is often seen as a serious and stressful activity whereas a comic book with hilarious characters and satire can provide a stress-free and positive teaching and learning environment. This positive and playful classroom environment can also enhance the relationship between teachers and students. Cartoons and Comics have been successfully used to improve reading, vocabulary, creativity, problem-solving and critical thinking in the students. They also have a great potential to promote higher order thinking skills and discussion in the
classroom which keeps the learner's confidence high and thereby leading to the enhancement of understanding and memory. The findings also revealed that both teachers and students reported positive results from the use of cartoon and comics based instructional modules. As the time went by and the study progressed students became even more open in discussing the concepts and one can see the development of scientific attitude and insight among students.

Few studies have also investigated the use of comics as an assessment tool. There are mostly 3 ways that comics can be used as an assessment tool in the classrooms. Firstly, comics can be used to assess student's previous knowledge or the ideas they brought into the classroom. In other words, comics can be used to assess myths and misconceptions about a particular topic. Secondly, student's learning difficulties can also be measured by comics. And lastly, comics can be used to assess the application or the transfer of knowledge to daily life.

The main implication of these studies shows that the cartoons and comics are an effective teaching tool to enhance the teaching and learning process, thus making it interesting to learn any concept simple or complex. The pupils are able to sharpen their thinking skills, as they will become active learners and the teachers are able to achieve the learning objectives effectively and easily.

**Keywords:** comics, instructional material, retention, achievements, higher order thinking skills, teaching and learning tool.

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**Thermodynamics of interaction of L-valine with aqueous surfactant solutions of SDS and TTAB**

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**Abstract:**

Surfactant-amino acid systems have attracted the attention of the scientific community in the recent past all over the world as these interactions have important bearing in the field of industrial, pharmaceutical, biological and cosmetic applications. Studies on the interactions of model compounds such as amino acids and peptides with surfactants can help in understanding the fine details of protein-surfactant interactions which find application in the field of drug delivery. The aqueous solutions of sodium dodecylsulphate (SDS), i.e. anionic surfactant and dodecyltrimethylammonium bromide (DTAB), i.e. is cationic surfactant of 0.02 m concentrations were prepared. To these stock solutions varying concentrations of L-valine (0.02-0.1 m) were added. Speed of
sound and viscosity measurements were carried out at different temperatures and from these measurements apparent molar isentropic compressibility and Jones-Doles coefficients were evaluated. The results were interpreted in terms of solute-solvent and solute-solute interactions by using co-sphere overlap model. It was inferred that with increase of concentration and temperature ionic-ionic interactions are increasing in our systems and hydrophobic-hydrophobic interactions are decreasing. SDS surfactant interacts more strongly with L-valine in comparison to DTAB.

Towards Self-Regulated Learning and Well-Being in Inclusive Classrooms

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Abstract:

Background: The children today of any country are going to be its future citizens who will be the pillars in shaping the destiny of the nation in the years to come. This makes it our prime duty to focus on these young pillars and help them build a strong foundation. It is now an established fact that every individual is unique. It is this uniqueness that explains the varying needs, capabilities and circumstances of each child. There might be every possibility that each classroom has children with different strengths and weaknesses. Every learner has his unique patterns of learning and acquiring knowledge. There are some students who may come to school regularly but they are likely to drop out if their needs are not adequately met.

The concept of self-regulation is the overarching, broader concept from which the various others related to it have been derived. Self-regulation is needed in most areas of human behaviour and only if we nurture this concept will we have people who have belief in their capabilities to bring about a change in their own lives as well as that of others. In the case of the learning disabled this assumes even greater importance, as repeated failure at school, reprimand from teachers and parents, deficit in social skills to explain their problem has a detrimental effect on their feelings of self-efficacy and also diminishes well-being.

The term well-being is indeed complex and there is yet little conceptual clarity with regard to it. One reason is that different researchers use different definitions and at times use terms interchangeably. The ways in which this term is measured is also
equally diverse and varied. Another interesting aspect is that in the Indian scenario we yet do not give importance to well-being during the years at school.

Objectives/Aim: Self-regulation, self-efficacy and well-being are interwoven concepts which overlap and cut across each other. The present paper aims to discuss each of the concepts in detail. The specific objectives of this paper are:
1. To explain and discuss the concept of self-efficacy with special reference to students with learning disability.
2. To explain and discuss the concept of self-regulated learning with special reference to students with learning disability.
3. To explain and discuss the concept of well-being with special reference to students with learning disability.

Methodology: The present study was an experimental interventional study undertaken on students with learning disability studying in the Government schools of U.T. Chandigarh. The students from classes VI-VIII suspected of learning disability were first tested using a diagnostic tool. Thereafter, the students included in the final sample undertaken for the study were randomly selected from those tested and confirmed for learning disability in accordance with the diagnostic tool. Pre-test, post-test experimental design was used to conduct the study. The students were provided a capsule of thirty interventions in the core areas of reading and writing in self-regulated strategy over a period of couple of months.

A detailed discussion on self-regulated strategy as a composite whole and the various strategies undertaken during the course of the intervention would be undertaken in this paper.

Results: Intervention in self-regulated strategy has been found to have a considerable influence on students’ self-efficacious beliefs. Self-regulated strategy also fosters an enhanced sense of well-being over the course of intervention as well as over the longer period of learning. Since each of the strategies used in self-regulated strategy target a single core area of academic achievement, considerable gains in the area in which intervention was given were found.

Conclusion: The findings of this study are expected to make a substantial contribution in our approach to teaching and instructional design to help students in general and those with learning disabilities in particular gain confidence in their abilities. It would also facilitate in them a sense of well-being and help them to move ahead with the rest of their peers, avoiding wastage of this precious human resource. Learning at school must be a joyous activity. Self-regulated strategy can be that one step towards happy classrooms.
Two Parametric New Generalized 'Useful' Fuzzy Information Measure & its Properties

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Abstract:
Aim: The main purpose of this paper is to introduce two parametric new generalized 'useful' fuzzy information measure with the proof of its validity. The various properties which include sharpness, maximality, resolution and symmetry have also been discussed.

Relevance: As it is clearly evident that the paper is based on the introduction of new 'useful' fuzzy information measure as such it corresponds to the theme of the conference which is based on the new innovations in various fields of science.

Methodology: In order to construct a new 'useful' fuzzy information measure, we have to show that it satisfies all the four properties as given by De-Luca and Termini (that is sharpness, maximality, resolution and symmetry) which are necessary for any new fuzzy information measure to be valid. We have taken a hypothetical data to show that our measure satisfies these properties. We have also studied the graphical behavior of our measure by fixing one parameter and studying its behavior by varying other parameter. All these calculations have been done by using R software.

Findings: A new 'useful' information measure has been generated and derived different mathematical properties of the proposed measure. We have studied these properties by considering a numerical example.

Conclusion: In this paper, we have shown that the proposed two parametric new generalized 'useful' fuzzy information measure is valid. It satisfies all the mathematical properties i.e., sharpness, maximality, resolution and symmetry. These results are also established numerically. Also, the graphical behavior of the proposed measure is studied.

Keywords: Shannon's Entropy, Fuzzy Set, Fuzzy Entropy, 'Useful' Information Measure and Membership Function.
Understanding the lexis of “Hanuman Chalisa” using text mining and sentiment analysis – A cross disciplinary deconstruction approach with R software

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Abstract:

Aims: The aim of this study is to systematically deconstruct the lexis of “Hanuman Chalisa” using concrete analytical approach of text mining and sentiment analysis with R statistical software.

Relevance: The preamble of the Indian Constitution declares India as a secular country. The Constitution of India aspires to instill secular ethos in the Indian masses. Secularism as a political phenomenon can be understood as an antithesis of religion as a governing principle of a political entity called state. In India religion often gets played up in the courts of law who are asked to apply the ‘secularism vs. religion’ trope to stop or prohibit the Indian spiritual and cultural expressions from being echoed in those spaces and events which are preceded by the word “public”. The most recent manifestations of this conflict are a petition in Bombay High Court against recitation of Hanuman Chalisa during an AIDS awareness function and a PIL before the Supreme Court of India to ban Sanskrit shlokas as prayers in Kendriya Vidyalayas. The judiciary is expected to maintain the essential spirit of democracy whereas medical and social experts are encouraged to respect religious values of their target communities to promote mental and social well being. Indeed, vast majority of Indians have been ceaselessly reciting Hanuman Chalisa for many generations with one commonality: to ward off any evil event and become physically, mentally and spiritually strong. Whereas untying the complex legal and constitutional knots in such issues is beyond the scope of this paper, the authors of this paper attempt to deconstruct the lexis of “Hanuman Chalisa” using text mining and sentiment analysis with R statistical software to show that so called ‘religious’ texts of India essentially address the psychological, emotional and spiritual side of a human being. Hence, while agreeing that the state patronage to a particular religion would create obvious anxieties in the followers of other religions, the authors would suggest that an exposure to Indian spiritual texts should not be seen as a threat to secularism in India. In this backdrop, an innovative approach of dispassionately analyzing the underpinnings of 43 verse prayer of Hanuman Chalisa are systematically investigated using qualitative analytical tools in R software.
Methodology: A qualitative data analysis methodology was used for current study analysis. Three R packages including tm, sentiment and RQDA were used for analysis. Keys terms in Hanuman Chalisa were highlighted using word cloud plot as well as bar plot. Various sentiments prevalent in Hanuman Chalisa were unmasked using sentiment analysis. RQDA package was used for coding, annotating, retrieving and analyzing all 43 verses of Hanuman Chalisa hymn. A HTML report was also finally prepared with RQDA package highlighting various themes underpinning the verses of Hanuman Chalisa. R Software 3.4.0 with R studio IDE was used for analysis.

Findings: Sentiment analysis using R package showed there were 83 positive and 41 negative sentiments addressed by Hanuman Chalisa yielding overall anetpositive sentiments of 42 terms. Key themes which emerged from analysis were trust, joy and anticipation (positive themes) and fear, sadness and anger (negative themes). Word cloud plot prominently demonstrated key words such as god, lord, positive reinforcers like happiness, wisdom, enlighten, purify, power, brave, intelligence, work and negative words like suffering, demon, destroy & difficulty. Bar diagram further showed dominance of words intended to strengthen an individual psychologically. Finally, RQDA analysis highlighted main themes underpinning key verses (Chaupai or quatrains) of Hanuman Chalisa hymn.

Conclusions: To conclude, qualitative data analysis by R software provides cross-disciplinary insight into the psychosocial and spiritual fabric of the 43 verses of Hanuman Chalisa to assist myriad of experts from legal, medical and sociology disciplines.

Use of Smartphones for Academic Purposes by Teachers of Panjab University

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Abstract:
The ultimate goal of an educational institution to understand and address the information needs of students and prepare them to become skilled graduates. The skilled workforce of these institutions includes teachers, educators, and academic supervisors which is integral part of teaching and learning process. To keep themselves updated, majority of teachers have started using Smartphones and other mobile devices. The present article inquires that how Smartphones being used for academic purposes by teaching community of Panjab University, Chandigarh, which is acknowledged as best
University in South Asian region by Times Higher Education's World University Rankings (2016). The study further explores that how mobile devices facilitate teachers to fulfill their information requirements. The study is conducted with the help of a structured questionnaire, administered amongst faculty members of various departments. The findings of the study revealed that maximum number of teachers use Smartphone for academic purposes. It is also found that most of teachers use mobile devices to read and download research articles. Another interesting finding of the study is that majority of teachers spend 3 to 4 hours every day for using Smartphone. Further, every teacher admitted that Smartphone is important device for enhancing their learning and teaching skills.

**Keywords:** Use of Smartphone for academic purposes, Teachers of Panjab University, Mobile learning.

**Webometric and Technology Analysis of Websites of Selected Universities of Punjab**

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**Abstract:**
The current study investigates and presents the findings of webometric and technology analysis of websites of some of the selected universities of Punjab on the basis of Web Impact Factor, Revised Web Impact Factor, hyperlink analysis and further evaluates technologies used for designing universities websites. The study is conducted in the month of January 2018 using Webometrics, Google, W3techs and Small SEO tools for extensive webometric analysis. The calculation and evaluation of extracted data represent the access, usage and ranking of universities websites. The results show that Public Universities of the Punjab India are significantly serving to student community. The study further suggests that standardized technologies must be used for meaningful organization of online contents of an academic website.

**Keywords:** Webometric study, technology analysis, web impact factor, link analysis, universities of Punjab.
Where science fails, drawings and storytelling succeeds - Innovative strategy for Translational Research regarding Mobile Anganwadi intervention for underprivileged children

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Abstract:

Aims: Aim of this study was to compare the power of cluster randomized trial vs drawings in implementation of an effective "Mobile Anganwadi" intervention for the underprivileged children at the construction sites of Chandigarh.

Relevance: Children at construction sites have great difficulty in accessing government programs which are otherwise routinely available in rural settings. These include programs for childcare, nutrition, health and education. There are major communicative fault-lines preventing advocacy for these marginalized children. "Translational research is part of a continuum in which research findings are moved from the researcher's bench to the patient's bedside and community. In the continuum, the first stage of translational research (T1) transfers knowledge from basic research to clinical research, while the second stage (T2) transfers findings from clinical studies or clinical trials to practice settings and communities, where the findings improve health". We share our experience regarding the failure of cluster randomized trial Mobile Anganwadi in translation of findings but storytelling and drawings were effective in establishing Anganwadi for underprivileged children of Construction sites of Chandigarh.

Methodology: Two strategies were compared

1. Cluster randomized trial: A pre and post intervention cross-sectional survey used triangulation of qualitative (FGD and in depth interviews) and quantitative (structured questionnaires) methods to assess efficacy and feasibility. A complete list of all construction sites in Chandigarh was obtained from updated Micro-Plans made for the purpose of National Immunization Days, from which 11 sites were randomly drawn
and were further randomly assigned into 5 control and 6 intervention sites. Logistics of visiting the sites were provided by the outreach services of the Department of Pediatrics, Advanced Pediatric Centre. Intervention sites were provided all necessary services envisioned in the ICDS through a mobile Anganwadi, a functional surrogate to an established Anganwadi, with leverage of resources available under the ICDS. Following the completion of cluster randomized trial the second innovative strategy was initiated.

2. Drawings and Storytelling: Once a week a drawing session was organized where the children including adolescents were asked to any drawing and provides a narrative thereafter. 5-30 children attended these weekly sessions for one year. All these drawings were then classified into various themes and exhibited on 16th April 2016 in the Govt. College of Art Museum. The forum was used for advocacy of Child Rights of these underprivileged children to Secretary social welfare.

**Findings:** Study population mainly comprised of migrant labourers from Bihar, MP, UP, Chhattisgarh, Jharkhand and Rajasthan, who had migrated for the sake of livelihood. Mean number of households per site was 35.2 (range 8 – 68). No site had a crèche for children of working mothers. Overall prevalence of stunting, underweight and wasting was 37.8%, 56.5% and 41.6% (wasting) respectively. Statistically significant increase in weight at follow up visits (second and third visits) in the intervention sites (P-value 0.01 and <0.001 respectively) was seen. Reduction in the proportion of severely malnourished children from baseline to the third visit also, was more significant in the intervention sites (22.2 to 15.5%) as compared to the control sites (20.3 to 17.9%). (P value <.05) Barely 5% of the children were immunized upto date at baseline. When stratified as control sites and intervention sites 93.2% and 96.1% of the children respectively, were either unimmunized or partially immunized at the baseline. Odds of receiving complete vaccination were 16 times higher in children of intervention sites as compared to control site children (OR 16.25; 95% CI 6.68-39.52; p value < 0.001).

Second part of the study included collection of drawings over a period of one year. Majority of children demonstrated themes which were local and contextualized to their daily needs, threats and festivals which clearly underscored their fundamental right to basic services and equality of opportunities to achieve their full development. Drawings of tap with flowing water, queues of people collecting water from hand pumps reflect the local problem of water availability for these children. Young children talking about fear of rape and murder following their drawings indicated the looming threat of potential abuse and neglect. Besides reality driven drawing, children also echoed supernatural beliefs, dangers and festivities in their drawings. Anyone who watched these children at work with art materials was able to see the intense level of absorption, clearly indicating the enjoyment they received, making it a meaningful activity.
**Conclusions and Recommendations:** This study is an example of how innovative strategy of drawings and storytelling supported communication between children, social workers, pediatricians and other child advocates to fulfill their fundamental child rights. Translational research following cluster randomized trial was ineffective in establishing Anganwadi for the underprivileged children of construction sites of Chandigarh.
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Anatomical Dissection as a Teaching Method in Honors School- the Perceptions of Young Science Students

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Abstract
Animal dissection has been a controversial topic with few strongly favouring it as good teaching method while others considering it as act of cruelty to animals. India has banned anatomical dissections in 2011 without much consultation with much of educators. The present survey explored the perceptions of students of zoology at Panjab University to seek their opinion about the role of dissections as teaching method for learning animal anatomy before and after the ban on animal dissection and experimentation in Zoology/ Life sciences. It is cross-sectional survey on 60 honors school students of Panjab University using structured questionnaire. Responses were graded between strongly agree to strongly disagree. From the young science students perception it was observed that responses were mixed. Overall, the students perceived dissections to be critical pedagogical tool to have a deeper understanding of biology and gives a hands-on training. Dissection banning has created a gulf between the theoretical and practical aspects as alternatives did not fill in the void. On contrary they felt dissections were uncomfortable and they were able to imagine and comprehend the concept without performing dissections. The test of knowledge of two groups did not show statistically significant difference between the dissection group and non dissection groups though skill and attitudinal domains of education of this aspect remain to be explored.

Keywords: Anatomical dissection, ban, zoology student’s perception

Introduction
Dissection was introduced into education in the 1920s as a way of studying anatomy, biology, physiology, and the theory of evolution in biology classrooms in the United States. It became more widely practiced with the establishment of the biological sciences curriculum study in the 1960s (NAVS, 2018). Contradictory opinion on dissections consider it as an act of cruelty to animals and unethical to kill animals for the sake of education. It is estimated that 19 million animals are dissected each year in Indian schools (The Hindu, 2016). A number of countries including the Netherlands, Switzerland, Argentina, Slovak Republic and Israel no longer conduct dissection
exercises (NAVS, 2018). India also banned the dissection and experimentation on animals in zoology and life sciences university courses in the year 2011 vide UGC guidelines that debarred students from performing dissections in undergraduate classes while it was made optional for postgraduate courses (UGC, 2011). Then, in 2014 UGC issued the notification under section 12(j) of UGC Act, 1956 urging all universities to stop dissection of animals at both undergraduate and postgraduate level. It was suggested that other humane alternatives like computer simulators that replicate the dissection experience to be used for teaching (UGC, 2014). Review of literature revealed that there are evidences for both, for and against hands-on dissection. However, most of these studies were conducted in western education systems and these studies did not deal with students perceptive. Therefore, the present survey was undertaken to explore the perceptions of students to seek their opinion about the role of dissections as teaching method for learning animal anatomy before and after the ban/discontinued dissection and animal experimentation in Zoology/ Life sciences and to find out difference in cognition if any in the two groups.

A review of anatomical dissection as a teaching method revealed that dissection of animals is a better method of learning as compared to non-dissection-based methods (NSTA, 2008). Some authors recognized that hands-on dissection should be preferred method in medical education (Winkelman, 2007; Patel and Mochom, 2008; Böckers et al., 2010) and general biological education (NSTA, 2008; Oakley, 2012; Havlíčková and Bílek, 2015) as there is no other direct way other than dissection to get insight of what the inside of an animal or human bodies is like (Spennjak and Sorgo, 2017). Skills such as fine manipulation with dissection instruments, recognition of real magnitude and a position of organs and tissues, feeling of their physical properties and strength of connections between them; are necessary in professions such as surgery (Pawlina and Lachman, 2004), veterinary and meat processing (Theoret et al, 2007).

However, studies of a contradictory opinion said that ethical issues dominate and learning outcomes of different variants of dissection are minimal or even in favour of the virtual alternatives (Predavec, 2001; Patel and Moxham, 2008; Havlickova and Bilek, 2015). Especially with possibilities opened by computer-based technologies in education a vivid debate has arisen if the hands-on dissection is a relic from the past or a necessary component of contemporary biology and human anatomy education. (Villiers and Monk, 2005; Hug, 2005; 2008). In educational context it raises ethical and environmental concerns regarding the killing of animals, the ignoring of animal welfare standards, the weakening of respect for life and the ‘turn-off’ factor for some students (Sapontzis, 1995; Balcombe, 2000; Bishop and Nolen, 2001; Marr, 2001; Jukes and Chiuia, 2003; Hug, 2008; Oakley, 2009). Research based in middle and high school contexts indicates that outcome pertaining to learning anatomy and physiology can be met with virtual alternatives and that student knowledge gain can be equivalent and
sometimes superior, to a traditional dissection (Kopec, 2002; Lalley et al., 2010; Maloney, 2005; Montgomery, 2008; Youngblut, 2001). Another factor that can cause a repulsion in students when they dissect an animal is, that even the outer anatomy of dissected animal e.g. amphibians, produces a feeling of disgust (Tomažič, 2011a,b; Tomazic and Sorgo, 2017). Simultaneously, they described the hands-on dissection of macroscopic invertebrates too to be very disgusting (Randler et al., 2013). Most of the studies found that students are against the hands-on dissection and killing of animals, whereas female students held even higher negative attitudes than their male counterparts (Fančovičova and Prokop, 2014; Millett and Lock, 1992). Oakley, 2012 found that students themselves most often are not aware of their rights to opt out. Students often evaluated hands-on dissection as difficult to be accepted, however good for their education.

Though some studies recommended a balance of hands on as well as virtual alternatives of dissection and discovered that students learnt equally effectively by both the methods (Akpan & Andre, 2000; Hart et al., 2008; Singh et al., 2012; Tan & Waugh, 2013; Fančovičova and Prokop; 2014).

Materials and Methods
Cross-sectional survey was conducted on a sample of 60 honors school students of Zoology of Panjab University using structured questionnaire. The questionnaires include nine items which sought information regarding the perception of students about the utility of dissections for learning animal biology. Responses to these items were graded between strongly agree to strongly disagree on Likert scale. The second part of the questionnaire had eight questions aimed at testing the knowledge of the respondent regarding animal biology. These were simple multiple choice question type items where only one response out of four was correct. It was assumed that the respondents; knowledge of animal biology would be reflected through the responses of these items. The questionnaire had a profile section in order to garner information regarding the respondent such as name, age, sex, education, year of graduation, dissection performed or not. Questionnaire was in English and Google forms were used to facilitate online responses. The responses were collected and statistically analyzed.

Results and Discussion
In the following discussions the respondents who had performed dissection have been termed as dissection group and those who have not undergone any dissection have been called non dissection group. Out of all the participants 94% of graduate and undergraduate students did not perform dissection whereas 87.5% of Postgraduate and PhD students had performed dissection in our study. This difference was statistically significant (P-value <0.001). As 94% of the respondents graduated after the year 2011
while only 6% of them graduated before the dissections were banned in 2011. In post graduate classes dissections were allowed till 2014 and students who went on to do further research had the experience of dissection which explains the second scenario.

