



3.3: Research Publications and Awards

EMMANUEL COLLEGE VAZHICHAL



3.3.2.1: Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year wise during last five years

| Sl. No. | Name of the teacher | Department | Title of the book/chapters/Paper published |
|-----------|---------------------|------------------|--|
| 2022-2023 | | | |
| 1 | Selvin Jose | Computer Science | A Review on Design and Development of Risk Assessment Models for Software development Projects Using Meta Heuristic Approach |
| 2 | Shyni A L | Computer Science | Exploring Classification Techniques in Data Mining: A Comprehensive Review |
| 3 | Vishak V T | Commerce | The influence of demographic characteristics in investment pattern among professionals |
| 4 | Sherly R M | Commerce | A study on the importance of electronic payment solution towards organizational development |
| 5 | Anu M | Commerce | A study on role of skill development programme on employability of graduates in Kerala |
| 6 | Dr. Melbha D | Commerce | Financial inclusion and banking behaviour among the common people |

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|----|-----------------------|--------------|--|
| 7 | Hari Priya. R. J Nair | English | Truth, Perception, and Gender Identity: The Nexus of Post-Truth and Transgender Realities |
| 8 | Hari Priya. R. J Nair | English | Diving into Indian Mythology's Gender Kaleidoscope |
| 9 | Shyma R L | Biochemistry | Morin ameliorates diabetic encephalopathy, via regulating cerebral glucose metabolism, attenuating mitochondrial dysfunction and oxidative stress in the brain |
| 10 | Dr. Melbha D | Commerce | Impact of behavior finance to change in investors decision |
| 11 | Vishak V T | Commerce | A study on attitude and awareness of investors savings and investment in mutual funds with special reference to Kerala |
| 12 | Vishak V T | Commerce | E-Commerce in India and the impact of covid-19 |
| 13 | Vidya V J | Commerce | A study on job satisfaction of employees in SIDCO |
| 14 | Anu M | Commerce | Role of additional skill acquisition programme on employability of graduates in Kerala |
| 15 | Soumya S | Commerce | A study on work life balance of women employees in IT sector with special reference to Trivandrum Technopark |

| 2020-2021 | | | |
|-----------|-----------------------|----------|---|
| 16 | Hari Priya. R. J Nair | English | Dismantling Double Oppression InJinaamucha |
| 2019-2020 | | | |
| 17 | D Melbha | Commerce | New trends for small businesses |
| 18 | Shalilal C H | Commerce | Problems faced by iron scarp traders in Kerala State- A study |
| 2018-2019 | | | |
| 19 | Soumya S | Commerce | A study on Stress Management among female doctors |
| 20 | Anu M | Commerce | Job satisfaction of employees with special reference to Kerala Automobiles Ltd Aralumoodu |
| 21 | Dileep Kumar | Commerce | A study on the role of rubber board to improve economic development in present scenario |
| 22 | Vidya V J | Commerce | A study on the organizational commitment of Kerala automobiles in Aralumoodu |

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|----|----------|---------|---|
| 23 | Anju L S | Physics | DFT Calculations of Molecular Structure Spectroscopic Characterization and NBO Analysis of Propan-2-YL N (@(PhenoxyPhensoxy)F. ThylCarbamite |
| 24 | Anju L S | Physics | Density Functional Theory and Vibrational Spectroscopic Study on Bioactive Compound(6Methyl,2-methyl Sulfanylpvrimidin 4yl)N,N-Dimethyl Carbamite |

