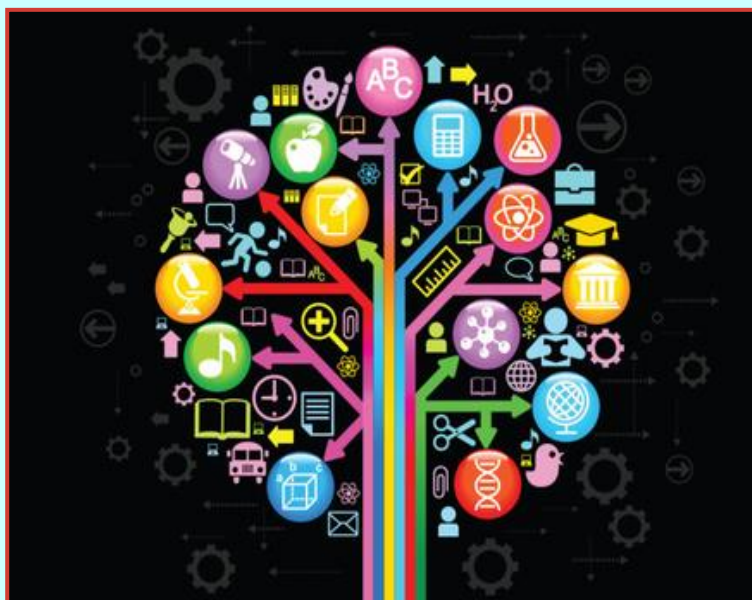




Interdisciplinary Research Forum (आंतरशाखीय अनुसंधान सम्मेलन)

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**Compiled Research Abstracts of Ph.D. Graduates
(2024-2026)**

Ph.D. Graduates

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RCT on Effectiveness of Psychological Skills Training and Motivational Counseling on level of Self-Efficacy, Self-Regulation, Anxiety and Skill Performance among Nursing Students.

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Research Abstract

Introduction:

Nursing students often face high levels of anxiety, which can negatively impact their academic performance, clinical skills, and overall well-being. A study by Jignesh H.T. (2020) reported that 66.7% of Indian nursing students experienced moderate anxiety, highlighting the need for interventions to address mental health challenges. Anxiety may also lead to low self-efficacy, procrastination, and low self-regulation, which can hinder academic and clinical skill performance. This study explores the effectiveness of two interventions: Psychological Skills Training (PST) and Motivational Counseling (MC) on Self-Efficacy, Self-Regulation, Anxiety and Skill Performance among nursing students.

Methodology:

A randomized controlled trial (RCT) with three equivalent groups (PST, MC, and Control) was conducted among 114 first-year nursing students through SNOSE allocation with multistage sampling using computer-generated random number sequence. Group A received PST for 6 weeks which includes goal setting, progressive muscle relaxation, mental imagery, and attention training with online practice and 12 offline sessions. Group B received MC motivational counseling with the integration of online mindfulness practice for 6 weeks with group counseling of 12 sessions, and the Control group followed standard care. The data collection tools used were the General Self-Efficacy Scale (GSE), Generalized Anxiety Disorder-7 Scale (GAD-7), Self-Regulation Scale (SSRQ), and a developed checklist for skill performance in manual blood pressure measurement. Data were collected at four time points: pretest, after 6 weeks of intervention, 2 months follow-up, and 4 months

follow-up.

Result:

The study result of PST on self-efficacy shows significant improvements with the mean score increasing from 28.5 (pretest) to 35.6 after 6 weeks, stabilizing at 33.5 at 4 months follow-up ($Z = 9.9$, $p < 0.000$). Similarly, MC also significantly improved self-efficacy (28.0 to 34.6 after 6 weeks, remaining stable through 4 months of follow-up). The effect of PST on self-regulation shows a slight improvement in self-regulation immediately after the intervention (pretest 114.3 to 116.0), but the effect was not sustained ($M = 112.9$ at 2 months follow-up, $M = 115.8$ at 4 months follow-up). MC also showed an improvement in self-regulation (113.9 to 118.5 after 6 weeks), but the effect diminished over time (115.5 at 2 months follow-up, 113.8 at 4 months follow-up). MC reduced anxiety (pretest 8.4 to 5.4 after 6 weeks), and this reduction was sustained at 2 months follow-up (6.4) and 4 months follow-up (6.2), indicating a slight advantage of MC in sustaining anxiety reduction. PST significantly reduced Anxiety from 8.4 (pretest) to 4.3 (post-test 1), but the effect was not sustained ($M = 8.4$ at 4 months follow-up). Both interventions significantly improved Skill Performance, with no notable differences between them. There were significant associations between self-efficacy with the father's educational status ($p = 0.039$), self-regulation and clinical practice duration ($p = 0.044$), anxiety and family income ($p = 0.013$) and significant association between skill performance and students' age ($p = 0.046$). Thematic analysis of qualitative data as subjective responses revealed that PST participants reported improved stress coping, enhanced performance, and better emotional regulation. MC participants experienced better group dynamics, increased self-awareness, and improved stress management through mindfulness. These qualitative insights validated the quantitative findings, supporting the effectiveness of both interventions.

Conclusion and recommendation: These findings suggest that both interventions were valuable for enhancing nursing students' mental health and skill development. Further research was needed to explore long-term impacts and factors that may enhance the effectiveness of these interventions. Future research should focus on the long-term impact of psychological skills training (PST) and motivational counseling (MC) on self-efficacy, self-regulation, anxiety, and skill performance. It is also recommended to explore mediating factors, such as individual differences and contextual influences, to tailor interventions more effectively. Methodologically, double-blinding and the inclusion of diverse populations across institutions could enhance study validity. Further studies could compare PST and MC with other interventions, incorporate objective skill performance metrics, and examine participants' subjective experiences.

Keywords: *Psychological Skill Training (PST), Counseling, Mindfulness, Self-Efficacy, Self-Regulation, Anxiety, nursing students*



Effectiveness of Positive Self-Affirmations, Pranayama and Progressive Muscle Relaxation on Occupational Stress of Nurses in Selected Hospitals of an Urban Area.

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Research Abstract

Introduction:

Occupational stress is a chronic disease caused by conditions at the workplace that negatively affect an individual's performance and overall well-being of body and mind. Many studies related to the occupational stress of nurses have shown that occupational stress decreases the quality of nursing care and increases the hospital stay of patients. The aim of the present study was to assess the effectiveness of positive self-affirmations, pranayama, and progressive muscle relaxation on occupational stress of nurses in selected hospitals of an urban area.

Methodology:

A quasi experimental, three-group pre-test and post-test with the control group design was applied. A total 200 nurses were selected by using convenient sampling. Group A. positive self -affirmations B. were pranayama; C. progressive muscle relaxation and D. was the control group. Data collection was done by the self-reporting technique, using the Expanded Nurses Stress Scale (ENSS) and Tool to Assess and Classify Work-Related Stress (TAWS). Formal permission was obtained from authorities and participants in the prior study.

Result:

The analysis of the study was done by use of descriptive and inferential statistics. Based on the Expanded Nurses Stress Scale, the Positive Self-Affirmations group t-value for this test was 18.71 with 49 degrees of freedom. The null hypothesis was rejected since the p-value was < 0.05 . In the

Pranayama group, the t-value for this test was 19.4 with 49 degrees of freedom. The null hypothesis was rejected since the p-value was < 0.05 . In Progressive Muscle Relaxation, the t-value for this test was 8.1 with 49 degrees of freedom. The null hypothesis was rejected since the p-value was < 0.05 . Based on the Tool to Assess and Classify Work-Related Stress, both Part A and Part B showed significant results through various interventions. For Part A, Positive Self-Affirmations, Pranayama, and Progressive Muscle Relaxation all had t-values of 19, 10.3, and 8.1 respectively, with null hypotheses rejected ($p < 0.05$). In Part B, Positive Self-Affirmations and Pranayama had t-values of 15.7 and 15.02 respectively, while Progressive Muscle Relaxation recorded 14.4, also with null hypotheses rejected ($p < 0.00$). In Positive Self-Affirmations, Pranayama, and Progressive Muscle Relaxation group the Posttest average occupational stress was substantially lower than pretest.