When the respondents were asked whether dissections were outdated concept only 1.6% students strongly agreed whereas, 33.3% students strongly disagreed (Fig1.Q1). 16.6% students were uncomfortable to use animals for dissection whereas, 83.3% students were either comfortable or had neutral response (Fig1.Q4). Also, odds of agreeing that plastic replica are better than dissection were increased 2.63 in students in dissection group as compared to non-dissection group (OR 2.63, 95% CI: 0.54-15.5), however this difference failed to reach any statistical significance (P-value 0.38) (Fig1.Q3). The alternatives such as visual dissection simulations, 3-D models, plastinated specimens, videos etc. did not fill in the void as these methods were not implemented properly. Proper awareness and training programs for teachers and students about banning of the dissection and practice of alternatives was lacking leaving both the teacher and the taught in lurch.

It is clear from the responses of the students that they have an inclination towards performing dissections and considered it to be a valuable concept. Importantly, the dissection group had nearly 3 times higher odds of admitting that gulf between theoretical and practical knowledge enhanced without dissection (OR 3.15; 95% CI: 46-87.2) and this difference reached trend for statistical significance (P-value 0.07) (Fig1.Q7).

Odds of disagreeing that the concepts remain imaginary to the students without performing dissection were 9% lower in subjects in dissection group as compared to non-dissection group (OR 0.91, 95% CI 0.23-3.27; P-value 0.99) (Fig1.Q2). 56.6% students agreed that dissections developed manual skills and students were of the opinion that knowledge gained from dissection after graduation is of use to the society (Fig1.Q5). From students perspective more than 80% agreed that dissections done in under graduation helps to have a better understanding of Physiology and Anatomy of the animal (Fig1 Q8 and 9).

But 76.6% students strongly felt that government’s initiative to provide simulation technology was not taken care of after banning dissection (Fig1; Q10). The mixed response of the students indicate that both the variants are important and is in consensus with earlier studies that reports combination of virtual and hands-on dissection both are essential components of learning (Akpan and Andre, 2000; Hart et al., 2008; Singh et al., 2012; Tan and Waugh, 2013; Fančovičova and Prokop; 2014).

However, the mean (SD) scores for knowledge quiz were 6.46(1.41) and 6.28(1.83) in students of dissection group and non dissection group respectively. This difference was statistically not significant (P-value 0.67). Present finding indicates that on the cognition level both the groups had almost equivalent standing. Though domains of skill and
attitude have not been included in the study and therefore cannot be commented upon. The findings are supported by earlier studies which show that both variants of dissection and non dissections are of equal value. It was found that students who used the virtual dissection achieved the same or better study result because they better understand the theoretical nature relation when they were not forced to memorize their knowledge (Singh et al., 2012; Tan and Waugh, 2013). Fančovičova and Prokop (2014) found that teaching anatomy using only electronic (virtual) support of dissection activities lead to lower levels of knowledge than using a combination of virtual and hands-on dissection. The same finding is reported in the study of Akpan and Andre (2000). Havlickova et al., 2017 also reported that difference exists between the acceptability of different kind of organisms for hands-on and virtual dissection, but long term perspective is cohabitation of both variants is more desirable.

Fig.1: Students perception about dissection. Y-axis depicting the ten questions asked to the respondent and X-axis depicts the gradation of the responses in percentage on Likert scale.

The questions are as follows:
Q1. In my view dissection of animals is an outdated concept.
Q2. According to me concept remain imaginary without dissection.
Q3. According to me use of plastic replicas is better over dissection.
Q4. In my view it is uncomfortable to use animals for dissection.
Q5. In my view dissection in under-graduate course shall make any difference to the manual skills.
Q6. In my view, the knowledge gained from dissection after graduation is of use to the society.
Q7. According to me after banning dissection a gulf has developed between learning the theoretical and practical aspects of anatomy.
Q8. In my view dissection done in UG helps to have better understanding of anatomy of an animal.
Q9. In my view dissection done in UG helps to have better understanding of physiology of an animal.
Q10. According to me after banning dissection efforts are being made by government to provide facilities for simulation technology.

**Conclusions and Recommendation:**

From the young science students perception it was observed that responses were mixed. Students felt dissection is one important pedagogical tool and gives a hands-on learning. On the contrary they felt that after ban on dissections has created a gulf between the theoretical and practical aspects as alternatives did not fill in the void. From the survey it can be said that policy about completely stopping of dissection in graduate and postgraduate level requires to be reevaluated. It is very ironical that insecticides are readily available in markets to kill the insects like cockroaches, mosquitoes and flies but these insects are not allowed to be used in class for demonstration. This issue should be reconsidered and amended keeping all the aspects in view. Proper stepwise procedure should be followed in balanced way so that the students are taught to respect animal life but they are not deprived of the kinesthetic experience and the opportunity to develop motor skills.

Hart et al. (2008) noted that the subject of dissection has been a lively focus of articles among animal welfare organizations and philosophers, educators have had much less involvement in addressing this question than one might expect. In India to banning of the dissection has neither been proceed by academic debates or involvement of the faculty nor it has been followed by systematic introduction of alternatives and training of the teachers. The present study only scratches the surface and come out with the findings that there is not much difference in knowledge of different groups who have performed or not performed dissection. Skill and attitudinal domains remain to be explored. It also tells about the perception of the students who consider dissections to be critical pedagogical tool to have a deeper understanding of biology.
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Climate Justice, Women and Intergovernmental Panel on Climate Change (IPCC): Issues and Challenges

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Abstract:

The fourth assessment report of Intergovernmental Panel on Climate Change (IPCC), published in 2007 unequivocally stated that the past and present human activities have endangered the climate globally. It is evident through the rising average temperature, long term changes in precipitation, high level tides, ocean salinity and acidity, extreme and frequent weather events. This poses serious threat to the biodiversity and ecosystem integrity. But it challenges the human existence in number of ways. It is said that nature does not discriminate, so climate change related impacts should also not discriminate. But this is not true. Some humans are hit harder than the others. This discrimination is manifested in two ways: spatial differentiation and social differentiation.

Here, spatial differentiation implies that the impacts of current and future climate change are likely to lean toward regions with the least capacity to adapt, in particular Least Developed Countries and Small Island Developing States. Social differentiation implies that the world’s poor, particularly women and children, are especially vulnerable to climate change. Thus the existing inequalities are exaggerated by the climate change. This results in the injustices (This was well recognized in the IPCC’s fifth assessment reports published in 2014).

This gave momentum to the climate justice movement. The term “climate justice “represents important questions in the climate change governance, such as:-

(e) Who is responsible for the present state of environment i.e. should historical factors be considered in the blame game or the contemporary usage of carbon be the benchmark?
(f) Who should and how much should be contributed towards mitigation and adaptation?

The answer lies in distributive justice, relating to the transfer of capacity, finance and technologies to tackle climate change as well as allocation in the global carbon budget. The term is, thus, linked with the “equity and fairness; protection of human rights and how to share the benefits and burdens of a global transition to low-carbon societies”.

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Today climate change is not just an environmental issue but an ethical and political challenge needing urgent solution. But the present international climate governance does not reflect principles of distributive justice. Climate justice, as such, is kept out of any negotiations reached so far and still remains a debatable issue.

The aim of the research paper is to:

- Highlight the importance of responsive research done by the IPCC in the field of climate change that gave impetus to climate justice movement.
- Give a comprehensive account on the debates surrounding “climate justice” in climate diplomacy.
- Study, in particular, how climate justice involves issue of gender justice.
- Show that there is need to move towards more responsive innovation in which societal and ethical issues are better anticipated and acted upon up front.

This research paper directly reflects on the objectives of the conference like highlighting the impact of responsive research by IPCC; deal with wider ethical issues in climate change; advocate for more inclusive research governance by including the interest of local communities and women, in particular.

The present research is doctrinal. The sources of the research include the various reports published by the IPCC and various articles analyzing the IPCC reports and climate justice.

The research paper is divided in four parts: first part deals with climate justice and different debates surrounding it. The second part reflects the contribution of IPCC in understanding the issue in more comprehensive way. The third part deals with how women are at the forefront of climate change related impacts and how they can contribute in dealing with various challenges. The fourth part concludes and gives suggestions on the topic.

**Keywords:** climate justice, climate governance, climate diplomacy, gender justice, ethics, equity.

**CLIMATE CHANGE AND INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE**

The Intergovernmental Panel on Climate Change (IPCC) defines climate change as, “change in the state of the climate that can be identified (e.g. using statistical
tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity. This differs from how United Nations Framework Convention on Climate Change (hereafter UNFCCC) defined climate change. It says climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods. The difference in the two definitions is that UNFCCC focuses more on the human intervention involved in climate change. This needs to be kept in mind to know about the non-baseness on the part of IPCC while conducting the studies on climate change on scientific basis.

The key findings that IPCC in its Synthesis Report of Fourth Assessment Report (AR IV published in 2007) brought are as following:

- There are unequivocal changes in the climatic system. Warnings of climate system are evident from observations like increase in global average air and ocean temperatures, melting of ice sheets and snow caps and increasing global average sea level.
- The changes in physical and biological systems all around mother Earth are consistent with warming that has been reportedly started from the uptake of anthropogenic CO$_2$ since 1750.
- The atmospheric concentration of Greenhouse Gas (GHG) emissions (especially of CO$_2$, N$_2$O, CH$_4$ which last longer in the atmosphere) have far exceeded pre-industrialized values.
- It is very likely that anthropogenic GHG emissions increase is behind most of global average warming and that the evident human induced warming has covered all continents (Except Antarctica).

These findings are further confirmed in Fifth Assessment Report of IPCC published in the year 2014.

The above findings point towards the human hand in global warming. The question now arises who all are actually responsible for climate change? Do we all owe equally? The fourth assessment report answered this question. It said among the countries differences in per capita income; per capita emissions and energy intensity remain significant. In 2004, UNFCCC Annex I countries holding only 20% share in world population, produced 57% of the world's Gross Domestic Product based on Purchasing Power Parity (GDP$_{PPP}$) and accounted for 46% of global GHG emissions, which means

IPCC produces reports that support the United Nations Framework Convention on Climate Change (UNFCCC), which is main international treaty on climate change.

$^2$ For IPCC “very likely” means that there are more than 90% chances of certain thing to be true.
they contributed almost half to the world pollution. These differences can be seen in the diagrams\(^3\) given below:

**Diagram 1: Regional distribution of GHG emissions by population**

![Diagram 1: Regional distribution of GHG emissions by population](image1)

**Diagram 2: Regional distribution of GHG emissions by GDPPPP**

![Diagram 2: Regional distribution of GHG emissions by GDPPPP](image2)

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\(^3\) Two diagrams have been taken from the IPCC’s synthesis report of Fourth Assessment Report, 2007.
The above stated facts answer the first question asked in the abstract, i.e. who is responsible for the present state of environment i.e. should historical factors be considered in the blame game or the contemporary usage of carbon be the benchmark? The answer is undoubtedly yes.

WHAT IS CLIMATE JUSTICE?
Climate change poses serious threat to the biodiversity and ecosystem integrity. But it challenges the human existence in number of ways. It takes away the basic human rights that are provided to all humans by various conventions and declarations. The diagram 34 (on next page) testifies that point.

It is said that nature does not discriminate, so climate change related impacts should also not discriminate. But this is not true. Some humans are hit harder than the others.

This discrimination is manifested in two ways: spatial differentiation and social differentiation. Here, spatial differentiation implies that the impacts of current and future climate change are likely to lean toward regions with the least capacity to adapt, in particular Least Developed Countries and Small Island Developing States. Social differentiation implies that the world’s poor, particularly women and children, are especially vulnerable to climate change. Thus the existing inequalities are exaggerated by the climate change. This results in the injustices (This was well recognized in the IPCC’s fifth assessment reports published in 2014).

The fifth assessment report stated that it is very likely that climate change will increase risks for people, assets, economies and ecosystems, including risks from heat stress, storms and extreme precipitation, inland and coastal flooding, landslides, air pollution, drought, water scarcity, sea level rise and storm surges in urban areas. These risks are will impact those people more who lack essential infrastructure and services or live in exposed areas. It is the rural areas which will experience major impacts on water availability and supply, food security, infrastructure and agricultural incomes, including shifts in the production areas of food and non-food crops around the world. Although her, it is difficult to bring the economic loss perspective. But it will be not wrong to put climate change will slow down economic growth, make poverty reduction more difficult, further
Table 1 | Climate Change Impacts and Human Rights

<table>
<thead>
<tr>
<th>Climate Change Impacts Projected by the IPCC and Other Scientific Assessments</th>
<th>Impacts on Human Social System</th>
<th>Rights Implicated</th>
<th>Provisions in Core International Conventions</th>
</tr>
</thead>
</table>
| Temperature rises | Increased health risks, such as vector-borne diseases, and natural disasters | Life<br>Poverty, <br>adequate<br>standard of<br>living, and means<br>of subsistence<br>Food and<br>hunger<br>Health<br>Water<br>Culture<br>Property<br>Women’s rights<br>and indigenous peoples’ rights<br>Self determination<br> | e.g. Art 3 2 (1) CEDAW “Everyone shall have the right to liberty and security of person.”
Art 9 International Covenant on Civil and Political Rights (1966) — “Everyone has the right to the recognition everywhere of his or her national and social origin.”
Art 11 International Covenant on Economic, Social and Cultural Rights (1966) — “Everyone has the right to adequate housing for himself and his family, including adequate access to water and sanitation, and to the continuous improvement in living conditions.”
Art 11 International Covenant on Economic, Social and Cultural Rights (1966) — “The States Parties to the present Covenant, recognizing the fundamental right of everyone to the enjoyment of the highest attainable standard of physical and mental health.”
Art 12 International Covenant on Economic, Social and Cultural Rights (1966) — “States Parties recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.”
Art 14 Convention on the Elimination of All Forms of Discrimination Against Women (1979) — “States Parties shall take all appropriate measures to promote, encourage and facilitate, by all suitable means, the full enjoyment by women of all human rights and fundamental freedoms.”
Art 9 Convention on the Rights of the Child (1989) — “States Parties shall promote and encourage the development of measures by the community and the family to ensure the survival and development of the child.” |
| Risks of extreme weather events | Increased water insecurity | | |
| Threats to unique ecosystems | Loss of livelihoods | | |
| Changes in precipitation and distribution of water. | Changes in agricultural productivity and food production | | |
| Threats to biodiversity | Threats to socio-economic cohesion | | |
| Sea-level rises, flooding and storm surges | Damage to vital infrastructure and public utilities | | |
| Large scale singularities | Decline in natural systems services | | |
erode food security and prolong existing and create new poverty traps, the latter particularly in urban areas and emerging hotspots of hunger. It is also expected that displacement of people may increase. Populations that lack the resources for planned migration experience higher exposure to extreme weather events, particularly in developing countries with low income. Climate change can also indirectly increase risks of violent conflicts by amplifying well-documented drivers of these conflicts such as poverty and economic shocks. This gave momentum to the climate justice movement. The term "climate justice" represents important questions in the climate change governance, such as:-

(g) Who is responsible for the present state of environment i.e. should historical factors be considered in the blame game or the contemporary usage of carbon be the benchmark? The answer to this has already been given in first part.

(h) Who should and how much should be contributed towards mitigation and adaptation? The answer lies in distributive justice, relating to the transfer of capacity, finance and technologies to tackle climate change as well as allocation in the global carbon budget. The term is, thus, linked with the "equity and fairness; protection of human rights and how to share the benefits and burdens of a global transition to low-carbon societies". Today climate change is not just an environmental issue but an ethical and political challenge needing urgent solution. In short it talks about the measures of mitigation and adaptation should be fairly distributed. But the present international climate governance does not reflect principles of distributive justice. The Kyoto Protocol of 1997 put immense pressure on Developed Countries which were part of Annex I countries to reduce emissions and developing and least developed countries were not given the right of development. Because the Kyoto Protocol went for approach called Grandfathering which means the rate at which countries emit in 1990 let that freeze for every country. So if in 1990 developed countries, developing countries and least developed countries polluted at whatever rate let it continue (no country can pollute more than or less than that). It also provided that developed countries should bear maximum burden in terms of mitigation and adaptation measures. This made angry both sets of parties. The three measures provided by the Kyoto Protocol in form of Joint Implementation, Clean Development Mechanism and Carbon Emission Trading were nothing but an escape door for developed countries. Rate of emissions never reduced, which was quite evident at the end of 2012. Kyoto Protocol met a very bad fate.

Next is the much anticipated "Paris Climate Agreement of 2015". The newness brought about by it was the Intended Nationally Determined Contributions (INDCs). This gives the countries the free will to decide their own fair share of emission burden. The question here arises what is fair for one country, is it fair for other countries? The
withdrawal of U.S.A from the Paris Climate Agreement on the ground of fairness (if coal mines are shut down, it leaves many unemployed in U.S.A.) testify that no one is ready to share burdens but all are up for the benefits. The so called “common but differentiated responsibility- responsive capacity” enshrined in UNFCCC is altered and thrown out of the back door. Climate justice, as such in true sense, is kept out of any negotiations reached so far and still remains a debatable issue.

GENDER BIASEDNESS OF CLIMATE CHANGE

The social differentiation explained in part II also brings about the gender biasedness of climate change. Women all over the world are still making effort to break the glass ceiling. The position, status and resources that men and women in any society have depends upon their societal roles. These roles assigned to both sexes are far from being called as equitable. Around the globe women are marginalised and more vulnerable as compared to men. This vulnerability enhances the impacts and consequences of climate change on women. Women represent one of the missing pieces in the puzzle of climate governance.

The effects of climate change specific to the women that cause injustice, are wide ranging like:

- **Decreased food security and malnutrition**: According to a research conducted by Food and Agricultural organization, women constitute 43% of agricultural labor out of which 90% of African food supply is contributed by women farmers. Ignoring women in climate change plan would be an invitation to global food crisis, thereby increasing malnutrition which reduces productivity. Women instead of making their family or children suffer bear the burden by eating less food themselves.

- **Impacts on livelihood**: women are more dependent for their livelihood on natural resources that are threatened by climate change. For instance, climate change causes a rise in the sea level, affecting the fishing community (both men and women) not only in terms of fish catch but also with regard to water scarcity, as seawater gets into the fresh water. Besides, when the land is inundated, infrastructure (roads and houses) are damaged. Large scale migration from inundated areas is expected and much of the burden falls on the women. With 43% of women constituting the agriculture workforce, women are more likely to be harmed if fishing and agriculture sector gets affected by climate change.

- **Water resources- shortages and access**: climate change may exacerbate existing shortages of water. Women are largely responsible for water collection in their

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5 Due to their gendered/radicalized, socio-economic roles and often their geographic locations, women are at the edge.
communities and are therefore more affected when the quantity of water and/or its accessibility changes.

- **Worsening cycle of poverty and vulnerability**: when there will be shortage of water or firewood and other like resources due to climate change, the domestic burden on women and girl child increase resulting in the reduction in girls- boys ration in schools and men- women ratio in employment. As United Nations Development Programme said that one is not poor because he lacks economic income but also because he lacks access to knowledge, health, and participation opportunities. Thus women and girl child get trapped in the vicious circle of poverty and malnutrition.

- **Increased burden of care giving**: as primary caregiver, women may see their responsibilities increase as family members suffer increased illness due to exposure to vector borne diseases such as malaria, water borne diseases such as cholera and increase in heart stress mortality.

- **Survival skills**: the probability of women dying during and as a result of natural disaster is more than men. This is because not only they are physically weak but they also lack life saving skills (like swimming).

- **Rebuilding life**: even those lucky women who survived the disaster have no easy way ahead to rebuild their life as they lack legal assets/ property.

- **Facing abuse**: the historical evidence show very clearly that during armed conflicts women face gender based abuses like sexual violence. Men when faced with socio-political and economic pressure often resort to domestic violence also. German Advisory Council on Global Change (2007) identified 4 reasons for violent conflict: food security, natural disasters, water security and migration; all these reasons are inseparable from climate change. A study conducted in Bangladesh showed that 35% of women surveyed were harassed by their respective male relatives in the aftermath of natural disasters.

- **Health and sanitation**: even in the 21st century the basic sanitation and hygiene facilities are not available to majority population. Women and girls need water for the purposes not common to men like during pregnancy and menstruation. Thus water is necessary not only for drinking but for sanitation purposes and this realization can go long way in reducing maternal and child mortality.

- **Displacement and Voluntary Migration is not positive adaptation measure**: migration has been ancient adaptive measure. But is it a positive measure? The struggles, obstacles and hardships women face during and after migration are not comparable with men. In refugee camps, they face sexual abuse, get forcefully involved in sex trade, human trafficking. Even if they survive this then in adoptive state the often fear arrest and deportation as they lack identification proofs (either
they had no proof initially or destroyed by the disaster). As, financial resources of families dwindle, adolescent girls are forced to marry at increasing younger ages. To support themselves and their families, they trade themselves for money.

Dholkhali in West Bengal, India reports rise in trafficking rate dramatically. Cyclone Alia (2009) which alone displaced over one million people has hand behind increasing this rate. The issue looks likely to increase; the Sundarbans coastline is retreating about 650 feet per year, and much of the islands could be underwater in next 15-20 years.

Above all women are not given the place they deserve at the global climate governance delegations. Leave the point that their situation will be considered by the climate diplomats.

CONCLUSION AND SUGGESTIONS

We have forgotten a simple scientific principle that for every action there is reaction. Our actions have forced mother Earth to react. Now it's our time to respond in better way while dealing with these reactions. The fifth assessment report has stated that if business as usual goes on, i.e. rate of emissions continues to increase the way they are, warming will continue beyond 2100, ocean acidification will increase, global mean sea level will continue to rise, abrupt and irreversible ice loss from the Antarctic ice sheet is possible in future. This will bring abrupt and irreversible regional-scale change in the composition, structure and function of marine, terrestrial and freshwater ecosystems, including wetlands which ultimately affects all the people around the world but in different ranges. It is accepted that reversing such large of climate change is not possible in short time span. It requires persistent efforts. The efforts should need to be governed by the climate treaty that is based on following points:

- To assess climate policies sustainable development and equity provide best basis. Sustainable development limits the effect of climate change and equity helps in poverty eradication.

- Delay in mitigation and adaptation efforts from the present to the future is slowly eroding the basis for sustainable development. Comprehensive strategies that account for the co-benefits, adverse side effects and risks that may in the process will do needful.