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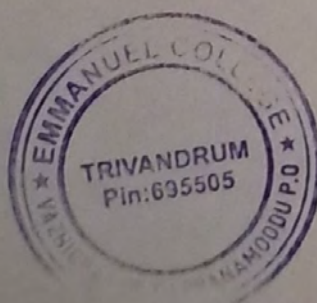
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TABLE OF CONTENTS

| Sl. No. | Title of the Paper | Page No. |
|---------|--|----------|
| 1. | Signature Verification System Ashigha J and Dr. J. R. Jeba | 1 |
| 2. | A review on tele- medicine using data mining Techniques Divya R Unnithan and Dr. J. R. Jeba | 8 |
| 3. | Deep learning and neural networks: a review Dr. S. V. Divya, G. Hemavarshini, P. Lovelin Preethi, S. Sowmiya and R. Shanmuga Priya | 21 |
| 4. | A study on data mining algorithms used for analyzing patterns in diabetic type 2 data Neethu John and Dr. J.R Jeba | 35 |
| 5. | A Survey on various Secure Data Sharing Methods in Multi-User Cloud Using Key Aggregation and Block Chain based Approaches a frame work Badugu Ranjith Kumar and Dr. M. Victor Jose | 43 |
| 6. | A review on intelligent deep learning based product recommendation system using sentiment analysis Roshy Thomas and Dr. J. R. Jeba | 52 |
| 7. | A study of Detection of Early Diabetic Retinopathy using Deep Learning Concepts Sabeena A S and Dr. M. K. Jeya Kumar | 66 |
| 8. | A review on design and development of risk assessment models for software development projects using meta heuristic approach Selvin Jose G and Dr. J. Charles | 73 |
| 9. | Highly accurate feature selection and data classification using extreme learning machine Shini Lawrance and J.R. Jeba | 92 |
| 10. | Exploring Classification Techniques in Data Mining: A Comprehensive Review Shyni. A. L and Dr. J. R. Jeba | 102 |
| 11. | Arduino – based ultrasonic radar system via IOT Soni. T. Thomas and Ms. M. Tharanya | 110 |
| 12. | A detailed review on recend trends in machine learning and deep learning approaches for signature verification Veena V G and Dr. J. R. Jeba | 118 |
| 13. | Application of Semantic Databases in Dravidian Languages Dr. J. R. Jeba | 131 |

A REVIEW ON DESIGN AND DEVELOPMENT OF RISK ASSESSMENT MODELS FOR SOFTWARE DEVELOPMENT PROJECTS USING META HEURISTIC APPROACH

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Abstract

In general, software companies utilize a variety of process models to create their software products. Software initiatives have always been fraught with uncertainty and risk. One of the most important artifacts that could have an unfavourable effect on the project's success is risk. Project management includes software risk management, which imposes a set of procedures, instruments, and techniques to efficiently control the risks. By the end of 2000, risk-based inspection and maintenance approaches had gradually merged and had become widespread. The efficiency, dependability, and safety of every software project can currently be improved with the help of risk-based inspection and maintenance. The present study focuses on the comparison between different approaches for design and development of risk assessment model for software projects using metaheuristic approach. It offers a thorough examination of contemporary efforts to create risk assessment techniques that reduce errors, a topic of numerous recent research projects utilizing metaheuristic algorithms. In software engineering, heuristic methods like particle swarm optimization, genetic algorithms, tabu search and Binary Cuckoo Search algorithm have wide applications. Despite decades of historical progress in metaheuristic design and application, significant challenges still exist concerning the comprehension, algorithmic integrity, and performance verifiability of new technical developments.

Introduction

In general, software companies utilize a variety of process models to create their software products. The decision is mostly based on the needs of the client and the specifics of the project. In contrast to earlier adoption of traditional development processes by organizations, such as waterfall or incremental models, agile approaches are now commonly used by organizations. The key tenets of the agile approach, such as accommodating demand changes, frequent outputs, ongoing communication, and lightweight, are what mostly account for its success. Byproducts of a project known as artifacts are created during the software development process. Various artifacts are used at various phases in the development of software.

One of the most crucial factors that could hinder the progress of a project is risk. The performance of the project will be more significantly impacted by risks, which are generally referred to as uncertainties or threats. As a component of project management, software risk management imposes several procedures, instruments, and techniques for successfully managing risks.