Conclusion:

Occupational stress was different in the experimental group and control group. Analysis of data showed that there was a significant difference between pre-test and post-test occupational stress. The study found that Positive Self-Affirmations, Pranayama, and Progressive Muscle Relaxation significantly reduced occupational stress among nurses. Positive Self-Affirmations were found to be more effective than Pranayama and Progressive Muscle Relaxation in reducing occupational stress among nurses.

Keywords: *Occupational Stress, Positive Self-Affirmations, Pranayama, Progressive Muscle Relaxation, TAWS, ENS.*



Content based Video Summarization using Deep Learning Techniques.

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Research Abstract

Introduction:

In today's era of exponentially growing digital video content, video summarization has become an essential tool for improving accessibility, efficiency, and user experience. Video summarization aims to generate a temporally condensed version of the input video that captures key highlights and relevant information with minimal content loss. Video summarization approaches can be divided into conventional and query-attentive summarization. Conventional methods generate generic summaries without considering user preference, while query-attentive methods personalize summaries based on user queries. As user personalization becomes increasingly important in modern applications, query-attentive summarization, has emerged as a critical research direction. This research aims to enhance summarization using advanced deep learning models and personalized query integration.

Material and Method:

Feature extraction plays an important role in reducing computational demands and improving the effectiveness of video summarization. This research utilizes 3D CNNs, including Convolutional 3D (C3D) and the Two-Stream Inflated 3D Network (I3D), which incorporate temporal information in the feature extraction process. These networks generate comprehensive video representations by capturing spatiotemporal features. Experimental results on benchmark datasets demonstrate that 3D CNNs significantly improve F1-scores, highlighting the importance of spatiotemporal features for generating informative and coherent video summaries.

This work considers video summarization as a supervised learning task and proposes a novel

architecture, Multi-Head Attention with Reinforcement Learning (MHA-RL). The model integrates global and local multi-head attention mechanisms that effectively capture long and short-term temporal dependencies within video sequences. Reinforcement learning is used to adjust attention weights based on rewards, optimize summary quality, and generate relevant and diverse summaries. MHA-RL produces coherent and meaningful summaries for long videos by modeling video summarization as a decision-making process. Experimental evaluations on benchmark datasets, SumMe and TVSum, demonstrate that MHA-RL outperforms the existing methods.

For query-attentive video summarization, this research introduces the Self-Attentive Fully Convolutional Network (SAFCN), which generates summaries based on keyword-based text input queries. SAFCN utilizes 3D CNNs for spatiotemporal feature extraction and adopts a fully convolutional architecture incorporating local and query-attentive global self-attention layers. To further improve performance and efficiency, the model integrates 2D positional encoding and is trained using the Lion optimizer and summary length regularization to maintain concise outputs. Experimental results on the Query-Focused Video Summarization (QFVS) dataset show that SAFCN achieves competitive performance, outperforming several existing methods in both quantitative metrics and qualitative evaluations.

Result:

Building on this, a transformer-based model, Query-aware Deformable Attention with Detection Transformer (QDA-DETR), is introduced to handle free-form natural language queries for video summarization. QDA-DETR integrates deformable attention, query-aware attention, and saliency-based query alignment to capture the relationship between user queries and visual features. This combination enhances computational efficiency, improves localization accuracy, and ensures the generated summaries are closely aligned with the user's queries by highlighting the most informative video shots. QDA-DETR demonstrates competitive performance in moment retrieval and highlight detection when evaluated on the QVHighlights dataset. These results highlight its effectiveness and suitability for real-world, user-centric video summarization applications.

Conclusion:

This research demonstrates the importance of spatiotemporal modeling, attention mechanisms, and query integration for the development of advanced video summarization systems.

Keywords: *Video summarization, query-attentive summarization, Feature extraction, Convolutional network, Multi-head attention, Deformable attention, Detection transformer.*



Improving Pixel-Level Understanding of Natural Images Using Semantic Regions and Boundaries.

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Research Abstract

Introduction:

Understanding the contents of an image at pixel level is important for many computer vision applications. Semantic segmentation assigns a class label to each pixel so that different objects or regions can be separated. However, accurate segmentation of natural images is difficult when labelled images are limited, some classes have much fewer samples than others, some examples are difficult to classify, and object boundaries are not preserved accurately. The purpose of this research was to develop practical approaches for improving segmentation by considering both semantic regions and semantic boundaries. The study focused on four objectives: handling limited training data, improving learning for imbalanced and difficult classes, preserving boundaries during segmentation, and using additional boundary-related features for better boundary detection.