- Climate change requires collective actions on part of all, because the Mother Nature knows no political boundaries when it reacts. It is time to transcend the political identities and make collective effort and international cooperation.
• National governments should not align their efforts with international platforms but most try to coordinate and understand the diversification at the local and sub-national government's level. Local government and the private sector are increasingly recognized as critical to progress in adaptation, given their roles in scaling up adaptation of communities, households and civil society and in managing risk information and financing
• Integrating indigenous, local and traditional knowledge system and practices with existing practices increases the effectiveness of adaptation.
• The international biggies like UNFCCC, national governments, private sector and Non Governmental Organizations should ensure that not only women’s interest is kept in mind but they are given their fair share of participation. The “trickle-down effect” would not happen by only involving women at the conferences. Women in the middle and lower strata (who are ignorant and most vulnerable) need to be involved and empowered at international, national and local levels.
• Create and promote green jobs for both men and women.

Remember that policies developed and actions delivered are inclusive, equitable and transformative to ensure that decisions on climate change are participatory, transparent and accountable. Because no justice will be served, particularly gender justice, without climate justice.

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Market Segmentation of Consumers in Malls: A Shopping Styles Analysis

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Abstract

Purpose - This paper aims to investigate consumer behaviour dependent market segmentation typically based on their shopping styles in terms of buying motives, lifestyles, attitude, beliefs, and values.

Design/methodology/approach - A sample of 616 respondents was taken from 13 shopping malls in 6 different cities of northern India with an objective of market segmentation using cluster analysis technique. The data was collected based on their response to statements related to consumer’s shopping styles while shopping in Malls.

Findings - The results show that some group of consumers gives importance to product quality and best selling brands having fashionable and attractive styling. The Other set of consumers are moderately price conscious or confused due to competing brands offered in the market place. Some prefer to buy when sales are announced others have a primary interest in value for money. While there is a significant difference between individual clusters, they have also displayed certain common characteristics.

Research limitations/implications - The sample does not match with the population quite closely in terms of gender (sample being male dominated, particularly in case of one of the mall located at Panipat), may not represent the population on an all India basis adequately.

Originality/value - Literature review shows that ample studies have been done to understand the consumer’s retail format choice by studying the effect of their demographic, geographic and psychographic dimensions. The paper attempts to identify, select one or more shopping style based clusters and segment them depending on size of the cluster, as a target market for offering a distinct marketing mix.

Keywords - Cluster analysis, consumer behaviour, malls, market segmentation, shopping styles.

Introduction

The retail industry has recently graduated from a mom and pop unorganised store to organised and professionally managed stores. Rising income and demand for quality
products is expected to boost consumer expenditure. Indian retail is one of the fastest growing markets in the world due to economic growth and India’s modern retail to be three times in next 5 years. FMCG market is expected to increase to USD103.7 billion by 2020 from USD 49 billion in 2016 and Supermarkets to be total 8,500 by 2016 from 500 in 2006. (India Retail Report, 2017). The consumer demand is driving retail growth, which in turn is being driven by the factors such as economic growth, favourable demographics, international exposure, availability of fast growing quality retail space, wider availability of products and brands. The evolving Consumer behaviour is consequently changing the face of Indian consumerism. The retail strategy would depend on the identification of the target markets, nature of merchandise, services, and how the retailer will build a long term advantage over its competitors.

We can target markets at four levels: segments, niches, local areas, and individuals (Kotler, Keller, Koshy and Jha, 2009). More companies now practice individual and mass customisation. The major segmentation variables for consumer markets are geographic, demographic, psychographic, and behavioural. Marketers must develop segment-by-segment invasion plans and choose target markets. People go for shopping to purchase merchandise or services for day-to-day use and to take a break from daily routine with social experience (Levy, Weitz and Pandit, 2008). In this process, they learn new trends and fashions and satisfy their need for power, status and self-rewards. Regarding why individuals behave as they do, four consumer models have been examined: economic view, passive view, cognitive view, and emotional view (Schiffman and Kanuk, 2007). The economic view states that the consumer can be characterised as making rational decisions. According to the passive view the consumers are perceived as impulsive and irrational purchasers, ready to yield to the arms and aims of marketers. (Schiffman et al., 2007), however further state that the principal limitation of passive model is that it fails to recognise that the consumer plays an equal, if not dominant, role in many buying situations by seeking information about product alternatives and selecting the product that appears to offer the greatest satisfaction. The cognitive model focuses on the processes by which consumers seek and evaluate information about selected brands and retail outlets. The emotional view reflects the impulsive side of consumer decision making.

Literature review indicates that ample studies have been done to understand the consumer’s retail format choice by studying the effect of their demographic, geographic and psychographic dimensions. Shopping intention improved the predictability of consumers’ attitude toward mall attributes towards shopping frequency and money spent in the mall (Yuanfeng et al., 2012). In India, an understanding of shopper retail format choice behaviour could best be done by studying the effect of shoppers’ demographic, geographic and psychographic dimensions in terms of format choice behaviour in the fast growing Indian food and grocery retailing (Cherukuri et al., 2011).
Store brands have a positive impact on the retailer image with the result, the values that customers associated with store brands improve the retailer brand image (Florence et al., 2012). Situational factors such as physical surroundings (ambience, store design and visual merchandising), task definition (regular purchase, purchase in large quantities and getting ideas/knowing new products), perceived risk (time, financial, and physical), temporal aspects (time spent and convenient timing hours), and social interactions and experiences have a significant effect on supermarket and hypermarket store format choice decisions (Cherukuri, 2011). Chinese consumers placed the highest importance on price, followed by fitting, brand country of origin, quality and design, whereas Indian consumers placed importance on fitting, brand country of origin, design, price and quality, in descending order (Jin et al., 2010). Unlike US shoppers, who visited the mall with different reasons, Chinese shoppers were cautious about spending and less likely to make purchases and were more immune to situational factors in their purchase decisions than their US counterparts (Zhuang et al., 2006). Emerging consumers (low-income households) in Latin America who represent roughly 50-60 per cent of the population and approximately 30-40 per cent of the purchasing power, were found to spend a significant amount on food, beverage, personal care, and washing products (Guillermo et al., 2006). Demographic groups with different shopping needs examine store attributes (e.g. price competitiveness, product selection, and atmosphere) which are likely to influence the format choice (Carpenter et al., 2006). Contrasting cultures of East and West, specifically, Singapore and Australia showed a distinct behaviour in terms of their Consumer Styles Index (CSI) such as quality conscious, brand conscious, innovation/ fashion conscious, recreation conscious, price conscious, impulsive, confused by over-choice and brand loyalty (Leo et al., 2005). The present study supports their findings by using cluster analysis on Consumer Styles Index (CSI). Further, the paper suggests that the distinctive shopping styles can be innovatively employed as means for market segmentation.

Many authors have indicated that shoppers have different motives and styles in their purchase behaviour. (Bearden and Netemeyer, 1999) in their compilation of marketing scales, have given details of a consumer shopping styles construct developed (Sproles and Kendall, 1986); (Sproles and Sproles, 1990) with eight consumer shopping/decision making styles. They have used 40 items scale for extracting 8 consumer shopping styles. In the original study by them, value for money is considered to fall within price consciousness. However, in this study, keeping in mind the Indian consumers, we have considered them as two separate variables. The understanding is that the price conscious consumer prefers to buy only inexpensive products or buy branded products when sale at a discount price is announced, the consumer with tendency of value for money evaluates diverse options before purchase, displaying a utilitarian characteristic. A price conscious consumer, in addition to shopping malls, also visits cheap shopping centres for
purchasing certain type of products in the Indian context. The consumer with an attitude, predominantly, that of value for money may purchase a branded product if she finds the product/brand worth it, particularly when sales are declared usually based on quality perception. Further in this study, we have excluded the variable Recreational and Shopping Conscious unlike the original study (Sproles and Kendall, 1986), since this variable was considered as an inevitable truth in case of shopping mall consumers who find shopping as a pleasant activity and they shop just for fun and socialisation. Using the Consumer Styles Index (CSI) as variables (Leo, Bennett and Härtel, 2005) analysed different decision-making styles between cultures traditionally regarded as contrasting, i.e. east and west. (Noel and Alice, 2001) used Consumer Style Inventory (CSI), with a sample in China with an 8-factor solution. Overall the results compared favourably to those of the original study(Sproles and Kendall, 1986). The findings show that four decision-makings styles, namely, Perfectionist, Novelty-Fashion Conscious, Recreational and Brand Conscious, are common characteristics to both Americans and Chinese. (Dholakia, 1999) found that men were participating more in shopping activities and approaching the task with slightly different motives and expectations than women and the shopping experiences associated with grocery shopping at the supermarket were very different from clothing shopping at the mall. (Jin, Jin and Ryu, 2010) believed that Chinese and Indian consumer ranked product attributes differently. Chinese consumers placed the highest importance on price, followed by fitting, brand country of origin, quality, and design, whereas Indian consumers placed importance on fitting, brand country of origin, design, price, and quality, in descending order. Consumer segmentation based on Cultural differences in motivational types of consumer values and its further link with shopping styles has significant implications for Spanish fashion retail marketers and it can be used to plan the retail marketing mix strategy (Francisco et al., 2012). (Mohammed, 2007) revealed six mall attractiveness factors from the shoppers' perspective: comfort, entertainment, diversity, mall essence, convenience, and luxury linked to three mall shopper segments, relaxed shoppers, demanding shoppers, and pragmatic shoppers in the UAE. Using conjoint analysis to examine the way consumers choose where to purchase menswear fashion clothing, based on their perception and trade-off of four attributes - price, quality, selection and sales-staff (Birtwistle et al., 1998) indicate that quality was the most important attribute to the respondents. Mall essence, popularity and promotional programmes, personal service, recreational options, internal atmosphere, and external atmosphere were identified as the attractiveness attributes of shopping centres through a factorial analysis (Eva et al., 2012). A cluster analysis of these factors revealed three types of consumers, serious, enthusiast and basic. The outcomes were validated by a multiple discriminant analysis. Multiple discriminant results suggested that the dimension of popularity and promotion programmes is the first to be notable segments, followed by internal and external.
atmosphere. Using desired store attributes and shopping orientations as predictors of format choice (Carpenter et al., 2011) identified distinctive predictors of male patronage across several retail formats including department stores, discounters, category killers, dollar stores and internet only stores.

With the adoption of Western values and growing brand consciousness the lifestyle patterns of India's middle class is getting redefined. The mall development activity is also picking up at a rapid pace, creating quality space for retailers to fulfil their aggressive expansion plans. The highest contribution in development of mall space is mainly by tier I and tier II cities such as National Capital Region (Delhi, Noida, Gurgaon,), Chandigarh and Ahmedabad in the north; Bangalore, Chennai and Hyderabad in the south; Kolkata, Raipur and Jamshedpur in the east; and Mumbai, Pune and Nagpur in the west. Thus, successful malls will be those which are designed around the typical Indian consumer and that caters to the long term specific needs of a particular location. A deep understanding of the Indian consumers and the constant changes need to be understood carefully for the key locations to consider various options for catering to a wide section of the target audience. Founded on the diversified characteristics of the Indian consumer, this study was motivated by the need to investigate the consumer segments on the basis of their shopping styles in malls. Cluster analysis is a technique which classifies the consumers into relatively homogeneous groups. In cluster analysis, a-priori information is not available about the group or cluster membership for any of the objects; rather, it is suggested by the data itself (Malhotra, 2005). There are two major cluster analysis techniques- hierarchical (agglomeration clustering) and non-hierarchical (divisive clustering), the difference being that hierarchical methods develop a tree structure in determining approximate number of clusters and non-hierarchical do not. For agglomerative hierarchical clustering, SPSS group’s cases into progressively larger clusters until all cases are in one large cluster (George and Mallory, 2006). SPSS computes the smallest average distance between all group pairs and combines the two groups that are closest. The procedure begins with as many clusters as there are cases. At first step, the two cases with the smallest distance between them are clustered. Then it computes distance once more and combines the two that are next closest. This process continues until all cases are grouped into one large cluster.

Material and Methods

Geographically, the scope of the study was kept limited to six locations and 13 shopping malls. Six major towns such as Delhi, Noida, Gurgaon, Panipat, Ludhiana and Chandigarh were considered for the study. State-wise sampling of malls, was done from National Capital Region (NCR) of Delhi, Punjab, Haryana and Union Territory of Chandigarh. A process of region-wise quota sampling was adopted with 50 percent malls randomly
chosen from retail industry wise fully developed NCR and balance 50% from emerging states of Punjab, Haryana and Union Territory of Chandigarh. A simple random sampling method was used for personal interview of respondents. A multiple cross-sectional design was used in which there are two or more samples of respondents and information from different samples was obtained at different times over a period of approximately 2 months. Multiple cross-sectional designs allow comparisons at the aggregate level but not at the individual respondent level.

The present study is a consumer survey. The target population for the study consisted of men and women in the age group of 18-65 years. For data collection, personal interviews were conducted by intercepting the respondents at the exit of each mall (Majumdar, 2005). While the questionnaire was being filled out by one respondent, the other visitors to the mall simply passed by without being contacted. Thus, the respondents for personal interview were being picked on a random basis. 650 such respondents were picked for filling the questionnaire set by personal interview from 13 sample malls. Thirty four respondents were rejected due to incomplete responses. There were net 616 complete questionnaires which were considered for data analysis.

Questionnaire consisted of close-ended, structured, multiple choice questions in a simple language on a 7 point Likert scale with 7 = highly agree to 1 = highly disagree. In order to get a good feel of potential problems, to understand the nature of respondents and time taken to administer the questionnaire, the pre-test was conducted with a sample size of 30 respondents at Ludhiana and Chandigarh in the same environment and context similar to that of actual survey. Fully trained MBA students from two prominent business schools in Mohali were engaged for collecting the data for pre-test as well as final survey at all the planned locations. Hierarchical clustering was carried out on the data to find the approximate number of clusters by using SPSS 16.0, displaying statistics outlined as agglomeration schedule, distance (or similarity) matrix, and cluster membership for a range of solutions. A non-hierarchical clustering method with k-mean clustering was conducted for a pre-determined final cluster centres (Nargundkar, 2007).

**Results**

A reliability test was conducted on the scale. The statistics of reliability tests shows Cronbach’s Alpha value of 0.615 which is considered to be satisfactory. The inter-item correlation matrix shows that there is no correlation between the variables. However the variable *brand loyal* are moderately correlated (*r* = .624) with variable *confused buyer* which shows that brand loyalty of a consumer gets affected due to too many brands in the market place confusing the customer for making a purchase decision.
Analysis of variance (ANOVA) shows that the variables are significant at 95% confidence level \((F= 163.530, p=0.0001)\).

To roughly identify the number of clusters, we used dendrogram by using hierarchical procedure. After that non-hierarchical procedure was used. The agglomeration schedule indicated formation of six clusters. K-mean clustering with a pre-determined number of clusters was performed for six cluster solution. Two clusters were found to be too small in comparison to the other large size clusters and were, therefore, rejected. Thus, the final cluster Centres which describe the mean value of each variable for each of the clusters obtained for a four cluster solution and the results are given below. The pie chart shows the cluster membership of each cluster. The higher the cluster membership (number of Cases), the heavier is the cluster.

![Cluster Membership](image1)

**Fig. 1: Pie Diagram for Cluster Membership**

![Final Cluster Centres](image2)

**Fig. 2: Cluster Centres**
Table 1: ANOVA: Consumer Shopping Styles

<table>
<thead>
<tr>
<th>Shopping Styles</th>
<th>Cluster</th>
<th>Error</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Square</td>
<td>df</td>
<td>Mean Square</td>
<td>df</td>
</tr>
<tr>
<td>quality conscious</td>
<td>12.069</td>
<td>3</td>
<td>1.063</td>
<td>612</td>
</tr>
<tr>
<td>brand conscious</td>
<td>171.120</td>
<td>3</td>
<td>.726</td>
<td>612</td>
</tr>
<tr>
<td>style conscious</td>
<td>68.398</td>
<td>3</td>
<td>1.897</td>
<td>612</td>
</tr>
<tr>
<td>price conscious</td>
<td>131.932</td>
<td>3</td>
<td>2.552</td>
<td>612</td>
</tr>
<tr>
<td>value for money</td>
<td>209.716</td>
<td>3</td>
<td>1.001</td>
<td>612</td>
</tr>
<tr>
<td>brand loyal</td>
<td>208.698</td>
<td>3</td>
<td>.965</td>
<td>612</td>
</tr>
<tr>
<td>impulsive buyer</td>
<td>406.352</td>
<td>3</td>
<td>1.850</td>
<td>612</td>
</tr>
<tr>
<td>confused buyer</td>
<td>316.877</td>
<td>3</td>
<td>1.073</td>
<td>612</td>
</tr>
</tbody>
</table>

Table 2: Cluster Wise Association of Shopping Styles and Demographic Variables

<table>
<thead>
<tr>
<th>Cluster Number (Cluster Membership)</th>
<th>Shopping Style</th>
<th>Demographic Characteristics</th>
<th>Chi-Square</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (n=129)</td>
<td>Quality Conscious</td>
<td>Age</td>
<td>50.03724</td>
<td>24</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marital Status</td>
<td>23.493</td>
<td>12</td>
<td>.024</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Occupation</td>
<td>64.187</td>
<td>36</td>
<td>.003</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Family Category</td>
<td>37.112</td>
<td>24</td>
<td>.043</td>
</tr>
<tr>
<td></td>
<td>Style Conscious</td>
<td>Family Category</td>
<td>36.562</td>
<td>24</td>
<td>.048</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender</td>
<td>13.076</td>
<td>6</td>
<td>.042</td>
</tr>
<tr>
<td>2 (n=241)</td>
<td>Quality Conscious</td>
<td>Age</td>
<td>25.685</td>
<td>16</td>
<td>.049</td>
</tr>
<tr>
<td></td>
<td>Style Conscious</td>
<td>Age</td>
<td>35.680</td>
<td>24</td>
<td>.049</td>
</tr>
<tr>
<td></td>
<td>Brand Loyal</td>
<td>Location</td>
<td>47.764</td>
<td>30</td>
<td>.021</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Income</td>
<td>30.609</td>
<td>18</td>
<td>.032</td>
</tr>
<tr>
<td></td>
<td>Confused Buyer</td>
<td>Income</td>
<td>28.497</td>
<td>18</td>
<td>.049</td>
</tr>
<tr>
<td>3 (n=83)</td>
<td>Quality Conscious</td>
<td>Family Category</td>
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<td>.023</td>
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<td></td>
<td>Brand Conscious</td>
<td></td>
<td>50.157</td>
<td>20</td>
<td>.0001</td>
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<tr>
<td></td>
<td>Style Conscious</td>
<td>Gender</td>
<td>12.679</td>
<td>6</td>
<td>.048</td>
</tr>
<tr>
<td></td>
<td>Brand Loyal</td>
<td>Location</td>
<td>57.715</td>
<td>30</td>
<td>.005</td>
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<tr>
<td></td>
<td>Confused Buyer</td>
<td>Location</td>
<td>55.593</td>
<td>25</td>
<td>.001</td>
</tr>
<tr>
<td>4 (n=163)</td>
<td>Quality Conscious</td>
<td>Location</td>
<td>33.787</td>
<td>15</td>
<td>.004</td>
</tr>
<tr>
<td></td>
<td>Style Conscious</td>
<td>Occupation</td>
<td>57.011</td>
<td>35</td>
<td>.011</td>
</tr>
<tr>
<td></td>
<td>Price Conscious</td>
<td>Location</td>
<td>69.615</td>
<td>30</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>Value for Money</td>
<td>Income</td>
<td>23.488</td>
<td>12</td>
<td>.024</td>
</tr>
<tr>
<td></td>
<td>Brand Loyal</td>
<td>Location</td>
<td>54.129</td>
<td>20</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>Impulsive Buyer</td>
<td>Location</td>
<td>46.720</td>
<td>20</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>Confused Buyer</td>
<td>Occupation</td>
<td>51.972</td>
<td>35</td>
<td>.032</td>
</tr>
</tbody>
</table>
Discussion

A shopping styles inventory was collected in the form of written statements to capture relevant aspects of the intrinsic characteristics of the consumer's personality towards their buying motives. Thus, the principal construct of the variables used for this study was consumers shopping styles. To study the buying behaviour of the consumers in shopping malls, the study included 8 shopping style variables (decision making styles). The characteristics were Quality Consciousness – perfectionist behaviour, Brand Consciousness – branded products are expensive and of high quality, Style Consciousness - novelty and fashion conscious, Price Consciousness - high Consciousness for lower prices, Value for Money- critically evaluate alternatives products and brands, Brand Loyal – habitual to buy a particular brand, Impulsive – careless buyer and Confused by over-choice. 

The K-means clustering process chose to maximise the differences among cases in different clusters (Nargundkar, 2007). Each cluster displays typical consumer behaviour in their buying habits. Overall, an inter-cluster comparison (fig.2) shows that all the clusters are fairly unique in terms of the consumers purchase behaviour. Clusters 2 and 4 have shown high importance (score=6) for most of the test variables. Cluster 1 has shown neutral behaviour (score=4) for brand consciousness; style consciousness, price consciousness; and value for money. However, cluster 1 has given low importance (score=3) to brand loyalty, impulsive behaviour and confused buyer behaviour. Cluster 3 has given low importance (score=3) to brand consciousness, value for money, and impulsive behaviour. Except for cluster 1 all the clusters including 2,3 and 4 have shown a highly confused buyer (score=6) behaviour while shopping in a mall, although, they have displayed an above average(score=5) brand loyalty. Most consumers in cluster 2 and 4 are those who carefully evaluate options to find the best value for money (score=6). Individual cluster-wise analysis shows that cluster 1, which is the third largest cluster having 129 members (21 %) of the total 616 members, gives high importance to good quality products. However, these consumers have shown little importance for brand consciousness and style consciousness. These consumers have little orientation towards buying more expensive, stylish and well known brands. Their price consciousness and values for money is low, consequently, they do not mind purchasing if they like the quality/brand as per the latest fashion trend without postponing their purchase decision and for declaration of discount sale. Consumers in cluster 1 give low importance to brand loyalty, they do not repeat the brands or store in their purchase decision resulting that they are neither impulsive (low score) nor confused (low score) while shopping due to competing brands in the market place. A cluster-wise investigation of association between shopping style and the socio economic factors was also conducted. The demographic variables age, gender, occupation, income are self
explanatory. However, for the demographic variable family category, the respondents had four options to choose. These were, single, husband-wife-no kid, husband-wife-one kid, husband-wife-two kids, and joint family respectively. Pearson Chi-Square test shows that there is a significant association of shopping styles with demographic variables (Table 2). For example, in case of cluster 1, quality consciousness has a significant association with age (p=.001), marital status (p=.024), occupation (p=.003), family category (p=.043); style consciousness has a significant association with family category (p=.048) as also confused buyer characteristics has a significant association with gender (p=.042). Cluster 2 is the prime cluster with 241 (39%) of the total 616 members. This is also a potential cluster for sale of branded products because it is a cluster which gives high importance to good quality products, best selling brands and furthermore, the members belonging to this cluster buys products having fashionable and attractive styling. The consumers in cluster 2 are also moderately brand loyal (score=5). But the members in this cluster agree that they are highly confused (score=6) due to competitive brands which also leads to an impulsive behaviour (score=6) while shopping. The consumers in cluster 2 are those who like new and innovative products and gain excitement from seeking out new things in life since they have shown high score = 6 for need of Novelty and Fashion in their shopping behaviour. Pearson Chi-Square test shows that there is a significant association of shopping styles with demographic variables in cluster 2. For example, there is a significant association between age and quality consciousness (p=.049) and style consciousness (p=.049); location (city) and brand loyalty (p=.021); income and brand loyalty (p=.032). Although, cluster 3 gives high importance to good quality products, it is not brand conscious (score=3) but moderately style conscious and brand loyal (score = 5). This gives a hint that the cluster probably, believes in purchasing good quality products with private labels and since the cluster has shown low importance to value for money (score=3) it does not depend on their purchase decision for sales declaration by popular brands. Although the consumers in this cluster are not brand conscious, they do agree that the competitive brands highly confuse them (score = 6) without being impulsive (score = 3). Chi-Square test shows that there is a significant association of shopping styles with demographic variables in cluster 3. For example, quality consciousness has a significant association with family category (p=.023), brand consciousness with family category (p=.0001), style consciousness with gender (p=.048), brand loyalty with location (p=.005), and confused buyer characteristics with location (p=.0001). Cluster 4 gives high importance to good quality products (score=6), best selling brands (score=6), highly interested in buying products having fashionable and attractive styling (score=6) yet they are moderately brand loyal (score=5). Simultaneously this cluster consists of consumers who are neutral on price consciousness (score = 4) but give high importance to value for money (score = 6). They are certainly confused while shopping(score =6) but highly disagree of being impulsive
Chi-Square test shows that there is a significant association of shopping styles with demographic variables in cluster 4. For example, quality consciousness has a significant association with location (p=.004) and occupation (p=.011); price consciousness with location (p=.0001), value for money with income (p=.024), brand loyalty with location (p=.0001), impulsive buyer characteristics with location (p=.001), and confused buyer with occupation (p=.032).