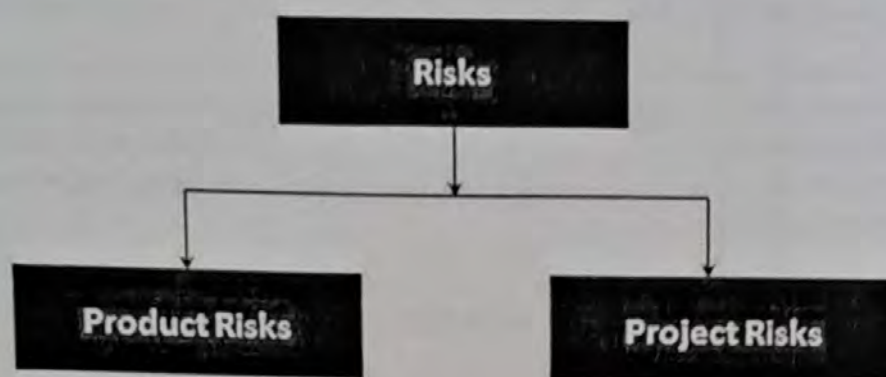


Fig. 1: Software
Project Risks [60]

Lack of effective risk management is a major factor in project failure. Therefore, risk management techniques should be incorporated into the development process of every project. Risk prioritization is regarded as the most crucial and time-consuming task that should be carried out in the initial phases of the project to decrease the impact. Risk management is a process that includes risk identification, categorization, prioritization, and planning. An effective risk prioritization technique should be used in every software project to control the risks associated with software development. Organizations can assist in prompt decision-making and the implementation of suitable escalation measures by using prioritizing strategies. Due to the significance and advantages, academics, researchers, and business professionals have recently collaborated to examine the applicability of several algorithms for the priority problem.

One of the primary methods for problem resolution through trial and error is the heuristic or metaheuristic approach. "To find" or "search" heuristically implies using trial and error. In software engineering, heuristic methods like Binary Cuckoo Search algorithm, particle swarm optimization, tabu search and genetic algorithms have wide applications. To address challenging optimization issues, heuristic approaches have proven to be an effective tool since they combine "excellent" answers (quite adjacent to the globally ideal) with reasonable expense and duration. The most well-liked methods for investigating optimization are known as meta-heuristics, and they will change the way algorithms are used in the future. The general technique used by meta-heuristic algorithms to determine the best outcome is depicted in Figure 2. It is difficult to build and develop heuristics because they are typically dependent on certain aspects of the current challenge. Metaheuristics seem to be a big advancement to address this problem [18]. They are problem-independent algorithms that might be modified to include the wisdom particular to the problem. Producing effective solutions is the aim and goal of employing a metaheuristic technique. Table 1 provides a comparison chart between traditional, heuristics and metaheuristics approaches.

Table 1: Comparison chart of approaches [42]

| S. No. | Meta-Heuristics | Heuristics | Traditional |
|--------|--|--|--|
| 1 | Solve combinatorial optimization problems | Convergence is guaranteed | Too slow in finding a solution in a complex search space |
| 2 | Nearly optimal solutions | Optimality may be achieved but cannot proved | Large running time |
| 3 | Strategy that guides and modifies other heuristics to produce solutions for local optimality | Weak paths in case of heuristics | The complexity issues are highly associated with the higher degree of directly proportional cost factor that can be reduced in the future work |
| 4 | Robust search method requires little search knowledge | Not reliable search methods | Compromise and less effectiveness in the performance which is a major issue while working for the high-performance application domains |
| 5. | A realistic model | A lesser realistic model | A nonrealistic model |