Materials and Methods:

The study used deep learning based semantic segmentation methods and was evaluated on benchmark and application-oriented image datasets, including PASCAL VOC and laparoscopic images. The work was organized into four complementary approaches. First, separate segmentation networks were trained for individual classes and their outputs were combined through a fusion strategy to work with limited training data. Second, inverse class-frequency weighting was used with focal loss to give more attention to under-represented and difficult examples. Third, a boundary-sensitive loss was designed by considering region information together with boundary information. Fourth, spatial features were combined with wavelet-domain high-frequency features to improve semantic boundary detection. Performance was compared with corresponding baseline methods using pixel accuracy, mean accuracy, mean Intersection over Union (Mean IoU), weighted IoU, and boundary F1 measures.

Result:

The proposed approaches showed measurable improvements under the evaluated experimental conditions. For the limited-data approach, the F1 score improved from 0.18 to 0.39 on PASCAL VOC and from 0.46 to 0.72 on the laparoscopic dataset. For class imbalance and difficult examples, Mean IoU increased from 0.073 with the basic cross-entropy loss to 0.111 with class-frequency balancing and further to 0.191 with the proposed combination of class balancing and focal loss. The boundary-sensitive loss improved Mean IoU from 0.1107 to 0.1286 and Mean Boundary F1 from 0.2907 to 0.3362. The spatial and wavelet feature based approach improved Boundary F1 from 0.641 to 0.751. These results indicate that different segmentation challenges can benefit from targeted learning strategies.

Conclusion:

The research developed four complementary approaches to improve semantic segmentation of natural images under challenging conditions. The findings show that limited training data, class imbalance, difficult examples, and inaccurate boundaries require different but related strategies. Considering semantic regions together with boundary information can improve the quality of pixel-level segmentation. The developed approaches also provide a basis for further work on satellite and remote-sensing images, where accurate identification of land cover, buildings, roads, and other regions can support higher-level image analysis.

Keywords: *Semantic segmentation; Natural images; Deep learning; Class imbalance; Semantic boundaries; Computer vision.*



Depression Detection and Analysis of Adolescent with Multimodal Approach using Machine Learning.

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Research Abstract

Introduction:

Depression is a condition that affects mood, cognition, and the body, significantly impacting an individual's quality of life by reducing happiness and awareness. The increasing prevalence of clinical depression is associated with a range of severe consequences, notably a rise in suicide attempts and fatalities, making it a critical public health issue. This underscores the need for an advanced depression detection (DD) system capable of automated classification of individuals as either depressed or healthy. After conducting an extensive literature review, several significant research challenges have been identified. Firstly, the issue of unbalanced datasets persists, complicating the development of accurate models for depression detection. Secondly, the small size of available datasets limits the generalizability of findings. Additionally, there is a lack of exploration into multimodal approaches that combine speech and MRI data for depression detection. Lastly, the potential of texture features in brain MRI images for detecting depression remains underexplored.

Method:

This thesis presents two significant contributions towards this goal. The first contribution involves the development of an automated DD system that utilizes brain MRI and speech signals as biomarkers. The Exponential African Vulture Optimization Algorithm (ExpAVOA) is introduced, incorporating the Exponentially Weighted Moving Average (EWMA) with the African Vultures Optimization Algorithm (AVOA). Additionally, the Deep Maxout Network (DMN) is employed for depression classification, trained using ExpAVOA. The second contribution is the development of the ExpAPO_DCNN model, where ExpAPO, a training algorithm combining ExpAVOA with the

Pelican Optimization Algorithm (POA), is utilized. This model features a Deep Convolutional Neural Network (DCNN) designed specifically for DD in adolescents.

Result:

The ExpAPO_DCNN model achieved remarkable results, with an accuracy of approximately 98.00%, a True Positive Rate (TPR) of 96.30%, a True Negative Rate (TNR) of 97.90%, a Mean Squared Error (MSE) of 0.240, a Root Mean Squared Error (RMSE) of 0.058, and a Loss of 0.023.