Managerial Implications

Cluster analysis can be employed as a tool to take important marketing decisions. For example, cluster 2 being the largest cluster with highest number of consumers, has important managerial implications. Cluster 2 which gives high importance to good quality products and best selling brands can be considered for engineering the key management policies and brand positioning decisions. Also, this cluster can be instrumental in designing suitable marketing plan and positioning strategy by the individual tenants (brands) in a mall so that the product or services rendered should be projected with high style or improved aesthetics. To target style conscious and quality conscious consumer, the tenants must develop and communicate a brand identity that delivers high style followed by expanding the breadth of offering, attempting to become a "one stop shop". Although, there is a significant difference in terms of consumer's buying behaviour between individual clusters, they have also displayed certain common characteristics for which common strategy could be worked out by the individual shopping malls for tenant selection. The individual tenants could also have individual marketing strategies relevant to their operations and consumer shopping styles of specific location. Further, keeping in view the cluster association with demographic variables and depending on product-market characteristics of a brand, the positioning strategy can be innovatively worked out by the companies for targeting the consumers in specific clusters of interest.

References

Books:


Research Papers:


New Corporate Laws: A Change in the Scenario of Existing Corporate Reporting Structure

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Abstract
With the advent of new corporate reporting structure, many changes have come across. Companies are required to disclose more elements with greater transparency and accountability. With the introduction of Company Act 2013, the scenario of Corporate Financial Reporting has changed a lot.

Corporate financial reporting is one of the important aspects of Companies Act. Proper reporting is ensured with the help of laws and legislations; and then penalties are imposed for non-compliances. Financial Reporting includes the disclosure of financial information by the companies regarding its financial performance to its various stakeholders.

It serves as a backbone to facilitate financial planning, benchmarking and decision making. It helps to analyse the performance of the organisation as helps in comparison with its competitors.

Though, the existing Company Act 1956 included several provisions to govern the companies. But time demands change. With the advent of globalization and expansion in businesses and organisation, new changes in law regime for governing companies were also required.

Aims: The present paper seeks to study the changes in the new corporate reporting structure. It aimed to examine the key changes in new corporate laws with respect to corporate financial reporting. It further attempted to study the implications of changes in corporate financial reporting brought in by the new corporate reforms and also to make a comparison of the new corporate laws with older corporate law regime.

Relevance: With the changes taking place worldwide, there was a need to review and modify the existing company laws and bring in new and improved laws and regulations in corporate sector in India. This is the innovation in the field of reporting which can most aptly be named as Company Act 2013. Though, the existing Company Act 1956 included several provisions to govern the companies. But time demands change. With the advent of globalization and expansion in businesses and organisation, new changes in law regime for governing companies were also required. Therefore, the Company Act 2013 came into being. Also, many other Company Rules were modified, which were studied in the present paper.
Methodology: The study is descriptive in nature. Data is collected from secondary sources. It studied the new provisions under Company Act 2013, Company (Appointment and Qualification of Director Rules) 2014, Company (Accounts) Rules 2014, Company (Appointment and Remuneration of Managerial Personnel) Rules 2014, Companies (Corporate Social Responsibility Policy) Rules, 2014 and Regulation 25(7) of SEBI(Listing Obligation & Disclosure Regulations) 2015. In addition to this, various journals, magazines and articles were also studied.

Findings: The Company Act, 2013 acted as a landmark for the changing scenario of corporate financial reporting. The present study found out that there were number of new provisions added. The main findings were changes in Extract of Annual Returns, Consolidated Financial Statements, Risk Management policy, Internal Financial Controls, Corporate Social Responsibility, Internal Audit, Woman Director, Independent Director, Audit Committee, Nomination and Remuneration Committee and Stakeholders Committee, Related Party Transactions, Prohibition on insider trading of securities, Secretarial Audit by Bigger Companies, Meeting of Independent Directors, Financial Summary and Highlights & Details of Directors appointed/resigned, Disclosure of remuneration and Familiarization Program of the Independent Directors.

Conclusions and Recommendations: The Act advocates transparency and honesty to communicate true and fair image of the financial state of the company. The new act is a further step to remove inconsistencies, provide greater clarity in defining roles and an aid to better governance. These steps of changes in the acts and laws will further recommend bringing uniformity in the disclosure practices of Indian reporting environment with that of the global standards. A sound financial reporting system automatically promotes healthy competition among companies as well countries. Hence, the changes brought in by Company Act and the subsequent laws have acted as a value addition function to the existing corporate environment.

INTRODUCTION
The regulating environment for companies in every country around the world has become a crucial task. Every country has their own laws and rules to govern their corporate world. In India Company Act 2013 is the governing act for companies. The act consists of 7 schedules and 470 sections divided into 29 chapters. It consists of various provisions regulating companies that include incorporation of company, registered office and name, revival and rehabilitation of sick industrial companies, winding up of companies, laws related to companies incorporated outside India, penalties to companies in case of false statements and evidences etc.
Corporate financial reporting is one of the important aspects of Companies Act. Proper reporting is ensured with the help of laws and legislations; and then penalties are imposed for non-compliances. Financial Reporting includes the disclosure of financial
information by the companies regarding its financial performance to its various stakeholders. The various tools of financial reporting include financial statements i.e. the balance sheet, cash flow statement, profit and loss account; Management Discussion and Analysis report; corporate social responsibility report, Board's report, Business Responsibility report, Directors report and auditor’s report. The information provided by these tools is helpful to the management, investors, shareholders, creditors and other stakeholders. It serves as a backbone to facilitate financial planning, benchmarking and decision making. It helps to analyse the performance of the organisation as helps in comparison with its competitors.

Though, the existing Company Act 1956 included several provisions to govern the companies. But time demands change. With the advent of globalization and expansion in businesses and organisation, new changes in law regime for governing companies were also required. The present paper seeks to study these new changes in the laws relating to companies with regard to corporate financial reporting. It also attempts to make a comparison of the new provisions of the Company Act 2013 and subsequent provisions with the older rules and laws.

REVIEW OF LITERATURE
The following is the review of literature regarding the Company Act 2013:

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Authors</th>
<th>Variables</th>
<th>Findings</th>
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| 1. | Nitin Kumar (2014) | Independent Directors, Committees of Board, Audit and Auditors, Corporate Social Responsibility, Investor Protection measures, Regulators and Disclosures | -Better corporate governance  
- Greater disclosures and transparency  
- Increased accountability  
- Stricter enforcement processes |
| 2. | Jiban Kumar Parida (2014) | Director, Independent Director, Corporate Governance | -Unclear how a company can handle stock option provision for Director/Independent Director  
- But still an improved version then the older one. |
| 3. | Rajanikanta Khuntia (2014) | Corporate Governance:-Independent Director, Board Functioning, | -Provisions will have wide implications.  
- Helpful to minimize the |
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<th>Committees, Audit and Auditors, Related Party Transactions, Whistle Blower Mechanism, Separating the position of Chairman and MD/CEO, Prohibition of Insider Trading, E-Governance Initiatives, Penalties</th>
<th>corporate frauds. -Companies and stakeholders to study their position and make changes according to the new Law. -The Act is at par with the international best practices. -Ministry should issue circulars for smoother implementation.</th>
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<tr>
<td>5.</td>
<td>Ratan Borman et al. (2014)</td>
<td>Corporate Social Responsibility -Scope of Activities should be widened. -CSR activities should go for developing backward districts along with Local areas. -Prime Minister’s Relief Fund should be excluded from list of CSR donations.</td>
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<td>6.</td>
<td>Ahmed Hussain (2015)</td>
<td>Corporate Social Responsibility -Positive social and environmental changes -Not only giant companies but also SMEs with minimum profit of 5 crore falling under the provision of CSR</td>
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<td>Shinoj Koshy et al. (2014)</td>
<td>Independent Directors -Clearly defined roles and liability -Imposed limit on remuneration -Conflicts of provision with provisions of listing agreement</td>
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<td>Mergers and Acquisitions -Simplified the procedure but a lot to be done in respect of some critical areas. -National Company Law</td>
</tr>
<tr>
<td></td>
<td>Author (Year)</td>
<td>Title</td>
</tr>
<tr>
<td>---</td>
<td>--------------</td>
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</tr>
</tbody>
</table>
- Fast track mergers will be helpful in reducing administrative burden.  
- Challenge for business to bring progress in the field of CSR.  
- Need of strong CSR to achieve high ethical, environmental and ethical objectives. |
| 10. | Rajesh Kumar Agrawal (2015) | Incorporation and Types of Companies, One Person Company, Meetings, Charges, Dividend, Directors. Corporate Social Responsibility, Winding up | - In Indian Section 135, no penalties were given which is a loophole.  
- In India, minimum number of directors in a private company are 2 & in case of a public company are 3, whereas a private company must have at least one director and a public company 2, in U.K.  
- In India, Winding up can be done: Voluntarily and by Tribunal. In U.K. in three ways: i.e. members' voluntary winding up, creditors' voluntary winding up and winding up by the court. |
- Fair practices by rating agencies and whistle blower mechanism to improve Corporate Governance  
- Updating Financial Information on websites will ensure timely flow of information. |
RATIONALE OF THE STUDY
Corporate financial reporting has undergone many changes over years. But, a major change in this regard happened when Company act, 2013 was introduced. Later, many subsequent laws and rules were also passed that brought in additional provisions and elements to be disclosed by the Companies in their Annual Reports. Previously, many studies were done with respect to changes in Company Act 2013, but none of these, studied the changes in the company law regarding the corporate financial reporting. This paper attempts to study the implications of the Company Act 2013 and subsequent laws with respect to corporate financial reporting. So, this study will be helpful to understand the new corporate laws and their implications and will also be helpful to make a comparison of new provisions with the already existing laws with respect to corporate financial reporting.
OBJECTIVES
1. To examine the key changes in new corporate laws with respect to corporate financial reporting.
2. To study the implications of changes in corporate financial reporting brought in by the new corporate reforms.
3. To make a comparison of the new corporate laws with older corporate law regime.

RESEARCH METHODOLOGY
The study is descriptive as well as exploratory in nature. The data for the study was collected from secondary sources. For studying the new provisions; the Company Act, 2013, Revised Clause 49, Company (Appointment and Qualification of Director Rules) 2014, Company (Accounts) Rules 2014, Company (Appointment and Remuneration of Managerial Personnel) Rules 2014, Companies (Corporate Social Responsibility Policy) Rules, 2014, Regulation 25(7) of SEBI (Listing Obligation & Disclosure Regulations) 2015 were examined. In addition to this, various journals, magazines and articles were also studied.
**COMPARISON TABLE**

<table>
<thead>
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<th>NEW PROVISIONS: The Company Act, 2013 acts as a landmark for the changing scenario of corporate financial reporting. There were numerous new provisions and changes done in the new act. S.No.</th>
<th>Particulars</th>
<th>Section as Per Company Act 2013</th>
<th>Section as Per Company Act 1956</th>
</tr>
</thead>
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<td>Extract of Annual Returns</td>
<td>92(3)</td>
<td>NIL</td>
</tr>
<tr>
<td>2.</td>
<td>Consolidated Financial Statements</td>
<td>129(3) and Schedule 3</td>
<td>NIL</td>
</tr>
<tr>
<td>3.</td>
<td>Risk Management policy</td>
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<td>NIL</td>
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<tr>
<td>4.</td>
<td>Internal Financial Controls</td>
<td>134(5) (e)</td>
<td>NIL</td>
</tr>
<tr>
<td>6.</td>
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<td>NIL</td>
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<td>Woman Director</td>
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<td>NIL</td>
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<tr>
<td>8.</td>
<td>Independent Directors</td>
<td>149(4)</td>
<td>NIL</td>
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<td>Nomination and Remuneration Committee and Stakeholders Committee</td>
<td>178</td>
<td>NIL</td>
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<td>Extract of Annual Returns</td>
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<td>NIL</td>
</tr>
<tr>
<td>16.</td>
<td>Financial Summary and Highlights &amp; Details of Directors appointed/resigned</td>
<td>Company (Accounts) Rules 2014</td>
<td>NIL</td>
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<tr>
<td>17.</td>
<td>Disclosure of remuneration of managerial personnel</td>
<td>Company (Appointment and Remuneration of Managerial Personnel) Rules 2014</td>
<td>NIL</td>
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<td>18.</td>
<td>Familiarization Program of the Independent Directors</td>
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<td>NIL</td>
</tr>
</tbody>
</table>

1. **Extract of Annual Returns**

Section 92(3) of the Company Act 2013 prescribes that every listed company or company having such paid-up capital and turnover as may be prescribed shall form an extract of annual return as a part of its Board Report.

The annual return will include information like company registered office, principal business activities, shares, debentures, ineptness, its members and debenture-holders, remuneration of directors and key managerial personnel and many more.

2. **Consolidated Financial Statements**

The provisions related to Consolidated Financial Statements under the Company Act 2013 are:

- **Section 129(3)** states that every company who has subsidiaries, need to prepare consolidated financial statement along with the standalone financial statements.
- The company is also required to disclose, two more aspects in respect of each subsidiary, associate and joint venture i.e. % of net assets as % of consolidated net
asset and also % shares in profit or loss as % of consolidated profit or loss according to schedule 3 of Company act 2013.

So, under the new act, every company who has subsidiary/subsidiaries, associates and joint venture will be required to prepare consolidated financial statements. Previously, only standalone financial statements were prepared by the companies. These statements help the users to get a complete overview of the business. It also helps to present a more transparent view of the parent company.

3. Risk Management policy
   The Company act 2013 also prescribes a risk management policy.
   • Section 134(3) (n) of this act states that the report by the board of directors should include a statement that will indicate development and implementation of a risk management policy for the company which will also include identification of elements of risk.
   • Section 177(4) (vii) prescribes the evaluation of risk management systems. According to Schedule IV, Independent Directors must satisfy themselves that the risk management system of the company is robust and defensible.

Company Act 2013 prescribes a provision of risk management policy including the elements of risk. Further, the act also explains that the independent directors should evaluate the arrangement of the risk management of the company to check whether it is robust system or not. A robust system will help a company to be prepared for the uncertain.

4. Internal Financial Controls
   • The Company Act 2013, in its Section 134(5) (e) explains that internal financial controls should be laid in the Director's Responsibility Statement and these controls should be adequate and operate efficiently.
   • Section 143(3) (i) states that the auditor report will also include a whether the company has adequate internal financial control systems in place and also about their operating effectiveness.
   • Section 177(5) states that the audit committee may call the auditors to comment on the internal control systems before their submission to the Board.
   • Further Schedule IV includes that the independent directors should satisfy themselves on the integrity of financial information and financial controls.

In Company Act 2013, the internal financial controls has been given due attention. The act explains the proper internal financial controls should be exercised by the company
and it is a joint duty of directors, auditors and independent directors. Proper internal control is helpful in detecting errors and frauds. It safeguards the assets of the company as well; from theft and misuse etc.

5. Corporate Social Responsibility

Corporate Social Responsibility has been added under Section 135 of the Company Act 2013.

- According to Section 135(1) Company Act, 2013; a company whose net worth is rupees five hundred crore or more, or turnover of rupees one thousand crore or more, or a net profit of rupees five crore or more during the financial year shall form a Corporate Social Responsibility Committee. Section 135(5) explains that every company shall spend at least 2% of its average net profits of immediately preceding last three financial years for pursuing its Corporate Social Responsibility Policy.

- Companies (Corporate Social Responsibility Policy) Rules, 2014 have given various provisions to be covered in the annual report of a Company regarding Corporate Social Responsibility. These are: CSR Policy, CSR Committee, Average net profit for last three financial years, CSR Expenditure, CSR amount spent, reasons for not spending 2% of average net profits on CSR activities and a responsibility statement of CSR Committee regarding proper implementation of CSR policy.

The drastic change in the company act 2013 came because of the provision of Corporate Social Responsibility added in the sections. Now, many classes of companies have come under this provision. A list of activities where this CSR amount can be spent is also given in Schedule VII of the Company Act. The provision will hopefully increase the investment in social activities leading to the enhancement and welfare of the society.

6. Internal Audit

Section 138 of Company Act 2013 has also prescribed an appointment of internal auditor, that can be a Chartered Accountant, Cost Accountant or any other professional that is decided by board for the purpose of conducting an internal audit. The internal auditor will look into the functions and activities of the company.

Internal audit is compulsory now a day in order to put the governance and control systems of organisation in place. It helps to evaluate the risk management systems and governance. The new company act has made it compulsory to conduct an internal audit with the help of an internal auditor.
7. **Woman Director**
The Company Act 2013 has also added a provision of appointing a woman director in the Board of Directors of the Company which was not so in the previous Acts and Laws. The provisions in this regard are:

- According to **Section 149(1)**, every company or class of companies as may be prescribed shall have at least one woman Director.
- **Company (Appointment and Qualification of Director Rules) 2014** further explains that every listed company and any other public company who has a paid-up share capital of one hundred crore rupees or more; or turnover of three hundred crore rupees or more, shall appoint at least one woman director.
- **Revised Clause 49** also states appointment of one woman director on its Board.

Securities and Exchange Board of India, in order to ensure gender diversity in the board made a provision of appointing at least one woman director in the Board of Directors. Though many well-known companies already had woman directors on their board but with this provision its scope has been extended to all listed companies and many other classes of companies as prescribed by this act.

8. **Independent Directors**
The act has also made changes regarding independent directors. According to the Act:

- Every listed company should have at least 1/3rd of Independent Directors on the Board as prescribed by **Section 149(4)** of the new act.
- Further, **Schedule IV** of Company Act 2013, Independent Directors of the company should meet at least once during the financial year to assess the performance of non-independent directors. The meeting should happen without the presence of non-independent directors and any other member of the board.

The appointment of independent director has been made compulsory to check the inside operations of the company and to protect the interests of the shareholders especially the minority shareholders. Whenever, there is a fraud or error, the independent director cannot hide with an excuse of ignorance. He can raise questions whenever he sees an act of deceit.

9. **Audit Committee**
**Section 177** describes the provisions of Audit Committee according to the new set of laws. Although, existing Company Act 1956 also included a **Section 292A** regarding provisions of Audit Committee but with the introduction of new Company Act, certain changes in this section were made. These changes include:
The previous act only included establishment of Audit Committee for companies who's paid up capital was Rs. 5 crore or more. Whereas, according to the new act every listed company, all public companies with a paid up capital of Rs.10 Crores or more; all public companies having turnover of Rs.100 Crores or more; all public companies, having in aggregate, outstanding loans or borrowings or debentures or deposits exceeding Rs.50 Crores or more, shall form an Audit committee.

The Audit Committee will comprise of minimum 3 directors with independent directors forming the majority and also that majority of members should be able to read including the Chairperson.

The audit committee is set with the aim of providing an oversight of the corporate financial reporting process, the disclosure systems, the internal control systems and to check whether everything is in place and comply with the regulations of SEBI and other laws.

10. Vigil Mechanism
Every company or class of companies as may be prescribed is required to form a vigil mechanism. Though, Clause 49 of listing agreement had a provision of establishing a Whistle Blower Mechanism but now the Company Act 2013 has included a provision of Vigil Mechanism as a mandatory obligation for Companies.

- **Section 177(9)** of the act states that a Company should form a Vigil Mechanism for directors and employees to report genuine Concerns.
- **Section 177(10)** provides for safeguard against victimizations of persons who use this mechanism.

Whenever there is a fraud in the company it demands the attention of the top management. The provision of vigil mechanism is made with the intention of creating a proper whistle blowing systems and also safeguarding the interest of those who blows the whistle.

11. Nomination and Remuneration Committee and Stakeholders Committee
Section 178 explains the formation of Nomination and Remuneration Committee and Stakeholders Committee. According to the Act:

- A listed company or such classes of companies as may be prescribed shall form a Nomination and stakeholders committee comprising of three or more non-executive directors out of which one-half should be independent directors. This committee will lay down criteria for identifying criteria for qualification of directors and appointment of senior management.
A company who has more than one thousand shareholders, debenture-holders, deposit-holders and any other security holders during a financial year at any time shall form a Stakeholders Relationship Committee for considering and resolving the matters of the security holders. These committees have been made compulsory by the new act. The aim of setting up committees is proper decision making with the help of group interaction. The above said committees make decision about the appointment of directors; their remuneration and takes into account the complaints of shareholders and providing them with solutions.

12. Related Party Transaction
This section was a part of the Company Act 1956. Sections 294, 294A, 294AA, 297 and 314 covered the laws relating to related party transactions. But there were some new provisions added under the new Company Act 2013. These are:

- According to Section 188, all related party transactions which are not at the arm’s length and not in the ordinary course of business needs prior approval of the Board.
- Those shareholders who have interest in the contract or the arrangement are also not allowed to vote on the resolution. The consent or approval of the Board or the shareholder shall be taken prior to the date of contract or within three months in urgent cases.

The related parties have a close relationship with the entity. There remains a chance of abuse of internal information or fraud by these parties. So, the companies should disclose their related parties, the transactions done with them, nature of transaction and the amount of transaction and so on.

13. Prohibition on insider trading of securities
Company act, 2013 also include provision of prohibition on insider trading of securities. Section 195 prescribes that no person shall enter into insiders trading including director or key managerial personnel. No person will enter into act of communicating any non public price sensitive information.