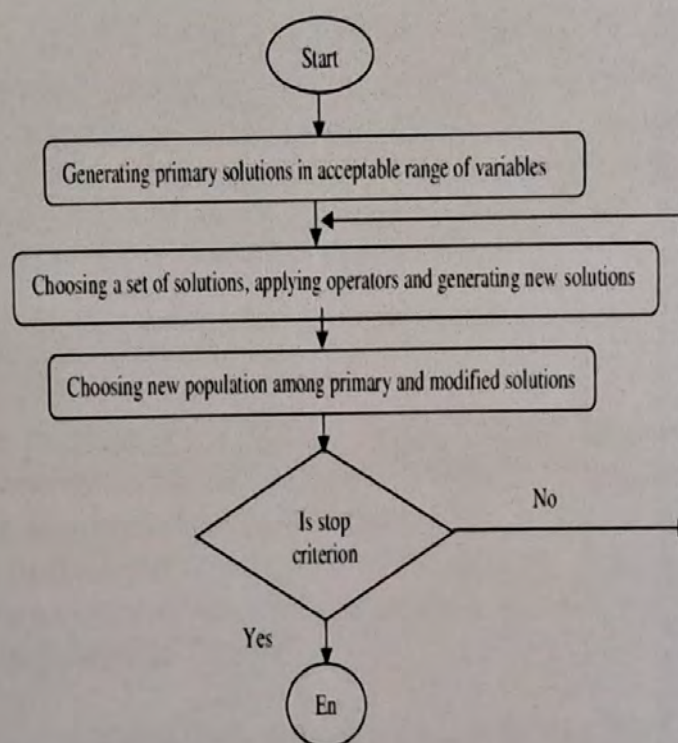


Fig. 2: The general method used by meta-heuristic algorithms to determine the best outcome. [43]

The foundation of meta-heuristic models is often the idea that a methodology is selected and developed in agreement with the minimization of some objective function. As a result, randomization offers a beneficial means of switching from local to global search.

Using a MOF can be beneficial in conjunction with the benefits of utilizing metaheuristics that have already been put in place for testing and reuse. A MOF (metaheuristic optimization frameworks) is described as "a collection of software tools that provide an appropriate and reusable implementation of a range of meta-heuristics, in addition to the fundamental mechanisms to expedite the implementation of its corresponding subordinate heuristics" (potentially containing operators relevant to each

approach and solution encodings). A conceptual diagram of these components and their connections is shown in Figure 3, where MOFs and their constituent parts are highlighted.

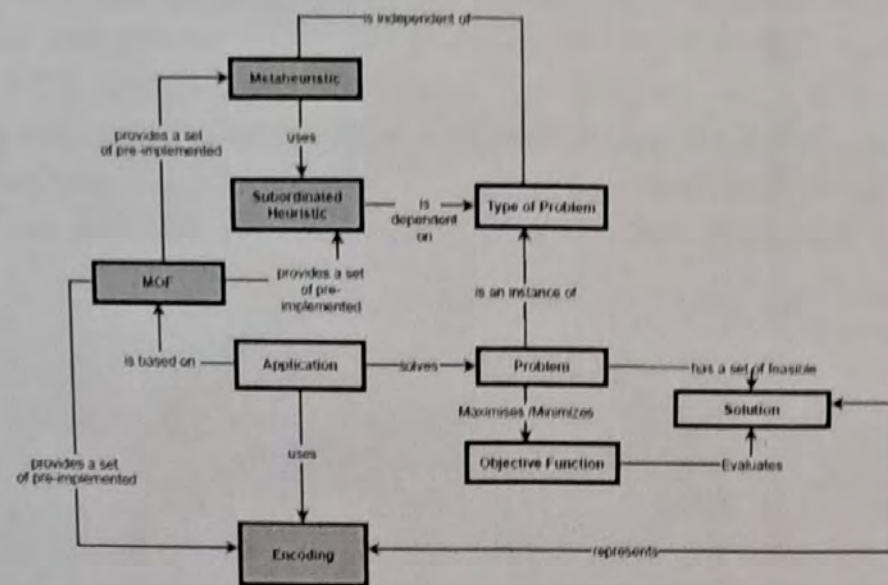


Fig. 3: MOF's Conceptual Map (Parejo et.al., 2012)

In particular, MOFs offer features to make it easier to adapt a bundle of implemented approaches to the particular issue at present as well as extra tools to support the entire process of solving optimization problems. Additionally, MOFs typically offer mechanisms to keep an eye on the optimization processes, supporting tools to pick the right values for technique parameters, and ways to pinpoint the reasons why certain approaches fail to find the best solutions.