Conclusion:

These results demonstrate the potential of integrating advanced optimization algorithms and deep learning techniques in developing robust and accurate depression detection Systems, providing significant improvements over traditional methods and contributing to better mental health diagnostics.

Keywords: *Depression detection, biomarkers. Machin learning.*



Exploring the Relationship between Sociocultural Values and Designed Landscapes: A Case of Integrated Townships, Pune.

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Research Abstract

Introduction:

Designed landscapes influence how residents perceive, use, and interact with their environment, while socio-cultural contexts shape landscape preferences, activities, associations, and experiences. This study investigates the relationship between designed landscapes and socio-cultural values from the user's perspective, drawing upon landscape architecture, environmental psychology, and urbanism. The research focuses on Special Townships of area 100 acres and more in the Pune Metropolitan Region, with landscapes developed and functioning for more than five years. The hypothesis tested was that there is no significant relationship between the designed landscape of integrated townships and the socio-cultural values attributed to them.

Methodology:

Four integrated townships were selected based on comparable scale, development period, and landscape maturity. Field observations were conducted to map user engagement, activities, and patterns of landscape use across selected spaces. Expert opinions were obtained to assess the relevance of parameters associated with socio-cultural values and designed landscape areas. 2500 and above observations and face-to-face structured interviews with 313 residents were conducted who were from different age groups and genders, each having resided in the respective township for more than two years. Ethical protocols relating to informed participation, confidentiality, and anonymity were followed. Observational and interview data were analysed using IBM SPSS 23 through

correlation, regression, and appropriate non-parametric statistical tests. Triangulation was undertaken to compare observed behaviour with reported user experiences and preferences.

Result:

The analysis established a significant relationship between the number of designated landscape areas and user participation in activities. Regression analysis indicated that family type, duration of stay, and township independently predicted participation in landscape activities. Case 3 recorded the highest average number of activities, followed by Cases 1, 4, and 2. Residents extensively used walking tracks, seating areas, and open spaces for both active and passive participation throughout the year. Naturalistic and open grounds were preferred over densely vegetated areas unlike the findings from the western literature. Central landscape spaces supported greater activity diversity than cluster-level open spaces, indicating the importance of scale, accessibility, and spatial distribution. Accessibility, wayfinding, opportunities for social interaction, cultural activities, outdoor exercise, and everyday recreation emerged as significant user concerns. The findings also indicate that residential landscapes provide ecological, environmental, social, and health-related benefits beyond aesthetic value.

Conclusion:

The findings demonstrate a significant relationship between designed landscapes and the socio-cultural values associated with them. Well-planned and diverse landscape areas can support participation, social interaction, cultural practices, recreation, and everyday wellbeing when they respond to user needs and site characteristics. The study contributes the **Socio-Cultural Values Mapping Framework (SCVMF)**, a systematic approach for mapping socio-cultural associations, practices, preferences, and interactions within designed landscapes. By integrating perspectives from environmental psychology, landscape architecture, and urbanism, the framework provides a user-centred basis for creating more inclusive, accessible, culturally responsive, and meaningful residential environments. The findings can inform landscape architects, urban designers, planners, and policymakers in the planning and design of integrated townships and similar residential developments.

Keywords: *Socio-cultural values; Designed landscapes; Environmental psychology; User participation; Integrated townships; SCVMF, Landscape Urbanism.*



Investigating cost-effectiveness of architectural design and construction features in affordable housing: Case Pune.

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Research Abstract

Introduction:

Affordable housing remains a challenge for lower- and lower-middle-income households, particularly those unable to access government housing schemes and subsidies. Despite several initiatives for Economically Weaker Sections (EWS) and Lower Income Groups (LIG), increasing land, construction, and housing costs continue to restrict access to adequate shelter. Housing, however, extends beyond physical shelter and includes services, facilities, spatial qualities, comfort, safety, and social environments that support the physical, psychological, and social well-being of individuals and families. Therefore, affordability should be understood as a multidimensional concept encompassing economic accessibility, functional adequacy, comfort, sustainability, and social responsiveness.