Sometimes, the parties that have the inside information, involves into the practice of dealing at the stock exchange to one’s own advantage. To stop this practice the company act 2013 has added this provision to prohibit this practice of insiders trading.

14. Secretarial Audit by Bigger Companies
Every listed company or such class of companies as may be prescribed has to conduct a secretarial audit done by its Company Secretary according to Section 204 under the
new Company Act 2013. The secretarial audit report should be annexed with the Board’s Report. It is important now a day that an eminent and trained professional goes through the books of accounts of the company to verify if all the laws and requirements have been taken care of. With the help of secretarial audit, all legislative requirements in addition to financial and costing obligation are checked. The Company Act 2013 has made this audit compulsory for the bigger companies.

15. Financial Summary and Highlights & Details of Directors appointed/resigned

Company (Accounts) Rules 2014 includes a provision to report financial summary and highlights and details of directors appointed and resigned in its Board's Report. These provisions were not part of previous laws. These highlights will help to understand the financial position of the company over the years. Then the details of the directors should also be given to know which directors have been appointed and who are no more the part of the organization.

16. Disclosure of remuneration

Company (Appointment and Remuneration of Managerial Personnel) Rules 2014 have provisions regarding disclosure of remuneration. The following information relating to remuneration will be disclosed:

- Ratio of remuneration of each director to the median employee remuneration.
- % increase in remuneration of each director, CEO, CFO, Co. secretary or manager.
- % increase in median remuneration of employees.
- Explanation on relationship between average increase in remuneration and company performance.
- Key parameter for any variable component of remuneration availed by directors.
- Ratio of remuneration of highest paid director and that of the employees who are not director but receive remuneration in excess of the highest paid director during the year.

This new provision will help to establish proper disclosure of remuneration given to directors. Every details regarding remuneration given will be disclosed including the increments.
17. Familiarization Program of the Independent Directors

Further, the **Regulation 25(7) of SEBI (Listing Obligation & Disclosure Regulations) 2015** explains that the independent directors of the company should be familiarized with the Companies businesses and operations.

The company should guide them about their roles and responsibilities towards the company. They should be imparted training to keep them up to date.

**CONCLUSION**

The government gave its assent to the long awaited Company Act 2013 on 29th August 2013. There were many new provisions brought in by this act along with the changes in previous sections as well. The paper attempted to seek knowledge about these various provisions and sections relating to corporate financial reporting. It studied the various sections like corporate social responsibility, nomination and remuneration committee, prohibition of insiders trading, vigil mechanism, and disclosures regarding director's remuneration and so on.

A sound financial reporting system promotes healthy competition among companies. It advocates transparency and honesty to communicate true and fair image of the financial state of the company. The new act is a further step to remove inconsistencies, provide greater clarity in defining roles and an aid to better governance.

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Pedagogical Importance of Educational Trips in Effective Learning

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Abstract

Aim

The major aim of study is to understand the perception of teachers regarding the utility of educational trips in different fields at College/university level and further comprehend the barriers for the taking students for educational trips.

Relevance

The purpose of education is to develop the collaborative learning, knowledge or skill or of students, which may not be restricted to our classrooms or textbooks. Teaching Faculty often struggle to find ways to facilitate students understanding of theoretical concepts. In the Higher Education environment, we may neglect the “hands-on” strategies used so effectively in earlier educational trainings. Therefore, they not only required better pedagogical tools to have a better knowledge and have a command on what they are studying.

Methodology

In this descriptive research deductive and inductive methods are used. Data was collected from 100 college and university teachers for using a pre tested questionnaire and information was collected using 5 point likert scale in measuring respondent’s opinion or attitude related to the educational trip.

Findings

Overall effectiveness of the educational trip was reported as very effective by 31% of the respondents and 16% scored less than 3 undermining the effectiveness of educational trips in their field of expertise. The respondents reporting futility of educational trips belonged to the field of languages, biotechnology, mathematics and computer sciences. The positive benefits derived from field trips include hands-on, quality of education, increase in observation and knowledge has been indicated by 69% of respondents and student teacher interaction has been indicate by 80% of the respondents, enabling teachers to utilize other learning strategies such as cooperative learning.

Conclusions

The use of educational field trips has long been a major part of the education program. Educational trip can be a valuable tool to provide hands on training and effectively enhances the learning process in order to become more resourceful in theoretical as well as practical assessment as has been indicated by 31% of the respondents. However, cost, safety and time constraints could be constrain for...
educational trips. In spite of these concerns, this study indicated that well-planned field trips can be a valuable tool which can be used as hands on experience and an effective pedagogical tool.

Introduction

The purpose of education is to develop the knowledge, skill or character of students, which is not restricted to our school or textbooks. Therefore, they not only required better pedagogical tools to have a better knowledge and have a command on what they are studying. Different sort of activities like seminars, discussions, presentations, workshops, local conferences, lectures and educational field trips are essential at this level. Especially the activity of educational field trips which are commonly conducted for the students are one of the major source of providing hands on experience to the students by giving opportunity for self-experiences and observations and self long-lasting learning.

An educational trip or excursion is a journey by a group of students to a place away from their normal environment (Shakil and Hafeez 2011; Martin et al., 1981; Xanthoudaki, 1998). The purpose of the trip by and large is observation for education, non-experimental research or to provide students with experience outside their everyday activities (Orion and Hofstein, 1994; Penna and Davidson 2007). Educational trips give chance to get away from the classroom and add hands on experience on something new which is necessary for the holistic development of students (Falk and Balling, 1978; Falk, 1983). Educational trips are a great way to bring excitement and adventure to learning. Through educational field trips most of the concepts and phenomena may be easily clarified understood and assimilated and good deal of energy and time of both the teachers and students can be saved. Myers and Jones (2004) describe that educational field trips should be designed around specific educational objectives.

This study focuses

1. The major aim of study to understand the perception of teachers regarding the utility of educational trips in different fields at College/university level in media saturated education system.

2. To comprehend the barriers for the taking students for educational trips

Methodology

This is a descriptive research in which deductive and inductive methods are used by the researchers. The researchers have selected 100 teachers of different fields. Data was collected from college and university teachers for using a pre tested questionnaire. Information was collected using 5 point likert scale in measuring respondent’s opinion or attitude related to the educational trip. In addition some information was collected using dichotomous yes/no question. Sample size of hundred was taken using common rule of thumb- 10-15 participants per questionnaire item.
Construct validity of questionnaire was tested using factor analysis. Findings and conclusions were drawn in the light of information collected by the researchers.

**Results**

Among 100 respondents 37% were males and 63% were females. More than half i.e. (55%) of the teachers enrolled for the study taught life sciences. The age distribution of the participants was between 23 to 62 years with mean age of 41.1±8.52. The duration of teaching ranged between 1 to 36 years with mean duration of 12.1±8.4yrs (Fig 1).

![Histogram showing the teaching duration of the study cohort](image)

**Fig 1:** Histogram showing the teaching duration of the study cohort

Socio demographic and educational characteristics of the study cohort have been illustrated in Table1. Overall effectiveness of the educational trip was reported as very effective by 31% of the respondents and 16% scored less than 3 undermining the effectiveness of educational trips in their field of expertise. The respondents reporting futility of educational trips belonged to the field of languages, biotechnology, mathematics and computer sciences.
Table 1: Socio-demographic and Educational characteristics of the study cohort

<table>
<thead>
<tr>
<th>Age</th>
<th>23-62 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>37%</td>
</tr>
<tr>
<td>Female</td>
<td>63%</td>
</tr>
<tr>
<td>Subject</td>
<td></td>
</tr>
<tr>
<td>Life Sciences</td>
<td>55%</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>11%</td>
</tr>
<tr>
<td>Languages</td>
<td>14%</td>
</tr>
<tr>
<td>Commerce</td>
<td>8%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>12%</td>
</tr>
<tr>
<td>Experience of undertaking educational trip</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>83%</td>
</tr>
<tr>
<td>No</td>
<td>17%</td>
</tr>
<tr>
<td>Educational trip part of the curriculum</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>57%</td>
</tr>
<tr>
<td>No</td>
<td>43%</td>
</tr>
</tbody>
</table>

Correlation of educational trip frequency with demographic and questionnaire variables indicated that age of teacher had statistically significant correlation with its frequency (Pearson’s r = 0.75; P-Value <0.001). Similarly, duration of teaching experience in years also has significant correlation with educational trip frequency (Pearson’s r = 0.76; p-Value <0.001). These two results clearly indicate that with increasing age and duration of teaching experience, frequency of educational trips increased significantly, thus resulting in statistically significant positive correlations. In addition, hands on experience of study participants also had statistically significant and positive correlation (Pearson’s r= 0.292; p-Value 0.009).

The positive benefits derived from field trips are hands-on, quality of education, increase in observation and knowledge has been indicated by 69% of respondents, experiences indicate positive attitudes of students to science subjects, improvement of the teacher student interaction which have been indicate by 80% of the respondents, which would impinge on the classroom, and development of rapport between teachers and students, enabling teachers to utilize other learning strategies such as cooperative learning. Field trips have better learning potential of informal learning environments like museums, zoos, planetarium in contrast to class room learning. Another importance of field trip according to a Botany teacher was development of interest in science.
subjects. A history teacher indicated that in field of history students indicated prolonged memory, cognitive learning and further indicated that educational field trips were the norms, until the invention of formal education. Educational trips were particularly important for some subjects like botany, zoology were class room teaching cannot be done without supplementation of field trips, though they emphasized on planned field trips with clear goals. In spite of various potential, field trips still are often underused as learning experiences and are increasingly threatened by limited school funding, lack of time and crammed curricula where school-based teaching might provide "more learning per unit of time". As indicated by mathematics teacher "Field trips, however, are not ideal for teaching complex concepts or mathematical concepts which can be done better in classroom settings". Frequencies of responses to various questionnaire items are tabulated below. (Table2). In addition response to overall effectiveness of educational trip has been shown in the figure as bar diagram (Fig 2)

Table 2: Frequency responses various questionnaire items related to utility and barriers to organize educational trips

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Score less than 3</th>
<th>Score 4 to 5</th>
<th>Not indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Utility of educational trips</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promotes hand on experience &amp; increase observation in media saturated educational system</td>
<td>12%</td>
<td>79%</td>
<td>09%</td>
</tr>
<tr>
<td>Improves the subject knowledge of the students</td>
<td>21%</td>
<td>69%</td>
<td>10%</td>
</tr>
<tr>
<td>Promotes interaction b/w students and teachers</td>
<td>11%</td>
<td>80%</td>
<td>9%</td>
</tr>
<tr>
<td>Overall effectiveness of trip</td>
<td>16%</td>
<td>75%</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Barriers to organize trips</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational difficulty</td>
<td>65%</td>
<td>25%</td>
<td>10%</td>
</tr>
<tr>
<td>Cost factor for organizing educational trip</td>
<td>59%</td>
<td>32%</td>
<td>9%</td>
</tr>
<tr>
<td>Safety factor in organizing trip</td>
<td>64%</td>
<td>27%</td>
<td>9%</td>
</tr>
</tbody>
</table>
Fig 2: Frequency of responses on Likert scale indicating the overall effectiveness of educational trips

It may be noted that most of the teachers perceive the utility of educational trips and quarter of them have concerns related to organizational difficulty and concerns of safety of students while undertaking students for educational trips.

Overall Cronbach’s alpha of the questionnaire was 0.51 and Factor analysis yielded four components explaining 65.8% of variance in the data but only first two components met the requirement of minimum loading of 3 items above the value of 0.3. The first component had items related to the effectiveness of the educational trips and second was related to the barriers and issues of concern related to the educational trips. Based on the teacher’s experiences and descriptions, the authors concluded that field trips results in high personal involvement and enhanced long-term impact and effective cognitive learning. On multivariate analysis using linear regression, all variables found significant on univariate analysis were subjected to regression modeling (Table 3).
Table 3: Table shows that only teaching duration (in years) were the independent prediction for trip frequency when adjusted for other confounding variable. *p value>0.05

<table>
<thead>
<tr>
<th>Prediction</th>
<th>β-coefficient</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.501</td>
<td>1.263</td>
<td>0.21</td>
</tr>
<tr>
<td>Teaching Duration (years)</td>
<td>0.775</td>
<td>2.02</td>
<td>0.048*</td>
</tr>
<tr>
<td>Hands on experience</td>
<td>-1.556</td>
<td>-0.560</td>
<td>0.58</td>
</tr>
<tr>
<td>Knowledge</td>
<td>2.396</td>
<td>1.064</td>
<td>0.29</td>
</tr>
</tbody>
</table>

For every 10 year increase in teaching duration the trip frequency increased by approximately 8 trips. However there was significant relation of teacher’s knowledge, hands on experience, enthusiasm and interaction with students. Cost of trip as well as safety of trip was the two predictions which showed negative correlation with trip frequency. However they were not statistically significant.

Conclusions

The use of educational field trips has long been a major part of the education program. Educational trip is a progressive method of learning and can be a valuable tool to provide hands on training and effectively enhances the learning process in order to become more resourceful in theoretical as well as practical assessment as has been indicated by 31% of the respondents. However, cost, safety and time constraints could be constrain for educational trips. In spite of these concerns, this study in consonance with Gennaro 1981 suggests that well-planned field trips can be a valuable tool which can be used as hands on experience and an effective pedagogical tool.

References


Penna, S. L., & Davidson, J. (2007). Beyond planning a field trip: A case study of the effect a historical site's educational resources have on the practices of four urban eighth grade social studies teachers.


The Indian Expatriates’ Experience: Adjustment and Job Performance with Reference to their Cultural Intelligence

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Abstract
This study assessed cultural intelligence, expatriate adjustment and overall performance of expatriates, individually and their dimensions also; and further investigated the relationship between cultural intelligence and these two most important dimensions of expatriate effectiveness of Indian professional expatriates working abroad. In order to examine these objectives, a descriptive study was conducted on 120 Indian expatriates, working in Canada and Australia in the IT sector. The findings suggested that cultural intelligence was positively correlated with all the three dimensions of cross-cultural adjustment. The cognitive and meta-cognitive dimension of cultural intelligence was also found to be positively related to job performance, especially to its contextual performance dimension. The motivational dimension of cultural intelligence had come out to be the strongest dimension which had the higher positive relation with the other dependent variables which include expatriate adjustment and job performance.

Keywords: Cultural Intelligence, Cross-Cultural Adjustment, Expatriates Job Performance, Expatriate Effectiveness, International Assignment

1. Introduction
The introduction of technology has modernized the whole world, especially the way, businesses are done. With the advent of technology, trade agreement and ease of travel, organizations are growing and spreading their roots across different countries. Thus, leaving behind the limitations of geographical and cultural boundaries; which, further, provides immense opportunities for business as well as the people associated with it. This change in scenario has encouraged many people to enter into the geographical boundaries of other countries which have furthermore resulted into increased opportunities and exposure for the best talents. As the organizations are going global, expatriates play a key role in managing and developing the international operations, which furthermore, provides ample opportunities in their career development. But
these opportunities also carry some complexities with it. Individuals can find themselves working in a newly diverse cultural environment. This phenomenon has required many organisations and individuals to meet the challenges of cultural diversity (Stiglitz, 2003; Earley, Ang and Tan, 2006; Chen, Lin and Sawangpattanakul, 2011). Therefore, the success of international assignments become increasingly important for the organizations, as the cost of international assignments failure is five to ten times higher when compared with the cost of a local hire (Carraher, 2005). Considering the challenges, international managers and expatriates face formidable challenges; they must succeed in an environment different from the one with which they are familiar, they must interact effectively with people from different cultural backgrounds- often in a different language (Bucker and Korgilius, 2015). So they need to interact and behave effectively in different intercultural settings. People with high cultural intelligence (CQ) may be ideal for working in the global contexts. Therefore, the present study is an effort to understand why and how some individuals work and perform more effectively than others in inter-cultural settings. It is believed that cultural intelligence (CQ) represents an essential intercultural capacity that it’s vital for expatriates working on international assignments within contemporary organizations (Alon & Higgins, 2005; Ramalu, Wei and Rose, 2011). As the Indian expatriates are among the largest and the most growing diaspora in the world but along with that they are the most understudied also, this is the main course of concern also. (UN report; 2016, January 14)

Responding to the present need of multinational organizations, the present study is aimed at understanding the role of CQ with respect to the factors that contribute to expatriate success while on international assignments.

2. Theoretical development and Hypothesis

2.1 Cultural Intelligence

Cultures are collective, complex entities of unique customs and transactions (Evans, 2012). Cultural Intelligence (CQ) is an intercultural capacity that helps an individual to understand the culturally different behaviour patterns and thus enable them to accept the people from culturally diverse settings. Earley and Ang (2003) defined CQ as the ability to understand and transcend cultural differences and function effectively in culturally diverse settings. The concept of CQ helps to answer the questions as why some individuals perform effectively in one cultural setting but not in some other diverse settings. Ang, Dyne, Koh, Ng, Templer, Tay and chandrasekar (2007) defined CQ as a multidimensional construct: Meta-cognition, cognition and motivation are mental capabilities that reside within the head, while overt actions are behavioural capabilities. Meta-cognitive CQ reflects the mental capability to acquire and understand the cultural knowledge (Malek and Budhwar, 2013). The meta-cognitive CQ reflects one’s knowledge
or control over cognitions that lead to deep information processing relating to culture (Ang et al., 2004). The meta-cognitive CQ helps in adjusting the cultural knowledge which, further, aid to build strategies to cope up with diverse cultural settings.

Cognitive CQ indicates general knowledge and knowledge structures about culture (Malek and Budhwar, 2013). Cognitive CQ reflects knowledge of the norms, practices and conventions in different cultures gained from both the experience and formal education, those universal as well as culture specific (Ang et al., 2004; Ang et al, 2007). The knowledge related to different cultural aspects includes every aspect of culture whether legal, economic or social. It further, provides a strong base in acquiring meta-cognitive CQ.

Motivational CQ reflects the capability to direct attention and energy toward learning about and functioning in situations characterized by cultural differences (Ang et al., 2007). It includes the mental capacity to direct and sustain energy on a particular task or situation and recognize that motivational capabilities are critical to real world problem-solving (Ceci, 1996).

Lastly, the behavioural dimension of CQ involves the capability to engage in adaptive behaviours in accordance with cognition and motivation based on cultural values of specific settings (Ramalu, Wei and Rose, 2011). Those with high behavioural CQ are able to absorb and understand the knowledge of different cultures and therefore, are better at exhibiting culturally appropriate behaviours and thus are good at dealing with people from different cultures.

The individuals scoring high on each of the dimensions are considered to be culturally intelligent on that particular aspect.

2.2 Cross Cultural Adjustment

Cross-cultural Adjustment (CCA) has been suggested to be the key indicator as well as a determinant of expatriate success in their international assignments (Templer et al, 2006; Ramalu, Wei and Rose, 2011). Cross cultural adjustment is the degree of individual’s adjustment to all aspects of individual’s life which includes general living conditions, work life etc. Black and associates (1988; 1989; 1990; 1999) defined the three main dimensions of CQ which includes general interaction and work adjustment.

General adjustment refers to the degree of comfort an individual feels with the general living conditions of a new setting (Reegard, 2011).

Interaction adjustment includes the level of acceptance and comfort towards the social aspects of life especially when interacting with people from host culture or some third culture. Interaction adjustment with individuals in the foreign country is generally the most difficult dimension of adjustment (Black at al., 1992). It is because it is in interactions with host-country nationals that differences in perceptions, beliefs, and values emerge. Different cultures have different rules to guide the proper functional of individuals within their respective societies (Chan and Wai, 2015).
Work adjustment refers to the individual’s capability to adjust to the work culture of other country which further includes the adoption of performance standards, work style and other aspects of completing tasks in an intercultural setting. Adjustment to the job is the easiest of the three dimensions of adjustment primarily because job adjustment is aided by similarities in procedures, policies, and requirements of the foreign operation and home-country operation tasks (Black et al., 1992). However, effort is still needed to adjust because the corporate culture of the foreign subsidiary may differ from what the expatriate was used to back home (Chan and Wai, 2015).

2.3 Job Performance
Expatriate success is a measure of an individual’s ability to complete an assignment, establish relationships, adjust and perform (Harrison and Shaffer, 2005). And job performance is one of its key indicators.

Performance is a function of knowledge, skills, abilities and motivation directed at role prescribed behaviour, such as formal job responsibilities (Campbell, 1999). Campbell (1990) defines job performance as a set of behaviours that are relevant for the goals of the organization (Malek and Budhwar, 2013). All jobs, both domestic and global, will include both technical and contextual performance dimensions (Borman and Motowidlo, 1993; Caligiuri, 1997). Theory of job performance has indicated that job performance is a multi-dimensional construct, which consist of task dimension (often production or deadline driven and sometimes referred to as “in-role”) and contextual dimension (sometimes considered discretionary and often termed “extra-role”) (Borman and Motowidlo, 1993; Rose, Ramalu, Uli and Kumar, 2010).

First dimension of task performance refers to fulfilling overseas duties as specified in the job description and second dimension of contextual performance refers to developing and maintaining successful social ties with host country nationals in the workplace (Borman and Motowidlo, 1993; Ones and Viswesvaran, 1997). Contextual performance is defined as activities that are directed at maintaining the interpersonal and psychological environment that needs to exist to allow the technical core to operate (Malek and Budhwar, 2013).

2.4 Hypothesis Development
When individuals are flexible in understanding different cultures and are aware of the changes in the behaviour patterns of the people belonging to the same; they tend to adjust in culturally diverse settings and easily adopt the physical conditions and culture related patterns and styles. Black(1990) found that behavioral flexibility correlated with general, interaction and work adjustment in a sample of Japanese expatriates working in the U.S. (Ramalu, Wei and Rose, 2011). Therefore, all the dimensions of CQ should be positively related to CCA especially, the motivational CQ as they motivate an individual to adapt themselves according to the host country’s environment and adjusting and
changing their behaviour according to the situational cues help them to adjust better in all spheres of life.

Drawing from the above discussion, the following hypotheses have been formulated:

H1: There is a positive relation between cultural intelligence and its dimensions; and cross-cultural adjustment and its dimensions.

Specifically, all the four dimensions of CQ will be positively related to the three dimensions of CCA.

H1a: Meta-cognitive CQ, cognitive CQ, motivational CQ and behavioural CQ will related positively to general adjustment.

H1b: Meta-cognitive CQ, cognitive CQ, motivational CQ and behavioural CQ will related positively to interaction adjustment.

H1c: Meta-cognitive CQ, cognitive CQ, motivational CQ and behavioural CQ will related positively to work adjustment.

As for meta-cognitive CQ and cognitive CQ, if the individuals score high on these two dimensions, they tend to perform the in-role and extra-role in a better way as it enables him to understand the work related expectations in a diverse environment and thus it enables them to strategise the behaviour pattern in a better way. Individuals with energy and persistence tend to practice new behaviours through practice, improve their performance (Ang et al., 2007).