Literature Review

Large-scale projects have always been fraught with uncertainty and risk. A myriad of hazards and uncertainties in massive construction initiatives have resulted in substantial mishaps in achieving the objectives of the projects, even though practitioners have used various project risk management guidelines. Keil et. al. [27] represented a collection of software risk attributes alongside data regarding actual projects and related aspects which are indicated in Table 2.

Table 2: Software Risk Attributes [27]

| RISK ATTRIBUTE | PERSPECTIVE |
|---------------------------|---|
| Product size | Risks associated with the overall size of the software to be built or modified. |
| Business impact | Risks associated with constraints imposed by management or the marketplace. |
| Customer characteristics | Risks associated with the sophistication of the customer and the developer's ability to communicate with the customer in a timely manner. |
| Process definition | Risks associated with the degree to which the software process has been defined and is followed by the development organization. |
| Development environment | Risks associated with the availability and quality of the tools to be used to build the product. |
| Technology to be built | Risks associated with the complexity of the system to be built and the "newness" of the technology that is packaged by the system. |
| Staff size and experience | Risks associated with the overall technical and project experience of the software engineers who will do the work. |

Many hybrid optimization issues are solved using meta-heuristic techniques. The optimization and effectiveness of the improved solutions are one of the fundamental uses of these algorithms. "A continuous process that regulates the use of one or more inferior heuristics which can range from local search to a method that effectively uses random answers and provide excellent answers for a problem," is how Glover and Kochenberger [20] define metaheuristics. The concept of Metaheuristic problem solution having two separate layers is established in this definition, with the heuristic level being based on the aforementioned level but expressed as a process that is independent of the problem, the metaheuristic level is by definition very dependent on the problem.

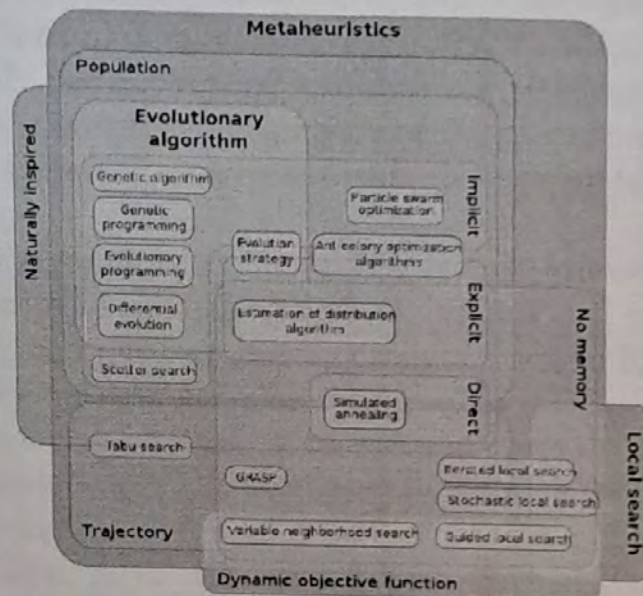


Fig. 4: Overall block of metaheuristic approach [11]

The metaheuristics algorithms can be categorized in diverse ways, comprising trajectory-based and population-based. Particle swarm optimization (PSO), which employs numerous agents, and genetic algorithms, for instance, are both population-based since they use a set of strings [28]. Instead, simulated annealing employs a single agent or solution that makes piecewise progress through the search area [34]. Figure 4 represents the Euler diagram of the different classifications of metaheuristics. The categorization of meta-heuristic algorithms is depicted in Figure 5. Nevertheless, determining which kind of technique is more efficient in the right circumstances is challenging.