Methodology:

This research investigates design and construction strategies for optimizing costs and improving the affordability and quality of housing. Pune City was selected as the study context due to rapid urbanization, migration, employment opportunities, escalating land, and construction costs, and increasing demand for affordable housing. The research is informed by social and behavioural theories, including Giddens' Structuration Theory, Diffusion of Innovations Theory, Human Motivation Theory, Housing Adjustment Theory, Social Identity Theory, and theories of Social Sustainability. The study adopted an exploratory sequential research design implemented in three stages.

Stage One employed thematic analysis of literature concerning affordable housing, with emphasis on affordability, cost-effective technologies and materials, unit and habitat design, behavioural aspects,

and design and construction costs. The review indicates that excessive dependence on conventional construction systems, inefficient planning, material wastage, and compressed living spaces can negatively influence affordability and user satisfaction. It also highlights the potential of innovative construction technologies, improved labour efficiency, rational planning, standardization, and integrated social and environmental sustainability.

Stage Two examined users' perceptions of affordable housing through surveys conducted in low-income wards of Pune. Parameters related to aspiration and appropriation were developed from previous studies and analyzed using Microsoft Excel and IBM SPSS.

Result:

Findings indicate dissatisfaction with non-functional spaces and existing unit configurations that inadequately respond to users' functional requirements, lifestyles, habits, comfort, safety, and aspirations. Discussions with practicing architects and structural engineers further emphasized the need for rational, context-sensitive, and user-responsive design solutions.

Stage Three investigated architectural and construction features influencing cost optimization through case studies, user perception surveys, and naturalistic observations of affordable housing projects in and around Pune. The analysis identified parameters including unit planning, building form and height, circulation, parking, communication spaces, structural spans, orientation, standardization, component dimensions, structural systems, and material selection. Based on these findings, two design explorations using Glass Fibre Reinforced Gypsum (GFRG) panel technology were developed and compared with conventional Reinforced Cement Concrete (RCC) construction. The comparative analysis demonstrates potential reductions in construction cost and project duration through panel-based construction, rational planning, standardization, and sustainable features.

Conclusion:

The research concludes that affordable housing should be approached through an integrated framework encompassing economic, functional, social, and environmental sustainability. Rational design, innovative construction technologies, user-responsive planning, standardization, and sustainable strategies can collectively optimize housing costs while enhancing quality of life. Affordable housing should therefore be evaluated beyond initial purchase cost, with greater emphasis on long-term usability, comfort, environmental performance, resource efficiency, and social well-being.

Keywords: *Affordable Housing; Cost Optimization; GFRG Construction; User-Responsive Design; Social Sustainability.*



Investigating Landscape Services Rendered by Open Spaces in Higher Educational Institute Campuses.

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Research Abstract

Introduction:

Higher education campuses are increasingly being redefined as environments that extend beyond academic functions to support holistic development, well-being, social interaction, and community engagement. In this context, campus open spaces have emerged as important components of the educational environment. This research investigates the relationship between landscape characteristics and the landscape services provided by open spaces in Higher Education Institution (HEI) campuses.

Methodology:

The study focuses on five higher education campuses in Pune, selected according to their location, scale, campus size, landscape elements, and open-space characteristics. Data were collected from 248 campus users, including students, teaching staff, and non-teaching staff. The research evaluates user perceptions of 23 variables associated with campus open spaces and examines their relationship with the physical and ecological characteristics of the landscape through field investigations and user surveys. A deductive research approach was adopted, supported by direct field observation, spatial inventory mapping, user perception surveys, and statistical analysis using SPSS. The conceptual framework draws upon Scannell and Gifford's (2010) place attachment model, Oldenburg's (1989) concept of "Third Places," Kaplan and Kaplan's (1989) theories of restorative natural environments, and Vallés-Planells et al.'s (2014) landscape services framework. The study considers five categories of landscape services: provisioning, regulating, socio-cultural, informational, and economic services. The Kruskal–Wallis test was used to compare perceptions across the selected campuses. Factor

analysis was conducted to identify significant clusters of variables, while correlation analysis was used to examine relationships among landscape characteristics and perceived landscape services.