From the above discussion, the following hypotheses are proposed for the present study.

H2: There is a positive relationship between CQ and job performance

We suggest that the four dimensions of CQ will be positively related to two dimensions of job performance.

H2a: Meta-cognitive CQ, cognitive CQ, motivational CQ and behavioural CQ will related positively to task performance.

H2b: Meta-cognitive CQ, cognitive CQ, motivational CQ and behavioural CQ will related positively to contextual performance.

1. Methodology

The study was descriptive in nature. The data were collected from 120 Indian expatriates working in IT sector. To make the measurement more manageable, a reasonable number of cultures were selected: Canada and Australia. Only those expatriates were targeted for the present research who had been working abroad for a period of 6 months and above. The data were obtained through mail using a structured questionnaire. Out of the total sample, 78 (65%) were from Canada and 42 (35%) were from Australia. The gender of the participants included 76 (63.3%) males and 44 (36.7%) females, out of them, 84 (70%) were less than 30 years of age and 35(29.1%)
were between the age group of 30 to 40 years and only 1 (0.9%) participant belonged to
the age group of 40 to 50 years. The married participants included 62 (51.7%) and
unmarried were 58 (48.3%). Out of all, 29 (24.1%) were having a prior international
experience. The number of participants in the present overseas assignment ranged from
6 to 12 months were 20 (16.7%), 12 to 18 months were 64 (53.3%), and 18 months and
more 36 (30%). The 32 (%) participants were having bachelor degree and 47 (39.2%)
were having masters’ degree and others included 38 (31.7%). 47 (39.2%) were proficient
in host country’s language and 66 (55%) and 7 (5.8%) believed themselves to be having
an intermediate and basic knowledge of host country’s language.

3.1 Measures

Cultural Intelligence: Cultural intelligence was measured with the 20- item self reported
cultural intelligence scale by Ang et al. (2007) which includes four items for meta-
cognition, six for cognition, five for motivation and five for behaviour dimension. Samples were asked to respond on a seven point scale ranging from strongly disagree to
strongly agree. The cronbach alpha for the overall scale was 0.88 and all the four
dimensions were 0.76, 0.84, 0.91, 0.82.

Cross- Cultural Adjustment: Cross- cultural adjustment was measured with 14- item self
reported expatriate adjustment scale developed by Black and Stephens’ (1989). The scale comprises of seven items for general adjustment, four items for interaction
adjustment and three items for work adjustment. The respondents were asked to respond on a seven point scale ranging from very unadjusted to completely adjusted. The cronbach alpha for the overall scale was 0.95 and for all the three dimensions were
0.91, 0.90, 0.87.

Expatriate Job Performance: The expatriate job performance scale includes two
For the task performance dimension, five items were taken from Black and Porter’s
(1991) task performance self reported scale and for the contextual performance
dimension, five items were taken from Caligiuri (1997) expatriate contextual
performance self reported scale. The participants were asked to respond on a seven point scale ranging from very poor to outstanding. The cronbach alpha for overall scale
was 0.91 and for task performance scale and contextual performance were 0.90 and
0.92.

Control Variables: Based on the previous studies, gender, prior international experience,
time in host country, language proficiency were taken as control variables as they
influence expatriates’ attitudes and behaviours (Shaffer & Harrison, 1998; Hechanova et
al., 2003; Ren, Harrison, Bhaskar-Shrinivas, & Shaffer, 2006; Takeuchi, Tesluk, et al.,
2005; Rose, Ramalu and Wei, 2011).
The reliability statistics and the number of items in scales of all the dimensions of the
variables used in the study, are given in the Table 1 below:
Table 1: Reliability Statistics for Study Variables

<table>
<thead>
<tr>
<th>Scales/ Variables</th>
<th>Cronbach alpha ( \alpha ) =</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive CQ</td>
<td>0.84</td>
<td>4</td>
</tr>
<tr>
<td>Meta- cognitive CQ</td>
<td>0.76</td>
<td>6</td>
</tr>
<tr>
<td>Motivational CQ</td>
<td>0.91</td>
<td>5</td>
</tr>
<tr>
<td>Behavioral CQ</td>
<td>0.82</td>
<td>5</td>
</tr>
<tr>
<td>General Adjustment</td>
<td>0.91</td>
<td>7</td>
</tr>
<tr>
<td>Interaction Adjustment</td>
<td>0.90</td>
<td>4</td>
</tr>
<tr>
<td>Work Adjustment</td>
<td>0.89</td>
<td>3</td>
</tr>
<tr>
<td>Task Performance</td>
<td>0.90</td>
<td>5</td>
</tr>
<tr>
<td>Contextual Performance</td>
<td>0.91</td>
<td>5</td>
</tr>
</tbody>
</table>

4. Results

Table 2 shows the correlation statistics for each variable in the study model, after applying the standard regression analysis. Meta-cognitive CQ was correlated positively with all the three dimensions of cross cultural adjustment, general adjustment (\( r = 0.41 \)), interaction adjustment (\( r = 0.50 \)), work adjustment (\( r = 0.36 \)), with contextual performance (\( r = 0.34 \)), with task performance (\( r = 0.38 \)) all \( p < .05 \), in addition to that, Cognitive CQ was positively correlated to general adjustment (\( r = .37, p < .05 \)) and interaction adjustment with (\( r = .34, p < .05 \)). Out of all the four dimensions of CQ, Motivational CQ, specifically, was having the highly positive correlation with the whole criteria variable CCA (\( r = .74, p < .05 \)); general adjustment (\( r =.69, p < .05 \)), interaction adjustment (\( r =.75, p < .05 \)), and work adjustment (\( r =.56, p < .05 \), with contextual performance (\( r =.55 \)) and it also came out to have a positive relation with whole criteria variable job performance (\( r = .58 \)) task performance (\( r = .59 \)). The aggregate relationship of CQ is also positively related to cross cultural adjustment and job performance.

**. Correlation is significant at 0.05 level (2-tailed).

Table 2: Correlations for Study Variables (N=120)

<table>
<thead>
<tr>
<th>Variable</th>
<th>MC CQ</th>
<th>Cog CQ</th>
<th>Mot CQ</th>
<th>Beh CQ</th>
<th>GA</th>
<th>IA</th>
<th>WA</th>
<th>Contextual</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC CQ</td>
<td>1</td>
<td>.390**</td>
<td>.559**</td>
<td>.288**</td>
<td>.412**</td>
<td>.509**</td>
<td>.366**</td>
<td>.341**</td>
<td>.384**</td>
</tr>
<tr>
<td>Cog CQ</td>
<td>.390**</td>
<td>1</td>
<td>.388**</td>
<td>.261**</td>
<td>.376**</td>
<td>.342**</td>
<td>.225*</td>
<td>.203*</td>
<td>.214*</td>
</tr>
<tr>
<td>Mot CQ</td>
<td>.559**</td>
<td>.388**</td>
<td>1</td>
<td>.242**</td>
<td>.695**</td>
<td>.755**</td>
<td>.561**</td>
<td>.552**</td>
<td>.595**</td>
</tr>
<tr>
<td>Beh CQ</td>
<td>.288**</td>
<td>.261**</td>
<td>.242**</td>
<td>1</td>
<td>.12</td>
<td>.198*</td>
<td>.125</td>
<td>0.07</td>
<td>0.088</td>
</tr>
<tr>
<td>GA</td>
<td>.412**</td>
<td>.376**</td>
<td>.695**</td>
<td>0.12</td>
<td>1</td>
<td>.824**</td>
<td>.674**</td>
<td>.593**</td>
<td>.586**</td>
</tr>
<tr>
<td>IA</td>
<td>.509**</td>
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<td>.198*</td>
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<td>.711**</td>
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<td>.675**</td>
</tr>
<tr>
<td>WA</td>
<td>.366**</td>
<td>.225*</td>
<td>.561**</td>
<td>0.125</td>
<td>.674**</td>
<td>.711**</td>
<td>1</td>
<td>.887**</td>
<td>.864**</td>
</tr>
<tr>
<td>Contextual</td>
<td>.341**</td>
<td>.203*</td>
<td>.552**</td>
<td>0.07</td>
<td>.593**</td>
<td>.664**</td>
<td>.887**</td>
<td>1</td>
<td>.953**</td>
</tr>
<tr>
<td>Task</td>
<td>.384**</td>
<td>.214*</td>
<td>.595**</td>
<td>0.088</td>
<td>.586**</td>
<td>.675**</td>
<td>.864**</td>
<td>.953**</td>
<td>1</td>
</tr>
</tbody>
</table>

**. Correlation is significant at 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).
4.1 Hypothesis Testing

The proposed first hypothesis for the study was: There is a positive relationship between CQ and cross cultural adjustment.

To test this hypothesis, hierarchical multiple regression analysis was conducted. In the first step, the control variables were entered, which were gender, years of living in host country, prior international experience, and language proficiency. The regression model with the control variable came out to be statistically significant with \( R^2 = .139, \text{Adjusted } R^2 = .109, F (4, 115) = 4.627, p < .05 \). Years of living in host country \( (\beta = .314, p < .01) \) was having a positive relation with cross-cultural adjustment; whereas prior experience of living abroad came out to be statistically insignificant as most of the respondents were not having any international experience prior to the present one. When CQ was added in the step 2, the full model was statistically significant with all the three dimensions of CCA, general adjustment \( (R^2 = .544, \text{Adjusted } R^2 = .511, F (4, 111) = 24.648, p < .001) \), interaction adjustment \( (R^2 = .616, \text{Adjusted } R^2 = .589, F (4, 111) = 32.072, p < .001) \), work adjustment \( (R^2 = .380, \text{Adjusted } R^2 = .335, F (4, 111) = 9.805, p < .001) \). All the four dimensions of CQ, had the strongest association with all the three dimensions of CCA; with Motivational CQ along with the control variables in the full model had the strongest relationship with CCA with \( (\beta = .670, p < .001) \) and; with all the three dimensions that include general adjustment \( (\beta = .655, p < .001) \), interaction adjustment \( (\beta = .634, p < .001) \), work adjustment \( (\beta = .507, p < .001) \).

**Hypothesis 1a:** Meta-cognitive CQ, Cognitive CQ, Motivational CQ, Behavioural CQ will relate positively to general adjustment.

Specifically, excluding the control variables, the regression analysis between the four dimensions of CQ and the general adjustment dimension of CCA, determined the significant relationship \( F (4, 111) = 30.365, p < .001, R^2 = .606, \text{adjusted } R^2 = .577 \). All the four dimensions accounted for 60.6% variance before adjustment and accounted for an adjusted \( R^2 = .577 \% \) of the variance in general adjustment. Of all the CQ dimensions, Motivational CQ had a statistically significant predictive power. So, there is a significant positive relationship between cognitive CQ, meta-cognitive CQ, motivational CQ, behavioral CQ and general adjustment.

**Hypothesis 1b:** Meta-cognitive CQ, Cognitive CQ, Motivational CQ, Behavioural CQ will relate positively to interaction adjustment.

The effect size \( (R = .785) \) indicated a significant effect between the dimensions of CQ and interaction adjustment. The F value which is \( (4, 111)= 32.072, p < .001; \) was statistically significant. Cognition, meta-cognition and motivational dimensions had the strongest predictive power for interaction adjustment, while behavioral CQ did not predict the interaction adjustment scores. Therefore, there is a significant relationship between
cognitive CQ, meta-cognitive CQ, motivational CQ, behavioral CQ and interaction adjustment.  

**Hypothesis 1c:** Meta-cognitive CQ, Cognitive CQ, Motivational CQ, Behavioural CQ will relate positively to work adjustment.

All the four dimensions, significantly predicted a significant positive relationship with work adjustment, with Motivation CQ being the strongest predictor variable. The F value for predictor variable was statistically significant \((4,111)= 9.805\) accounting for 38% variance before adjustment and adjusted \(R^2 = .335\). Therefore, there is a positive relationship between cognitive CQ, meta-cognitive CQ, motivational CQ, behavioral CQ and work adjustment.

Though, the model predicted a positive relationship between CQ and its dimensions and CCA and its dimensions but when the hierarchical multiple regression analysis was conducted to test this relationship; considering each dimension of CQ as a separate model; then, behavioral CQ predicted an insignificant relationship with all the three dimensions of cross-cultural adjustment.

The proposed first hypothesis for the study was: There is a positive relationship between CQ and expatriate job performance.

**Hypothesis 2a:** Meta-cognitive CQ, cognitive CQ, motivational CQ and behavioural CQ will related positively to task performance.

The second hypothesis was tested using multiple hierarchical hypothesis. when the control variables were added in the first step, the model came out to be statistically significant with \(R^2 = .12\), Adjusted \(R^2 = .090\), \(F (4,115) = 3.92\), \(p < .001\). In the second step when CQ was added, the values came out to be: \(R^2 = .390\), Adjusted \(R^2 = .347\), \(F (4,111) = 12.309\), \(p < .001\). out of all the four dimensions of CQ, meta-cognitive CQ and motivation CQ and the significant relationship, motivation \((\beta = .555, p < .001)\) came out to be the most significant one.

**Hypothesis 2b:** Meta-cognitive CQ, cognitive CQ, motivational CQ and behavioural CQ will related positively to contextual performance.

When the regression model having contextual performance and all the four dimensions of CQ was tested, it also came out to be significant with \(R^2 = .335\), Adjusted \(R^2 = .287\), \(F (4,111) = 9.765\), \(p < .001\). Meta-cognition and motivation again came out to have the strongest predictive power.

When the regression model with all the four dimensions of CQ was tested with the overall performance, then also it came out to be significant with \(R^2 = .371\), Adjusted \(R^2 = .326\), \(F (4,111) = 11.381\), \(p < .001\)

Therefore, the findings of the study support the hypothesis that CQ and its four dimensions are positively related with CCA and its dimensions and performance and its dimensions.
5. Discussion and Conclusion
The present study investigated the relationship between the factors of CQ and the dimensions of cross-cultural adjustment and job performance of Indian expatriates working in Canada and Australia. Keeping gender, prior international experience, language fluency, length of stay in host country as control variables; overall, CQ and its dimensions were positively related to general, interaction and work adjustment. So, the results and findings of this study were consistent with the Ang et al., 2007; Lee and Sukoco, 2007; Ang et al., 2004. The expatriates having higher cognitive CQ had higher level of interaction adjustment. As cognitive CQ is associated with attaining the culturally relevant information and knowledge (Ang et al., 2007); therefore, it can be concluded from the results that their cultural knowledge and awareness was helpful for the expatriates in having the positive interaction experience with the host nationals. Furthermore, after gaining this cultural knowledge, expatriates can strategize the use of cognitive CQ attained (Ang et al., 2007) and are able to identify when and how to apply cultural knowledge, and to look for additional cultural cues (Lu, S., 2012), which led to a positive relationship between meta-cognitive CQ and all the three dimensions of CCA. Specifically, the expatriates scoring high on motivation tended to adjust easily on all the aspects of life in a foreign country that includes their general, interaction and work adjustment; which implies that they have a good level of tolerance for people from other cultural backgrounds and are motivated to accept them and mingle with them whether at work place or in their social lives. Thus the significant relationship between meta-cognitive, cognitive and motivation dimensions of CQ and the three dimensions of CCA in intercultural settings is consistent with the past findings in the expatriate literature, both conceptual as well as the empirical studies (Ramalu et al., 2010; Ang et al., 2007). The behavioural CQ was not associated with any of the three dimensions of CCA.
Specifically, the relationship between behavioral CQ and work adjustment is not consistent with the findings of the prior researchers (Ramalu et al., 2011). The duration of living in host country helped the expatriates in having general, interaction and work adjustment. So, Lysgaard’s U- curve theory of Adjustment holds good here, as the individuals, with the passage of time, learn to adjust to new culture. Prior international experience did not contribute to the cross-cultural adjustment of expatriates as most of the sample expatriates were not having any prior experience of living and working abroad; so it had no association with the cross cultural adjustment. Apart from that, all the dimensions of CQ except the behaviour dimension also came out to have a significant relation with task and contextual performance and overall performance too. This implies that their knowledge about the customs, culture, habits and other aspects helped them to perform better at work place. Motivation CQ again was the strongest predictor. The more motivated individuals are from within, the better they perform at work place.
5.1 Theoretical and Practical Implications
This study contributes to the CQ literature and expatriate effectiveness in many ways. First of all, there is a dearth of literature on expatriates’ effectiveness especially the Indian expatriates. It will help the multinational organizations (MNCs) in planning and executing expatriation in a successful way as the cost associated with the failure of such programs is quite high. The present study validates the past studies on CQ, CCA and expatriate job performance literature as most of the findings are consistent with the past studies. Finally, this study adds to the body of knowledge in the field of international human resource management.

5.2 Limitations and Future Research Directions
This study has certain limitations. Firstly, the findings of the present study may have some concerns because of the self reported nature of questionnaires especially, the performance measure. Therefore, future researchers should focus on measuring expatriate performance from multiple sources. Secondly, the sample respondents, the Indian expatriates were chosen from two cultures for the present study that is Canada and Australia. In order to generalise the findings, other cultures should also be included in the study. Another limitation of the present study is that it is cross-sectional in design. For that, future researchers should assess CQ and other dimensions of expatriate effectiveness at different time intervals which could give a better understanding of these variables.

5.3 Conclusion
This study contributed to the understanding of global mobility of Indian expatriates and how the cultural intelligence of Indian expatriates abroad will affect their performance in their professional field. This study has practical implications for the Indian expatriates and the organizations dealing with them; that will further be helpful in contributing towards the success of the international assignments.

References:


The Role of Employee Orientation in Building Customer Relations: A Qualitative Study of Organized Retail Stores

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Abstract
Maintaining and retaining relations with the customers is the utmost goal of the organizations. Building strong relations involve the development of trust and commitment with the customers’ which ultimately reflects in the form of satisfaction and loyalty. For an organization to increase customer retention, it needs to develop strategies that contribute towards the value enhancement for the customers. These strategies provide the companies a competitive advantage. However, the role of an employee becomes indispensable during the process of building relations with the customers. From initiating to maintaining the high contact services require the employees to guide the customer at every stage. In doing so, employee satisfaction and involvement comes into action. An organization readiness to serve its customers well could be assured if the employee assures affective and continuance commitment with the organization. So, it becomes imperative to understand the role of employee orientation in building customer relationships.

Keywords: Employee Orientation, Building Customer Relations

Introduction:
For effective CRM implementation employee support is necessary, the higher the management’s support the higher would be the impact of implementation on organization’s performance (Becker, Grave & Albers, 2009). CRM accomplishments would lead to a success if it is considered as a strategy rather than considering it as an investment in technology. The non-strategic part would be called as an infrastructural CRM resources consisting of human CRM resources which would include the skills of employees working efficiently with existing CRM applications and second would be the employee’s attitude to build a customer-oriented ideology. Other resources would be the organizational CRM resources which involved providing continued employee training programme and having top management commitment. For making CRM activities successful through the available resources, an appropriate business process would make it more clear how the CRM framework needs to be carried out. The business processes could be categorized into operational and management processes. The operational CRM included building customer relationships by using customer knowledge and data. The management processes included strategic activities creating marketing intelligence and
improving decision making. Effective implementation of CRM resources to CRM processes enables firms to create superior value for the organizations as well as to their customers (Keramati, Mehrabi & Mojir, 2010). Managing customer relationship includes initiating, maintaining and termination of unprofitable customers across all customer touch points to maximize the value of the relationship with customers at every stage (Reinartz, Krafft & Hoyer, 2004). The internal firm processes are important to be understood as the processes form their bases from the customer’s knowledge integrated which is being used to create customer retention strategies. One of the aspects for internal processes is to create a balance between employee empowerment and teamwork. Rewarding employees through incentives based on performances is being adapted by a lot of firms however there is a need to understand the behavior of the employees to motivate the proactive employees and at the same time making them work in a team to achieve organizational goals (Campbell, 2003). New employee orientation programs should be practiced in organizations as it affects the socialization of employees. The employees who have gone through orientation initially socialize more as they get well aware about the organizational values, policies and practices. The organization should also aim towards identifying and recruiting a job fit personnel suitable according to the culture of the organization (Acevedo & Yancey, 2011). For creating surpassing worth for the organization and the customer, client relationship management is an inclusive plan and procedure of obtaining, maintaining and collaborating demanding customers (Parvatiyar & Sheth, 2001). CRM is a vital concept as it focuses on creating and maintaining suitable relationships with key customer segments. The probability of creating long term and profitable relationships with clients and other stakeholders increases, by applying various relationship marketing strategies with the support of IT. CRM gives the opportunity to understand the customer better by collecting data and information from customers (Payne & Frow, 2005). Kotler and Keller (2012) defined CRM as the activity of managing the information assembled about customers through various customer touch points to maximize customer bond. The information gathered helps to understand the valuable customers and do further customization in market offerings, media, services, programs and messages. CRM could be identified into four major branches: Strategic, Analytical, Collaborative and Operational. Strategic CRM refers to an enterprise wide strategy focused on the customer that scrutinize the information available about the customers and that further acts as a dais for marketing management. The analysis of the data is the key objective in analytical CRM for increasing marketing efficiency. Collaborative CRM refers to collaboration of various communication channels like websites-mail, self-service which are being used as a communication strategy. Front office activities like customer services, sales and support are provided with the information and communication based support while contacting with the customer (Wahlberg, Strandberg & Sundberg, 2009). The
front line employees play a major role in shaping customer’s experiences. Service employees’ emotional level strategies influences customer’s outcomes and moderate the impact of customer’s judgment. Customers get affected by employee responses and employees showing genuine emotional displays increase the effect. Firm’s should hire and train employees on the basis of individual differences by stressing on to them to empathize with customer’s concern and also understanding the concern by keeping themselves in the shoes of customers (Groth, Therau & Walsh, 2009). The management should assure that the training effectiveness and the implementation of training practices so that better performance is delivered (Liao & Chuang, 2004). The need of a competent human capital can be assured if high involvement practices are being practiced, which emphasize on selecting employees with higher education qualifications and investing in initial training for them. Setting and designing a culture of learning about the new trends and adding knowledge to existing information (Batt, 2002).

**Problem Statement:** At present, there is a little understanding on the way employee orientation is practiced and its impact on building relationships with customers. So, the present study aims to identify the relationship between employee orientation and building customer relations.