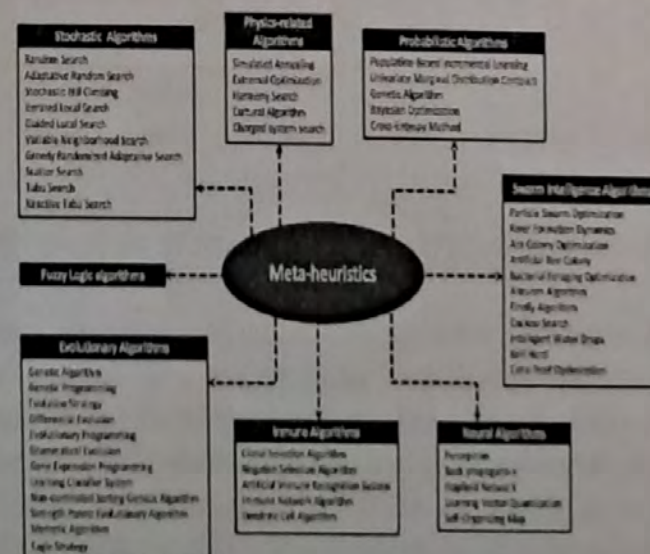


Fig. 5: General categorization of metaheuristics based on their operational procedure [38]

Two key elements of the meta-heuristic algorithms are Tabu's definitions of intensification and diversification [19, 6]. A wide range of solutions must be created in order to create a productive and successful algorithm, and the search should be strengthened in the vicinity of an ideal or nearly optimal solution. The entire search area must therefore be accessible. The creation of varied solutions by diversification enables a global examination of the search area. But, intensification simply focuses solely on the search in a nearby area by taking advantage of the knowledge that a viable answer has just been discovered there [19, 6, 62, 14]. If the intensification is excessively strong, only a small section of the solution space may be taken into account, which increases the possibility of becoming trapped in a local optimum. In the interim, solutions hop about some theoretically ideal solutions, which causes the algorithms to converge very slowly, if the diversification is too strong. Typically, the solutions begin with random options and eventually cut down their variety while simultaneously increasing their intensification. Hence a suitable maintenance of diversification and intensification in check is needed to create an efficient meta-heuristic algorithm [63].

Metaheuristic algorithms are those that explore indecisively through problem areas for almost optimal solutions. These algorithms are particularly effective at resolving challenging and intricate issues. Using a favorite function and algorithmic approaches to identify the cost estimation values that result in the greatest favor is a common practice that can be utilized in software project estimation. Algorithmic approaches won't be able to produce accurate results as the problem's dimensions grow large due to a growth in the number of its elements and variables [37]. The majority of meta-heuristic algorithms have only recently been created (i.e. after 2000). Figure 6 illustrates how these algorithms have evolved and grown over time.

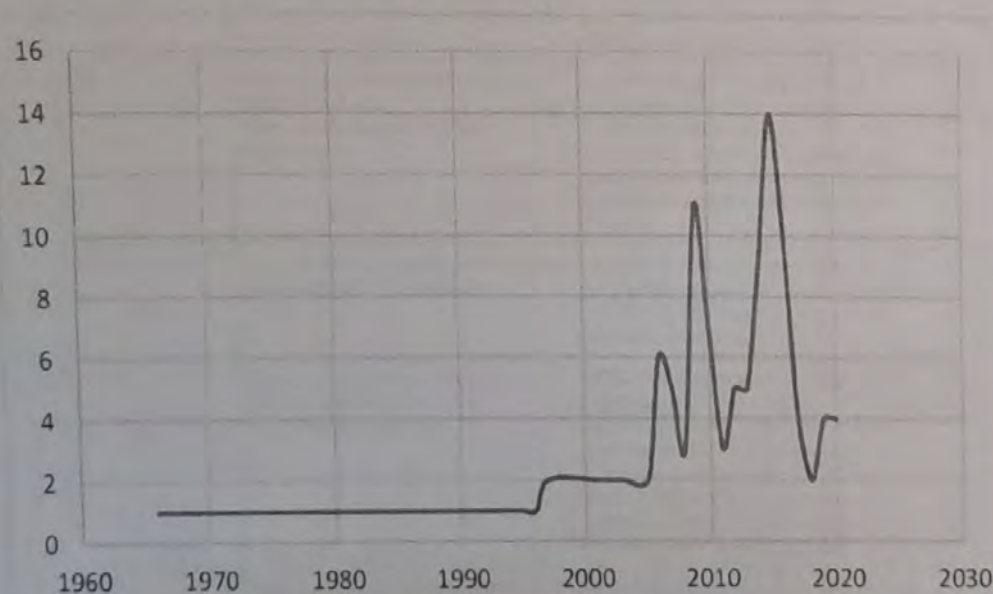


Fig. 6: Evolution of meta-heuristic algorithms over time. [43]