Result:

The findings demonstrate a clear association between the physical qualities of campus landscapes and the services perceived by users. Vegetated areas, shaded spaces, water features, walkable pathways, outdoor learning environments, recreational areas, and appropriately designed circulation networks contribute differently to campus experience. Dense vegetation and water features are particularly associated with regulating functions such as thermal comfort and perceived reduction in noise. Socially supportive spaces, including courtyards, shaded lawns, outdoor cafeterias, and amphitheatres, encourage interaction, relaxation, cultural exchange, and a sense of belonging. These findings reinforce the relevance of Oldenburg's concept of informal "Third Places" within educational environments. Informational landscape elements, such as plant identification boards, historical markers, and environmental signage, further transform open spaces into opportunities for experiential and place-based learning. Landscapes with greater vegetation and lower visual dominance of built infrastructure are generally perceived as more natural and restorative, providing users with opportunities to recover from academic pressures.

A major outcome of the research is the formulation of the Institutional Landscape Model (ILM), developed to systematically assess the effectiveness of landscape services in HEI campuses. The model integrates objective parameters, including spatial configuration, vegetation density, accessibility, and infrastructure, with subjective indicators such as user satisfaction, perceived safety, sense of belonging, and well-being. Factor analysis identified three important dimensions: Learning Activity Settings in Landscape, Safe Navigation Features, and Spaces to Relax. Together, these dimensions highlight the importance of outdoor learning, safe movement, social interaction, recreation, and psychological restoration in successful campus open-space planning.

Conclusion:

The study concludes that thoughtfully designed campus landscapes can function as active educational, social, ecological, and restorative environments. The ILM (Institutional Landscape Model) provides a framework for integrating user experience with spatial and landscape analysis, supporting the development of vibrant, inclusive, resilient, and sustainable higher education campuses. Future research may examine different geographic, institutional, and demographic contexts and explore the potential of long-term studies and smart technologies for evidence-based campus landscape planning.

Keywords: *Higher Educational Institutional Campuses, Campus Open Spaces, Landscape Services.*



A Study of Driving Determinants in Insurance Sector for Sustainability.

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Research Abstract

Introduction:

The Indian insurance industry, despite being over 50 years old, is still in its infancy compared to other developed countries. The penetration of insurance in India is low, with only 3.2% for life insurance and 1% for non-life insurance. However, there is a wide scope for growth in the sector. The insurance sector plays a significant role in the economic development of the country and faces challenges such as innovating products and processes, delivering better services, upgrading channels, and achieving constant engagement with clients.

Customer behavior is a crucial determinant of sustainability in the insurance sector, and this study aims to explore the changing behaviors and factors driving customer selection patterns for insurance in India. Customer behavior and factors like perception, attitude, awareness, and preferences are important determinants of sustainability and growth in the insurance sector. The massive digitalization in the industry is acting as a boom and impacting consumer behavior and the demand for insurance products. The study aims to explore the relationship between digitalization, perceptions, awareness, attitudes, and preferences, and how these determinants can drive the insurance sector in India towards sustainability. The major objectives of the study are to analyse the impact of factors like Digitalization, Perception, Attitudes, and Awareness on the Preferences of consumers towards insurance products and further its impact on the sustainability of Indian Insurance sector. The research outcome will help insurance stakeholders gain a better understanding of these relationships and make informed decisions.

Methodology:

The research methodology includes data analysis using MS-Excel and SPSS, hypothesis testing, and the review of literature on digitalization, consumer behavior, and insurance products.

Extensive literature survey has been carried out in the area related to Digitalization, Consumer behaviour and impact of various factors on the Insurance sector growth and the sustainability.

There is a knowledge gap in understanding how digitization, consumer perceptions, attitudes, awareness, and preferences influence marketing strategies and sustainability activities in the Indian insurance sector. While there has been research on the impact of digitalization on insurance companies, there is limited research on consumer behavior, demand for insurance products, perception and preferences of insurance, and service quality.

Primary data was collected through a survey conducted with customers of life insurance in Pune city using a structured close-ended questionnaire. The non-probability convenience sampling technique was adopted for the survey due to the infinite and un-identical population. A total of 540 responses were collected from Pune city.

Result:

The study reveals that the determinants identified viz. Digitalization, Perception, Attitude, Awareness have positive impact on the Preferences of the Insurance products. Further the choices or Preferences of consumers will ultimately impact the Sustainability of the Indian Insurance Sector. The study also demonstrates a good association between these driving variables of insurance sector sustainability. There is a positive correlation among these driving determinants for Insurance sector sustainability.