**Literature Review:**

A customer centric organization needs the participation and commitment of every employee in the organization. People, process and technology contributes towards customer relationship management (Chen & Popovich, 2003). Lovelock, Writz & Chatterjee (1991) defined CRM as the process of building and maintaining relations with customers. Lot of service improvements and increasing customer value through customization and convenience could result in practicing efficient relationship management. Targeting a right set of customers and conveying high levels of satisfaction helps in sustaining customer loyalty (Lovelock, Writz & Chatterjee, 1991). Job satisfaction and organizational commitment leads to achievement of high level of quality interactions with customers. So employees should be recruited in such a way who reflects customer oriented personality. The customer orientation should be major criteria while hiring a candidate. Best practices of hiring and training should be practiced for placing the right candidate for right job (Gazolli, Hancer & Kim, 2013). It is also important for customer centric organizations to introduce some relationship marketing instruments which creates barriers to customers to switch to some other brand. Customer retention and customer share development are positively affected by introducing loyalty programs. According to relationship marketing theory and customer equity theory customer retention got affected by elements like affective commitment, satisfaction and payment equity positively. According to Verhoef (2003) on the basis of loyalty and affiliation, affective commitment is the psychological attachment a customer has with the brand. Satisfaction is the emotional state that occurs as a result of
customer's interaction with the service providers of the firm over time. Satisfaction has a positive effect on customer retention however it does not imply that satisfied customers would show the same effect for other additional product and services from any multiservice provider (Verhoef, 2003).

Paynee & Frow (2005) after conducting interviews and workshops with 34 highly experienced CRM practitioners had identified a model including CRM implementation elements and cross functional processes. Four key implementation elements were namely employee engagement, CRM readiness assessment, CRM project management, CRM change management, and five key cross functional processes were namely the performance assessment process, strategy development process, the multi channel integration process, the value creation process and the information management process. However, there could be other specific components having more strategic importance from a particular industry point of view (Payne & Frow, 2005).

Relationship management with customers has a positive effect on new product development performance and this effect is moderated by CRM reward system. Efficient collection of data from customers helps upgrading the performance of a new product (Ernst, Hoyer, Krafft & Kreiger, 2011).

In order to enhance the understanding of CRM the process of CRM could be seen from different perspectives and how do they relate to different forms of CRM. The processes could be broadly classified into customer facing level, customer oriented processes, the functional level processes and the CRM macro level processes. The customer facing level explains the process of CRM starting with initiating a relationship, maintaining a relationship and finally when the relationship becomes unprofitable, terminating a relationship. The customer oriented process is a combination of three processes CRM support services, CRM delivery processes, and CRM analysis processes. Customer process of delivery involves direct contact with customers, customers support services deals with accomplishing supporting purposes and CRM processes of analysis deals with combining and analyzing the other processes with customer knowledge. The functional level processes included five generic cross functional processes based on a holistic approach. The five processes are strategy development process and value creation process contributes to strategic CRM, the multi integration process contributes to operational CRM and performance assessment process contributes to analytical CRM. The CRM macro level processes include knowledge management and interaction management process. For successful implementation and adoption of the stated processes a pre implementation plan is necessary for the organizations. An effective implementation of customer oriented culture would enhance the values of maintaining customer relations by initiating feedbacks from customers which would help in reframing the customer driven strategies and the firm's strategy to work upon the STP and differentiation strategies (Rababah, Mohd & Ibrahim, 2011). The strategy formulation
for a service oriented business could address the gap from three different dimensions. First to understand a long term view of the innovativeness of strategy and its effect on customers to whom it is meant for. Secondly, understanding the impact of environment, store and customer’s characteristics. Thirdly various moderators could affect the relationship between service oriented business and performance of the firm (Homburg, Hoyer & Fassnacht, 2002). The work environment have serious implications on the employees performance. The control in the organization by the management should be proper so that employees have the flexibility to adapt to the process (Boles, Babin, Brashear & Brooks, 2001). Organizational climate and organizational performance affects employee’s reactions. Job Satisfaction mediates the link between organization climate and productivity (Patterson, Warr & West, 2004). It is important to earn and retain customer’s trust and commitment which ultimately links to satisfaction and loyalty. Maintaining profitable relations also requires a symmetry and fairness. Sharing of information and creating a balance in power within relationship members aspires for creating relationship symmetry. There is a requirement in the fairness of the processes and practices as customers as it constitute a threat of losing trust and commitment of the customers (Nguyen & Mutum, 2012)

**Methodology:** A qualitative approach based on in-depth interviews with 14 customer relationship officers and 14 Human Resource Executives from various retail outlets, was conducted to get an insights on employee orientation and building customer relations. The study has been conducted in Zirakpur and Chandigarh. The insights of the interview done with the Customer relationship officers and the store managers handling customer services were as follows represented in the tabular form (Table 1.1 and 1.2):

### Table 1.1: Retail Outlet and Insights

<table>
<thead>
<tr>
<th>Date</th>
<th>Retail Outlet</th>
<th>Insights</th>
</tr>
</thead>
<tbody>
<tr>
<td>18\textsuperscript{th} September 2017</td>
<td>Airtel</td>
<td>1. Customer Service is predominant.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Keeping a track on usage of customer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Customer profiling according to which plans could be pitched.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Good service, provide good referrals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Customer Retention strategies to be implemented.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Complaint handling</td>
</tr>
<tr>
<td>18\textsuperscript{th} September 2017</td>
<td>Reliance Jio</td>
<td>1. Customer Retention Strategies like loyalty cards to be pitched and be made well understood by the customer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Complaint management should be fast.</td>
</tr>
<tr>
<td>Date</td>
<td>Company</td>
<td>Information</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 18th Sept   | Vodafone   | 1. Vodafone has a transparent system with proper departmentalization like IT, customer services and customer complaint management to reduce hassles.  
2. According to the footfall of a particular store the employees are recruited.  
3. Genuine complaints are addressed. |
|             |            |                                                                                                                                             |
| 18th Sept   | Big Bazaar | 1. Instant responses to the queries expected form the employees.  
2. Buying behavior of customers increases with increase in additional offers. Additional offers to be communicated timely.  
3. Response should be instant, responsible store team is required and in-store commitments should be met.  
4. Employee Behavior plays an important role while dealing with customers.  
5. The employee need to assist the customer to help and communicate the customer about product’s availability and features. |
|             |            |                                                                                                                                             |
| 18th Sept   | Pantaloons | 1. Celebrity activities to attract customers.  
2. Unprofitable customers are tracked through marketing channels.  
3. Planned visual merchandising to attract customers.  
4. According to the history purchases offer customers with loyalty programmes and offers.  
5. To understand the prospects  
6. Behavioral aspects of employees need to be managed.  
7. In-store CRM activities are done to attract customers which require monitoring for the efficient flow.  
8. Retention strategies should be worked upon. |
|             |            |                                                                                                                                             |
| 18th Sept   | Lifestyle  | 1. Customer Retention strategies should be more.  
2. Consistency is required in operating the functions.  
3. The customer need to be well informed about the various offers and the applicability of the offers on the purchase. |


<table>
<thead>
<tr>
<th>Date</th>
<th>Retail Outlet</th>
<th>Insights</th>
</tr>
</thead>
</table>
| 18th September 2017 | Van-Heusen    | 1. Initiating with customers need to be well managed.  
2. Being stringent towards the customer policies while serving them.                                                                                                                                          |
| 13th February 2018 | Madame        | 1. Initiating with proper greetings to the customer and making them aware about all product lines.  
2. Practices like apprising customers with membership cards and gifts on birthday's aids in building customer relations.  
3. Creating awareness to the customers regarding new brands launched under the umbrella brand as per the new trends.  
4. Training given to the employees in fixed intervals, to make them aware about new practices and developments. |
| 13th February 2018 | Pepe Jeans    | 1. Making customers aware about the offers and exchange process.                                                                                                                                              |
| 13th February 2018 | Bata          | 1. Selling the product by building trust and fairness in the processes of the firm.  
2. Performance based Incentives motivates employees.  
3. Eliciting a response helps to sell.                                                                                                                                                                     |
| 13th February 2018 | Berganut(Home Décor) | 1. The role of employee is to make customers convince about the uniqueness of the product.  
2. Knowledge management makes the customer understand about the offering.  
3. Visualization in the minds of a customer for a particular product is important to convince a customer.  
4. The level of interaction between customer and service provider depends upon the nature of interaction.                                                              |
of product.
5. Indian customers requires durability in products. They are concerned about the financial aspects, are not risk takers and the psyche of the customer is a challenge to change.

<table>
<thead>
<tr>
<th>Date</th>
<th>Store</th>
<th>Highlights</th>
</tr>
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</table>
| 13th February 2018 | Reliance Fresh | 1. Employees put emphasis on the brand image to make a sale, which affects the customer responses in a positive way. The employee should be well aware about the brand.  
2. To be fast in the each process from assisting to billing to save time. |
| 13th February 2018 | Woodland      | 1. Diaries are provided to the employees maintain the records of the sales at the stores.  
2. For motivating employees offers are provided on products in store itself. |
| 13th February 2018 | Mufti         | 1. The employee should have product knowledge of every product.  
2. Communicating the customers with practices like time period is given to the customer for exchange.  
3. Greeting the customer and maintaining a friendly approach.  
4. Training given to handle troublesome customers. |

Though we targeted 14 HR employees, specifically we cannot find them, although the store manager with whom we interacted were handling the employee related practices. There were few stores where we could find HR employees exclusively present. The insights we tried to get were as follows:

1. Every six months training is being provided to the employees for updating regarding new trends.
2. Trainings regarding anger management of customers are provided.
3. Depending on the sales targets, incentives are being given to those employees who achieve the targets.
4. Apparel stores provide offers to the employees as well, on buying from the store itself for their delight and encouraging empowerment being a member of the organization.
5. Depending upon the location and catchment area of the store, the employees are hired and placed for the stores accordingly so that customers are served well with required competency and knowledge to deal with them.
6. Making separate departments according to the functions of the organization help in the smooth flow of internal processes.
7. Culture of an organization affects the responses and behavior of an employee.
8. Customer profiling is important to be done while initiating a relationship with the customer.
9. Addressing customer complaints and solving them with proper knowledge management.
10. Maintaining fairness and justice to retain trust and commitment of the customers.

**Conclusion:**
Organization's culture plays a vital role in shaping employee's behavior. Employee engagement practices boosts motivation and a sense of achievement that drives belongingness of an employee towards the organization. These kind of initiatives makes the employee understand the dynamics of an organization and makes them ready for organizational changes. If initiatives like employee engagement practices or proper training and development are provided for the sake of employee orientation within fixed intervals of time, it will ensure a more focused approach towards dealing with the customer which may turn the customer into a delighted customer and the customer may go for further repurchase. An organization's performance depends a lot on the customer's feedback for which employee's dealing with the customer is one of the major determinant. An efficient way to retain customer would be by knowledge management. Addressing customer complaints and also providing quick response to the grievances of customers will leave a good impact on the customer which eventually affect customer's perceptions regarding repurchase intentions. It boosts up the customer loyalty for a particular store which could be reflected in cognitive, behavioral and attitudinal aspects of the customer. The challenge lies in retaining customers due to the change in trends which though requires effective implementation of customer relationship practices taken to retain them. The outlook of a customer towards any product could be modified by the well articulation of the benefits of the product by the employees of an organization which would make a prospect customer in to a potential customer. An employee should always strive to understand the customer profile and the need of buying a particular product. By efficiently maintaining such consistency while delivering customer services would lead to achieve customer satisfaction. The employees are one of the elements whose interactions with the customer act as a moderator to have a profound impact in trusting various practices for building customer relations.
References:


Understanding the Lexis of “Hanuman Chalisa” using Text Mining and Sentiment Analysis – A Cross Disciplinary Deconstruction Approach with R-Software

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Abstract

Aims
Given the recent trend in legal embroilment of religious prayers such as a petition in Bombay High Court against recitation of Hanuman Chalisa during an AIDS awareness function and a PIL before the Supreme Court of India to ban Sanskrit prayers in central schools, present study aims to systematically deconstruct the lexis of “Hanuman Chalisa” using concrete analytical approach of text mining and sentiment analysis with R statistical software.

Methodology
A qualitative data approach using R packages including tm, tidytext and RQDA was used for analysis with R Software 3.4.0.

Findings
There are 40 verses in Hanuman chalisa and there are three additional couplets, two at start and one at end of prayer (total word count 377 excluding stop words). Sentiment analysis using “nrc” lexicon in tidytext R package showed there were 83 positive and 41 negative sentiments in verbatim English text of Hanuman chalisa yielding overall a net 42 positive sentiments. Other key sentiments which emerged from “nrc” analysis were trust (n=55), joy(n=40) and anticipation (n=40) and fear(n=21), sadness(n=15) and anger(n=16). Similarly, use of “bing” lexicon revealed 17 negative and 65 positive sentiments with net difference of 48 positive sentiments. Thematic analysis using RQDA
package uncovered themes of introspection, adaptation, gestaltism, reinforcement, unconscious thoughts, gratitude and self actualization.

Conclusions: To conclude, qualitative data analysis by R software provides cross-disciplinary dispassionate insight into the 43 verses of Hanuman Chalisa to assist myriad of experts from legal, medical and sociology disciplines.

Keywords: Legal, religion, spiritual, prayer, sentiment, analysis, text mining, qualitative, theme.

Introduction
The preamble of the Indian Constitution declares India as a secular country. The Constitution of India aspires to instil secular ethos in the Indian masses that are essentially religious. According to the 2011 census, more than 3/4th of Indians practice Hinduism followed by 14.2% of followers of Islam, while other religious minorities are approximately 6% (Christianity, Sikhism, Buddhism, Jainism etc). The Indian Constitution, though, does not prescribe any particular definition of Secularism and it is widely understood to mean equal respect for all religions. Yet we often come across instances in our socio-political environment where the idea of secularism is shown to be under stress. A couple of recent examples giving rise to such anxieties are a petition in Bombay High Court against recitation of Hanuman Chalisa during an AIDS awareness function (The Wire, 2016) and a PIL before the Supreme Court of India to ban Sanskrit shlokas as prayers in Kendriya Vidyalas (The Hindu, 2018). In such instances the courts of law are asked to apply the 'secularism vs. religion' trope to stop or prohibit the Indian spiritual expressions from being echoed in those spaces and those events which are preceded by the word "public". Some would say in the Indian context these concerns arise as a result of conceptually problematic equation between religious systems which end up creating a false friction between secular principles and spiritual positions. The others would say that judiciary in such situations is expected to apply an essentialist approach to delineate the meaning of secularism and preserve it from getting polluted by non-secular elements. Authors of this paper attempt to deconstruct the lexis of "Hanuman Chalisa" using text mining and sentiment analysis with R statistical software to show that so called 'religious' texts of India essentially address various psychological themes promoting mental health. This conclusion is drawn from an innovative approach of analyzing the underpinnings of Hanuman Chalisa that was undertaken using qualitative analytical tools in R software. Therefore, paper is aimed to make a standardized objective interpretation with minimal interpretive bias as well as intention to systematically deconstruct the lexis of "Hanuman Chalisa" using more concrete analytical approach of text mining and sentiment analysis with R statistical software.
Material and Methods
A qualitative data analysis methodology was used for current study analysis. Three R packages including tm, sentiment analysis by tidytext and RQDA(R qualitative data analysis) were used for analysis. Text mining (tm) package is a statistical tool for processing text document using various transformations to clean the document from redundant text, stop words, white spaces and punctuations. A stemming method is also employed to convert various derived words to their root form. After the pre-processing, tm package creates a document-term matrix for analysis of key terms and their frequency. These keys terms in Hanuman Chalisa were also highlighted using word cloud plot as well as bar plot. Various sentiments underpinning the words of various verses in Hanuman Chalisa were unmasked using sentiment analysis in tidytext package. Latter is employed to understand the emotional intent of recited words programmatically as positive or negative sentiment. Sentiment package contains a variety of dictionaries for decoding the opinion or emotion hidden in the text. Among the most popular general purpose lexicons available with sentiment package, present study used lexicon of “nrc”, “bing” and “affin” dictionary based on unigrams (i.e. single words). All words in "nrc" dictionary are tabulated into Boolean responses (“yes or no”) after stratifying them into categories of positive, negative, anger, anticipation, disgust, fear, joy, sadness, surprise and trust. “Afinn” dictionary assigns negative or positive score (from -5 to +5) to each word depending upon their sentiment. RQDA package was used for coding, annotating, retrieving and analyzing all 40 verses plus 3 couplets of Hanuman Chalisa hymn. A HTML report was also finally prepared with RQDA package highlighting various themes underpinning the verses of Hanuman Chalisa. R Software 3.4.0 with Rstudio IDE was used for analysis.

Results
There are 40 verses in Hanuman Chalisa (chalisa is Hindi word for forty) and there are three additional couplets, two at the start and one at the end of prayer. Total word count for 40 verses of Hanuman Chalisa is 332 (excluding stop words). Additional word count for 3 couplets was 45.Sentiment analysis using “nrc” lexicon in tidytext R package showed there were 83 positive and 41 negative sentiments addressed by Hanuman chalisa yielding overall a net 42 positive sentiments. Other key sentiments which emerged from “nrc” analysis were trust, joy and anticipation (positive) and fear, sadness and anger (negative) (their counts are tabulated below in Table 1). Similarly, use of “bing” lexicon revealed 17 negative and 65 positive sentiments with net difference of 48 positive sentiments. Word cloud plot prominently demonstrated key words such god, lord, positive reinforces like happiness, wisdom, enlighten, purify, power, brave, intelligence, work etc and negative words like suffering, demon, destroy, difficulty etc.
Overall, there were 42 more positive sentiments than negative sentiments in Hanuman Chalisa. These sentiments are further graphically highlighted below by word cloud.

Importantly, when our verbatim Hanuman Chalisa text was analyzed using “loughran” lexicon meant for litigious sentiment analysis, there was only one word “witness” reported as litigious sentiment and one word “permission” reported as constraining sentiment. Overall, positive sentiment (n=11) outnumber negative sentiment (n=8) in this lexicon as well. In addition, using ‘afinn” lexicon, maximum negative score achieved in our analysis was -3 which included only word ‘destroy’ whereas maximum positive score of +3 achieved in our analysis had numerous words like good, beautiful, praise, wealth, happiness, great and so on. Various words with their positive and negative sentiment scores are tabulated below in Table 2.

Bar plot of frequencies of various words used in Hanuman Chalisa is shown below (fig 2).
Above bar plot clearly showed that name of god is most important driver of positive spiritual coping during any suffering or misery. Bar diagram also showed dominance of words intended to make a person psychologically strong.

**Table 1:** Frequency of various emotions and sentiments in Hanuman Chalisa using “NRC” lexicon

<table>
<thead>
<tr>
<th>Sentiment</th>
<th>Frequency of words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anger</td>
<td>16</td>
</tr>
<tr>
<td>Anticipation</td>
<td>40</td>
</tr>
<tr>
<td>Disgust</td>
<td>15</td>
</tr>
<tr>
<td>Fear</td>
<td>21</td>
</tr>
<tr>
<td>Joy</td>
<td>40</td>
</tr>
<tr>
<td>Sadness</td>
<td>15</td>
</tr>
<tr>
<td>Surprise</td>
<td>12</td>
</tr>
<tr>
<td>Trust</td>
<td>55</td>
</tr>
<tr>
<td>Ve sentiments</td>
<td>41</td>
</tr>
<tr>
<td>Ve sentiments</td>
<td>83</td>
</tr>
<tr>
<td>Diff. pos-neg sentiments</td>
<td>42</td>
</tr>
</tbody>
</table>

**Table 2:** Scores for Positive and Negative Sentiments in Hanuman Chalisa using “afinn” lexicon

<table>
<thead>
<tr>
<th>Positive sentiment score</th>
<th>Negative sentiment score</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Good</td>
<td>strength</td>
</tr>
<tr>
<td>beautifully</td>
<td>hail</td>
</tr>
<tr>
<td>Glory</td>
<td>enlighten</td>
</tr>
<tr>
<td>Joyful</td>
<td>strength</td>
</tr>
<tr>
<td>Praise</td>
<td>brave</td>
</tr>
<tr>
<td>Wealth</td>
<td>praised</td>
</tr>
<tr>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td>2</td>
<td>-2</td>
</tr>
<tr>
<td>-1</td>
<td>-3</td>
</tr>
<tr>
<td>-2</td>
<td>suffering</td>
</tr>
<tr>
<td>-1</td>
<td>ignorance</td>
</tr>
<tr>
<td>-2</td>
<td>destroy</td>
</tr>
<tr>
<td>-2</td>
<td>accepted</td>
</tr>
<tr>
<td>-3</td>
<td>banish</td>
</tr>
<tr>
<td>-1</td>
<td>death</td>
</tr>
<tr>
<td>-1</td>
<td>pain</td>
</tr>
<tr>
<td>-2</td>
<td>sorrow</td>
</tr>
</tbody>
</table>
In word cloud plot below, “ram”, “god”, “lord” & “hanuman” emerged as important catchphrases as well as key drivers of mental strength. Other prominent words in the lexicon of Hanuman Chalisa were cognitive and physical strivings for happiness, strength, power and self actualization. On the other hand, Hanuman Chalisa laid emphasis on destroying demons of evil thoughts, removing suffering, managing difficulties and dealing with disease and death. Semantics for positive psychology include bravery, grace, enlightenment, awakening, glory, virtue, wisdom, intelligence and fame as shown below (fig 3):

RQDA (qualitative data analysis in R) consisted of open coding and underlying theme identification, followed by the subsequent attachment of substantial dimensions and characteristic fragments. Following themes underpinning Hanuman Chalisa were primarily unmasked by our RQDA package:

**Theme 1 (Introspection):** First two and last couplets clearly emphasis the need for introspection of one’s conscious thinking. Introspection is the tool recommended by
structuralist school of psychology to focus on inner feelings and sensations which uncover the essential building blocks of one’s thinking. Verses numbered 32,35,37 & 40 also prompt the devotee to peep into the cognitive elements of its analytical thinking.

**Theme II (Adaptation):** Readers are gently guided to adapt their thinking to face any adversity or environmental challenge confronted by them. Verses 7,8, 9,10,27& 30 encourage the seeker to harness the cognitive adaptation of mind as advocated by functionalist school of psychology.

**Theme III(Gestaltism):** Verses 1 to 6, verses 18,29 and 31 are directed to enhance the spiritual perception of seeker by focusing on the idea that whole is definitely more than the sum of its parts. In these verses, there is reminiscence and life review of Hanuman’s persona and character. There is also glorification and hype of Hanuman’s heroism which indirectly aims to enhance the creative intelligence of seeker. Indeed, gestaltism can inject a substantial sense of optimism as well as hope.

**Theme IV (Reinforcement):** There is clear emphasis on reinforcing certain behaviours which will help the seeker to navigate or mitigate various physical challenges and threats. Verses 24-26, 33, 36, 38-39 signal the stimulus driven observation of certain behaviour or practical rituals. There is an attempt to encourage seeker in finding a way to transcend his or her physical limitations, mental affiliations and difficulties.

**Theme V (Resolving unconscious mind):** Verses 11,20-23, 28& 34 are typically directed to help seeker resolves his or her unconscious desires and conflicts. These verses indirectly encourage the seeker to apply psychodynamic approach to deal with unresolved conflicts and problems. Verse 34 involves process of ego transcendence in constructively facing the reality of death.

**Theme VI (Self actualization & Gratitude):** Versus 12-15 are typically reflective of appreciation and gratitude towards a person who has helped the seeker. They will cultivate a sense of gratitude. Verses 16-17 &19 prompt a person to realize the goal of self actualization leading to self development. These verses primarily focus on the humanistic landscape of person’s mind. Above mentioned thematic analysis is also highlighted below in figure 4.
Current study also compared the net sentiment generated under various themes of Hanuman Chalisa using “nrc” as well as “bing” lexicon.

Fig 5: Comparative Net Sentiment (Positive minus Negative) generated using “Bing” as well as “NRC” lexicons among various themes
Above plots (fig 5) show comparative net sentiment (positive minus negative) generated using "Bing" as well as "NRC" lexicons. There is good agreement for themes of adaption, gestaltism, gratitude and self-actualization and unconscious mind. But in the theme of introspection, later verses show dominance of net negative sentiment in Bing lexicon whereas reinforcement theme yielded net negative sentiment in "NRC" lexicon. There is overall excellent agreement for net positive sentiment in Hanuman Chalisa between "Bing" and "NRC" lexicons.

Discussion & Conclusions

Hanuman Chalisa is a 40 verse devotional hymn composed by 16th century poet and philosopher Tulsidas and written in vernacular Awadhi language, thereby making it a very popular amongst the masses (Lutgendorf P, 2007). This also explains the use of Hanuman Chalisa as a subject of investigation in this paper. Applied use of hanuman character in the field of psychotherapy is already well known in literature (Weber SR and Pargament KI, 2014). A report published in Indian Journal of Psychiatry (Wig NN, 2004) also describes a psychological syndrome of 'hanuman complex' where hanuman lost his magical power of flying in childhood by a curse which could only be nullified after adolescent age through self realization invoked by a teacher. Later when search team of monkeys led by Hanuman was stranded at the Indian shore of sea showing helplessness to cross over to Lanka, Jamwant, an elderly bear commander in Sugreev's army, made Hanuman realize his dormant power of flying (R.C Jiloha, 2004). This prompted Hanuman to quickly fly over the Indian Ocean and reach Lanka in search of goddess Sita. The current study deconstructed the poetic narrative of Tulsidas to unmask its underlying sentiments, lexis and spiritual strivings which have struck such a chord with people of India.

Our results showed that Hanuman Chalisa's popular emphasis was on optimizing positive thinking on one hand and mitigating the negative thoughts on the other hand. With the singular aim of liberating oneself from distress or danger, Hanuman Chalisa focussed on keys words of god, lord, wisdom, virtue, power, strength and purify etc. Even dark side of life-such as impurity, pain, death, fear, sorrow etc - was also addressed in various verses. The nuanced message hidden in this prayer is to motivate a person to appreciate the strengths in life and not to forget there is so much more positive than negative in the continuum of life.

Deconstructing our study from psychology viewpoint, self development appears central to hanuman chalisa recitation. Various verses underscore the emphasis on personal worth and human capacity to overcome misery and suffering (Patel TR et al, 2013). Principles of behavioural psychology are also evident when various verses highlight...
learning through operant conditioning by reinforcing target response behaviour (Rhi BY, 2001). Glorification of hanuman deity through gestalt principles is also embedded in the hymns of Hanuman Chalisa (Pattanaik D, 2017). Gestalt (a unified or meaningful whole) imagery of an ordinary monkey into “God” is clearly reflective of cognitive strategy of self-empowerment (C Shamasunder, 1993). Interestingly, theory of natural selection at the cognitive level also supports the survival of fittest by adapting to adverse environmental circumstances. This functionalism is clearly reflected in verses 7, 8, 9, 10, 27 & 30.

Though written nearly 4 centuries ago by Tulsidas, Hanuman Chalisais shown through our results to possess all the elements which are critical to act as an adaptive defence mechanism for the people to fend off physical sickness, pain and mental ailments (Puchalski C, 2004; Mueller PS et al, 2001; Siddall PJ, 2015). Our thematic analysis unmasked various psychological principles involved in boosting up the positive psychology, which are then integrated into a comprehensive cognitive strategy to deal with any adversary faced by people. The verses of Hanuman Chalisa are tailored to mitigate "evil" presence and enhance "optimistic" attitude in one's life. Indeed, mind seeded with Hanuman Chalisa, can be programmed as a fail-safe mechanism to stymie any new challenge, allowing person to edit any physical or mental threat with unprecedented ease. Our findings also revealed an elaborate reiteration of psychological themes to reinforce cognitive immunity and avoid person falling into trap of mental ill health.

To conclude, qualitative data analysis by R software provided a dispassionate and innovative understanding of text of Hanuman Chalisa. Our results showed that Hanuman Chalisa does not alone have rhetorical and semantic function, but is underpinned by epistemic norms that are primarily tailored to fortify mental health of person in pain, misery or suffering.

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2018. SC questions mandatory prayer in Kendriya Vidyalayas - The Hindu. January 10, Available at www.thehindu.com/news/national/sc-eks...on...against...kv.../ article 22411244.ece[Accessed 14th Feb 2018].
Aim of this study is to compare the power of cluster randomized trial versus drawings, narratives and storytelling in implementation of an effective “Mobile Anganwadi” intervention for the underprivileged children at the construction sites of Chandigarh.

Methodology

Two strategies were compared

2. **Cluster randomized trial**: 11 construction sites were randomly drawn and were further randomly assigned into 5 control and 6 intervention sites. Intervention sites were provided all necessary services envisioned in the ICDS through a mobile Anganwadi, a functional surrogate to an established Anganwadi, with leverage of resources available under the ICDS.

3. **Drawings and Story Telling**: Once a week a drawing session was organized where the children including adolescents were asked to any drawing and provides a
narrative thereafter. All these drawings were then classified into various themes and exhibited on 16th April 2016 in the Govt. College of Art Museum.

Findings

The cluster randomized trial revealed statistically significant reduction in the proportion of severely malnourished children from baseline to the third in the intervention sites (22.2 to 15.5%) as compared to the control sites (20.3 to 17.9%). (p-value < 0.05) Odds of receiving complete vaccination were 16 times higher in children of intervention sites as compared to control site children (OR 16.25; 95% CI 6.68-39.52; p value < 0.001).

Second part of the study included collection of drawings over a period of one year. Majority of children demonstrated themes which were local and contextualized to their daily needs, threats and festivals which clearly underscored their fundamental right to basic services and equality of opportunities to achieve their full development.

Conclusions and Recommendations

This study is an example of how innovative strategy of drawings and storytelling supported communication and allowed intersectoral convergence for implementation of an effective Mobile Anganwadi intervention.

Keywords: Anganwadi, Translational research, Child Rights.

Introduction

Children at construction sites have great difficulty in accessing government programs which are otherwise routinely available in rural settings. These include programs for childcare, nutrition, health and education. There are major communicative fault-lines preventing advocacy for these marginalized children. “Translational research is part of a continuum in which research findings are moved from the researcher’s bench to the patient’s bedside and community. In the continuum, the first stage of translational research (T1) transfers knowledge from basic research to clinical research, while the second stage (T2) transfers findings from clinical studies or clinical trials to practice settings and communities, where the findings improve health”.(Woolf,2008). The aim of this study is to compare the power of cluster randomized trial versus drawings in implementation of an effective “Mobile Anganwadi” intervention for the underprivileged children at the construction sites of Chandigarh.
Methodology

We compared two strategies (Cluster randomized trials versus Storytelling / drawing) for the outcome of providing Anganwadi for the marginalized children.

Cluster Randomized Trial

A complete list of all construction sites in Chandigarh was obtained from updated Micro-Plans made for the purpose of National Immunization Days, from which 11 sites were randomly drawn and were further randomly assigned into 5 control and 6 intervention sites. Intervention sites were provided all necessary services envisioned in the ICDS through a mobile Anganwadi, a functional surrogate to an established Anganwadi, with leverage of resources available under the ICDS. A pre and post intervention cross-sectional survey used triangulation of qualitative (FGD and in depth interviews) and quantitative (structured questionnaires) methods to assess efficacy and feasibility. A complete list of all construction sites in Chandigarh was obtained from updated Micro-Plans made for the purpose of National Immunization Days, from which 10 sites were randomly drawn and were further randomly assigned into 5 control and 5 intervention sites. One intervention site was added post randomization since it's close proximity to one other intervention site made it unethical to withhold the intervention. Logistics of visiting the sites were provided by the outreach services of the Department of Pediatrics, Advanced Pediatric Centre. Baseline survey done using FGD and structured questionnaires in the first month collected information about the sites. The household and children's questionnaires collected information on socio-demographic data, environmental conditions at homes, facilities for safe water and sanitation, immunization status and nutritional anthropometry. FGD were limited to one per site. Intervention sites were provided all necessary services envisioned in the ICDS through a mobile Anganwadi, a functional surrogate to an established Anganwadi, with leverage of resources available under the ICDS. At one intervention site, the Department of Social Welfare, Chandigarh provided a temporary but fixed Anganwadi in the partially constructed building with regular staff. Services of Government (Department of Social Welfare, Chandigarh) and Non Government Organizations (Childline and Build Healthy India Movement-BHIM) were also taken. Permission from the Director, Social Welfare and concerned officials of the NGOs was taken. Of the six services that ICDS envisages, three (immunization, health check-up and referral services) are health related and are delivered through the public health infrastructure under the Ministry of Health and Family Welfare and the rest (supplementary nutrition, pre-school education and health education) by the Social Welfare department. Services in this study were provided by the Department of Health & Social Welfare along with active participation of NGOs. Non-intervention sites had two scheduled visits, one at the baseline and the other, at the end
of 3 months when they were encouraged to get their children immunized from the nearest health facility and were provided one time nutrition education. Caretakers were provided the toll free number of Childline (1098) for any health related queries. Intervention sites received the Mobile Anganwadi intervention described below.

**Supplementary Nutrition:** Although the Department of Social Welfare agreed in principle to provide food supplements at the sites, they provided it at the nearest Anganwadi usually located one to two kilometers from the site. This did not find favour with the workers and many logistic problems were faced in providing supplemental food from the Social Welfare Department at the other five intervention sites. Supplementary nutrition in the form of milk, cereal–protein multimix and fruits were provided with the philanthropic aid of individuals and the NGO, Build Healthy India Movement (BHIM) directly at the door step. One third of total calories and half of total protein requirement were provided by the Department of Social Welfare. A centralized kitchen at Darua supplies food to 370 Anganwadis in Chandigarh using vans. The list of beneficiaries at the sites was provided to the Department of Social Welfare, which provided food at the designated place and time. Severely malnourished children, identified in the baseline survey, were provided double the calories as per current programme guidelines. Children were also provided iron, folic acid and Vitamin A as per ICDS guidelines.

**Immunization:** Immunization status was verified in the baseline survey. The lists of the unimmunized children at the site were given to the District Immunization Officer. An auxiliary nurse midwife was deputed by the Health Department to update the immunization of all the children. At the control sites, guardians of unimmunized children were encouraged to visit the nearest public dispensary to update their vaccination.

**Health Check Ups:** Health checkups were undertaken at baseline and post intervention by the researcher and monthly thereafter by a team of residents posted in the department of Social Pediatrics at the institute. They were clinically examined for nutritional deficiencies and illnesses.

**Referrals:** As per health checkups, treatment on the spot or referral to a public hospital was made. Participants were encouraged to visit the Department of Pediatrics, PGIMER, for further care. In case of constraints, the nearest public health care providers were suggested and parents were encouraged to preserve the records for our perusal.
Preschool Education: Preschool education for children 3-6 years old was provided by volunteers from the NGOs and the health promotion division of the School of Public Health and the Division of Health Education at the institute.

Health Education: Health education to children was provided by Childline volunteers on common issues like breast feeding, complementary feeding, safety and management of common ailments. A structured manual was used for covering all issues in a systematic manner. Each session lasted 30-45 minutes with attendance of 15-20 children and 5-8 mothers. Sessions were taken twice a week and reassessment was done after 10–15 sessions. After completion of the 3-month intervention, repeat data about awareness of immunization, nutrition, growth and common ailments of childhood were gathered in both intervention and control sites. Pre and post intervention measurements were compared for improvement in immunization coverage and nutritional status.

Outcome Criteria: Following criteria were used to assess the outcome
- Decrease in the percentage of severely malnourished children
- Increase in the percentage of children immunised against the six vaccine preventable diseases (according to the expanded programme of immunization)
- Increase in the maternal knowledge of common childhood ailments.

Following completion of the trial findings were shared with the Director social welfare to facilitate the mobile Anganwadi intervention for the marginalized children. In the meantime the second intervention of children’s drawings was started in one of construction sites where there was ongoing construction but the families and children kept changing depending upon the work profile

Drawings and Story telling
Once a week a drawing session was organized where the children including adolescents were asked to any drawing and provides a narrative thereafter. 5-30 children attended these weekly sessions for one year. All these drawings were then classified into various themes and exhibited on 16th April 2016 in the Govt. College of Art Museum. The forum was used for advocacy of Child Rights of these underprivileged children to Secretary social welfare.
Findings

Cluster Randomized Trial

A total of 11 construction sites were enrolled for the purpose of our study (see Figure 1 for the flow chart of the study) and out of them 5 sites were control. The table 1 shows baseline characteristics of the control and intervention construction sites.

Table 1: Baseline Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of construction sites</td>
<td>5</td>
<td>6*</td>
</tr>
<tr>
<td>Provision of electricity</td>
<td>4/5</td>
<td>5/6</td>
</tr>
<tr>
<td>Provision of water Tanker/Tap</td>
<td>3/5</td>
<td>4/6</td>
</tr>
<tr>
<td>Toilet</td>
<td>4/5</td>
<td>5/6</td>
</tr>
<tr>
<td>No of children</td>
<td>59</td>
<td>174</td>
</tr>
<tr>
<td>Gender distribution Male/females</td>
<td>30/29</td>
<td>94/102</td>
</tr>
<tr>
<td>Mean age (in Months)</td>
<td>34.3±21.2</td>
<td>38.9±21.2</td>
</tr>
</tbody>
</table>

* One site was added post hoc in view of close proximity to the intervention site (ethical reasons)
The mean (SD) weight of the children enrolled in the first visit was 10.34kg (3.55) with (95% CI 9.42 to 11.27) in control sites whereas intervention sites, 10.82 (3.42) with (95% CI 10.32 to 11.32 kg.) Overall prevalence of stunting, underweight and wasting was 37.8%, 56.5% and 41.6% (wasting) respectively. An alarming 21.2% of the children were identified to be less than -3 SD in our study cohort Statistically significant increase in weight at follow up visits (second and third visits) in the intervention sites (P-value 0.01 and <0.001 respectively) was seen. Owing to the short duration of study, no difference could be demonstrated with regard to the height, occipitofrontal circumference or the mid-upper arm circumference. Reduction in the proportion of severely malnourished children from baseline to the third visit also, was more significant in the intervention sites (22.2 to 15.5%) as compared to the control sites (20.3 to 17.9%). (P value <.05) Barely 5% of the children were immunized up to date at baseline. When stratified as control sites and intervention sites 93.2% and 96.1% of the children respectively, were either unimmunized or partially immunized at the baseline. At the third visit, 9.3% of the children in the control sites were unimmunized and there was no unimmunized child in any of the intervention sites. The percentage of children who were fully immunized was 14.8 in the control sites and 73.9 in the intervention sites.of receiving complete vaccination were 16 times higher in children of intervention sites as compared to control site children (OR 16.25; 95% CI 6.68-39.52; p value < 0.001).

Nail hygiene was good in 6% of children at baseline, improved to 26% in intervention sites. 33% of children reported regular daily bath which improved to 86% following intervention. 73% of the children reported some measures (brushing /manjan) taken to clean their teeth. 40% of children reported washing hands before meals, which improved to 60% post intervention. Delayed initiation of breast feeds beyond one hour of birth, or no breast feeding at all was observed in 43.3% (78/180) of children in intervention sites as compared to 68.4% (39/57) of children in control sites which was statistically significant (Chi-square value 10.90, p-value 0.001).

**Storytelling and Drawings**

Second part of the study included collection of drawings by children from the construction sites over a period of one year. Approximately 5 to 30 children attended the sessions on a dedicated day (Wednesdays) once a week (See Fig2) They made spontaneous free drawings without any prompts and subsequently gave a detailed narrative of what they had drawn.
Figure 2. Line graph showing the Proportion of Children Attending the Weekly Art Session

Majority of children demonstrated themes which were local and contextualized to their daily needs, threats and festivals which clearly underscored their fundamental right to basic services and equality of opportunities to achieve their full development. Drawings of huts, taps with flowing water, queues of people collecting water from hand pumps reflected the issue regarding availability of basic amenities for these children. Young children talking about fear of rape and murder following their drawings indicated the looming threat of potential abuse and neglect. Besides reality driven drawing, children also echoed supernatural beliefs, dangers and festivities in their drawings. Anyone who watched these children at work with art materials was able to see the intense level of absorption, clearly indicating the enjoyment they received, making it a meaningful activity. All these drawings were exhibited at the Government college of Art Museum Chandigarh and the Secretary Social Welfare was invited where narratives of the children's drawings and stories and experiences of the researchers were shared in the presence of various stakeholders.

Discussion:

Anganwadi meaning “courtyard” is a typical center providing mother and child care in India. It is a part of basic health care in Indian villages and urban slums started by the Indian government in 1975 as part of the Integrated Child Development Services
program under the Ministry of Women Child Development to combat child hunger and malnutrition. These centers typically provide supplementary nutrition, non-formal preschool education, nutrition and health education, immunization, health check-up and referral services. Children of construction workers, because of their unique ‘migrant’ nature tend to get consistently left out of developmental initiatives. Studies have shown that improving the coverage and quality of an existing programme rather than launching new initiatives can take us closer to the Sustainable Development Goals. There is sufficient evidence to show that ICDS has the potential to take India closer to achieving the goals, provided the loopholes are plugged. (Avula R, Frongillo EA et al 2011) Whether tailoring this all-inclusive, community oriented package of services to suit the ‘migrant’ nature of the population of construction workers will yield the desired effect and will it be feasible in the first place, was the theme of our cluster randomized trial. The most impressive area of change observed was primary immunization coverage. According to the NFHS-3, 4.6% of boys and 6% of girls were unimmunized; 45.3% of boys and 41.5% of girls had received all the basic vaccines (NFHS-3). In our trial, a staggering 43.8% of the children were unimmunized which looks alarming in the backdrop of the NFHS data where no Indian state has more than 20% unimmunized children(NFHS3 ). Only 4.3% of the children were completely immunized at the baseline in our study. This relative invisibility of the study children on the immunization radar of the existing healthcare services was the key finding of our trial which reflected the poor outreach of current health care system even within the metropolis. At the end of the trial, percentage of partially immunized children in the control sites was almost unchanged but that in the intervention sites had almost halved. There remained no unimmunized child in the intervention sites. Excluding instances where there had been refusal to get vaccinated; this study has been successful in ensuring the complete immunization of the enrolled children or at least in initiating the process. The other important outcome was related to the anthropometric indices. Statistically significant increase in weight at follow up visits (second and third visits) in the intervention sites (P-value 0.01 and <0.001 respectively on paired t-test) was seen. Mean z scores at baseline for weight for age in the control sites and intervention sites were -1.84 and -2.18 respectively, compared to the national mean of -1.8. The reduction in the proportion of severely malnourished children from baseline to the third visit also, was more significant in the intervention sites (22.2 to 15.5) as compared to the control sites (20.3 to 17.9). Owing to the short period of study, no difference could be demonstrated with regard to the height, occipitofrontal circumference or the mid-upper arm circumference. Previous studies evaluating the ICDS have also found the impact on the nutrition status to be limited (LokshinM, DasguptaM 2015). There was a significant reduction in the number of illnesses in the second and third visits in the intervention sites, as compared
to the control sites. More parents in the intervention sites, than in the control sites sought health care for the illnesses by the third visit. With none of the sites having an Anganwadi or a crèche; it was not surprising that at the baseline, none of the children were covered under the ICDS. According to the NFHS-3, though more than 80% of the children reside in areas covered by the ICDS, the number of children who reported to have received any service from an Anganwadi was a dismal 28%. This was one of the first of its kind study evaluating the feasibility of delivering the entire package of services to marginalized populations, probably as their 'migrant' nature makes it difficult to do so. A recent Cochrane review of 18 cluster-randomised/quasi-randomised trials, offers encouraging evidence of the value of integrating maternal and newborn care in community settings through a range of interventions which can be packaged effectively for delivery through a range of community health workers and health promotion groups. (Lassi ZS, Haider BA et al 2010) This study provides some insight into the problems faced by the construction workers which have an impact on the health of their children and in turn, on the national health statistics. Apart from the small sample size and the limited time period, another drawback was the high rate of attrition in the study population, which, to some extent will be inherent in any study on such populations and conversely, may be the basic issue which such studies seek to address. The results of this study were shared with the stakeholders in order to move the benefits of research findings from the researcher’s bench to the community. In the continuum, the first stage of translational research (T1) transfers knowledge from basic research to clinical research, while the second stage (T2) transfers findings from clinical studies or clinical trials to practice settings and communities, where the findings improve health. The cluster randomized trial clearly documented the feasibility of various benefits including nutritional and improvement in immunization coverage with intersectoral convergence yet it could not succeed in implementation of the intervention.

The second intervention included collection of drawings and narratives for a period of one year. Narrative approaches have shown promise in promoting behavior change in some of the diseases like prevention of HIV and cancer. (Berkley-Patton J, Goggin K, 2009 Larkey LK, Gonzalez J 2007, Williams-Brown S, Baldwin DM et al 2002.) Perusal of narratives offers a simple yet powerful tool to unmask hidden patterns or trends in social continuum of marginalized children and can further decode the values and conflict resolving cues underpinning their daily lives. Though use of narratives as a systematic analytical tool is not deeply explored in medical science and needs robust framework, yet its qualitative evidence can carve a special niche in the effective implementation of holistic health care. To conclude, exhibition of the drawings and sharing of the stories of children proved a potent enabler of inter-sectoral convergence.
and implementation of Anganwadi for the children at the construction sites within a week of the exhibition and perusal of narratives and storytelling.

Conclusions:
Children at the construction sites constitute a significant proportion of the unreached populations. They have higher prevalence of under nutrition and severe under nutrition and significantly lower coverage of immunization compared to the national statistics. The ICDS has the potential to reach out to these children if the mode of delivery of services is customized to suit their ‘migrant’ ways. Mobile Anganwadi multicomponent intervention is feasible with the intersectoral convergence. Qualitative methods like drawings, narratives and storytelling have a promising role in bridging the know-do gaps.

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This book contains a compilation of abstracts and research papers presented at the International Conference on 'Responsible Research and Innovation in Science, Management and Education', held at the Panjab University, Chandigarh, India, from 4th to 6th of April, 2018. The purpose of this publication is to disseminate research findings, strengthen research and educational capacities and to bridge the gap between academic and practical articles or opinions. All papers have undergone an extensive Peer Review process, are long and detailed and contain the full citations and information about the authors. This book is published by the London School of Management Education (LSME), UK.

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