Conclusion:

The findings of this study extend beyond the confines of the current research and invite researchers to examine various aspects related to sustainability in the insurance sector. These aspects include the efficacy of specific regulatory policies, the long-term impacts of technological adoption, the dynamics of customer engagement with sustainable insurance, and the evolution of industry practices over time.

Keywords: *Insurance, Digitalization, Consumer behaviour, Perception, Attitude, Awareness, Preferences, Sustainability.*



A Comprehensive Analysis of Permission Marketing with Respect to New Media in Pune.

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Research Abstract

Introduction:

The rapid development of digital technology and new media has transformed the way organisations communicate with customers. Traditional marketing practices such as telemarketing, SMS, email and direct marketing often enable organisations to reach large audiences, but may also result in unwanted communication, privacy concerns and information overload. **Permission Marketing** provides a customer-centric alternative in which marketers seek customers' permission before sending commercial communication. The concept, popularized by Seth Godin, emphasizes relevant, useful and anticipated communication that can contribute to stronger and more sustainable customer relationships.

The present study, titled "**A Comprehensive Analysis of Permission Marketing with Respect to New Media in Pune,**" examines consumer awareness, perceptions, preferences and behaviour towards permission marketing in the context of new media. The study focuses on email, SMS, live calls, recorded calls and social media, particularly WhatsApp. It also investigates consumer responses to unsolicited commercial communication (UCC), privacy concerns, perceived intrusiveness, trust, purchase behaviour and the factors influencing consumers' willingness to provide permission for commercial communication. The research addresses a significant gap identified in the literature, as relatively limited research was found on permission marketing with specific reference to new media in India and Maharashtra.

Methodology:

The study was conducted in **Pune and Pimpri Chinchwad Municipal Corporation (PCMC)** using a descriptive research design. Primary data were collected through a structured questionnaire, supported by secondary data from books, journals, research papers, theses, reports, newspapers, and online sources. Non-probability convenience sampling was used, and **514 valid responses** were collected. A pilot study of 135 respondents established the reliability of the questionnaire, with a **Cronbach's Alpha of 0.939**, indicating excellent reliability. Data were analysed using MS-Excel and IBM SPSS. Four hypotheses were tested using Chi-square and t-test techniques at a 5% significance level and 95% confidence level.

Results:

The findings established significant relationships between awareness of permission marketing and respondents' education and occupation; consumer preference and buying behaviour; disturbance caused by marketing communication and actions taken to stop such communication; and customers' perceptions of the interesting and useful nature of permission marketing communication.

The findings indicate that awareness of permission marketing remains limited. Among the 514 respondents, **27% were aware and 5% were fully aware** of permission marketing, while 33% were not aware and 7% were not at all aware. Live calls were the most frequently received form of unsolicited commercial communication (27%), followed by SMS and email (25% each). Financial-sector organisations, particularly banking, insurance, and financial organisations, were reported as frequent sources of UCC.

Consumers were more willing to provide permission when communication offered **useful information, special offers, purchase assistance, product availability information and future benefits**. Relevance, usefulness, personalisation and incentives positively influenced acceptance. Trust, brand reputation, privacy policies and past experience were identified as important factors influencing acceptance of permission-based communication. The study concludes that permission marketing can help transform marketing communication from an **interruption-oriented approach to a more customer-centric, relevant and relationship-oriented approach**. Consumers are more receptive when communication is useful, personalised, relevant, and valuable. The findings highlight the need for organisations to obtain customer permission, respect communication preferences and protect personal information.

Conclusion:

The study recommends strengthening consumer awareness regarding Do Not Call mechanisms, improving transparency about the source and use of customer data, protecting personal information,

and adopting stronger measures against unsolicited commercial communication.

The study is limited geographically to Pune and PCMC and uses convenience sampling. Future research may examine permission marketing across different social media platforms, industries, brands, demographic groups and geographical regions. Overall, the research contributes empirical insights into **consumer awareness, preferences, privacy, trust and behavioural responses towards permission marketing in the new-media environment**, providing useful implications for marketers, organizations, policymakers and researchers.

Keywords: *Permission Marketing, Unsolicited Commercial Communication, Consumer Behaviour, Consumer Privacy, Brand Trust, Digital Marketing.*