The seven geological areas that the second phase will travel through in the Emamzade Hashem tunnel are taken into consideration in Mickaeil et al.'s [40] depiction of the impact of the field research and usage of failure mechanisms and impact analysis findings. The area of tunnel instability, groundwater inputs, and squeezing are applied in risk evaluation. As analytical criteria in these seven areas. Meta-heuristic methods, like particle swarm optimization based on stochastic optimization techniques and Fuzzy C-means clustering approach as optimization techniques, are used to

determine how hazards are clustered. Iran's northern region is home to the Emamzade Hashem tunnel. As one among the longest road tunnelling projects in Iran, the Emamzade Hashem tunnel on the Haraz Road, was studied in its second phase. The study's findings confirm the accuracy of softcomputing results.

In order to do a comparison analysis, Khan et.al. [33] chose the following nature-inspired meta-heuristics algorithms namely, (a) Group behavior of animals, and birds (GWO,CO, BAT), (b) Natural biological system (GA, SB), (c) Theory of evolution (PSO), and (d) Insects activities (ACO). In the literature, similar metaheuristic algorithms are also employed to address complicated issues, particularly in the fields of science and engineering [12, 55]. The shortcomings and advantages of various algorithms are shown in Table 3.

Table 3: Metaheuristic algorithms differentiated based on their ups and downs.[33]

| ALGORITHM | STRENGTHS | LIMITATIONS |
|-----------|---|---|
| GWO | Implementation simplicity. Excellent exploitation strategy. Less control parameters. Strong global optimization. | GWO faces problems including poor exploration capability, falls into local optimum, lack of population diversity and slow convergence. |
| SB | It explores several areas of the search space at the same time and thereby can break away from local optimal and achieve the global optimum. The number of computing agents varies from beginning to end. SB algorithm discards half the weak agents and duplicates good agents at each iteration. Re-initialization strategy in case of trapping in local optimum. | Precision depends on the initial parameters and maximum iteration number. |
| CS | Global search ability of CS is strong. CS can find a way to converge to the true global optimum. | Local search ability is not strong contributing to slow convergence, and limited convergence precision. |
| GA | Finding a global best solution to many problems. Easy combining with other algorithms. | Genetic Algorithm (GA) faces problems including complex operators usage for selection and crossover, premature convergence rate, taking long run-time, trapping into local optima, and weak local search. |
| ACO | Best for solving graph problems and combinatorial optimization. | ACO algorithm faces problems including stagnation, local optimum problem, slow convergence, and lengthy search time. |
| PSO | Better global search scheme. Computational efficiency. Easy implementation. | PSO faces problems including slow convergence rate, parameter selection problem, easily trapped in a local optimum due to poor exploration, imbalance relationship between exploitation (local search) and exploration(global search), and lose a population diversity quickly. |
| BAT | Non-sensitive to initial values. Better convergence speed. Easy to understand and implement. | BAT faces problems including high probability of being trapped in local optima as it is a local search algorithm, and imbalance relationship between exploration and exploitation. |

A technique to determine software costs and development work namely at an early stage istermed as Software development effort estimation (SDEE). SDEE is regarded as a crucial activity for overseeing project budget,schedule, and efficiency as well as for the software development life cycle. As a result,proper estimating is crucial to the success of projects and to lowering risks. SDEE hasdrawn a lot of recognition from scholars recently and has become a problem for the software business. Many academics and industry professionals have suggested machine learning as well as

statistical-based approaches for estimating software endeavour over the past 20 years. A metaheuristic optimization technique suggested by Ghatasheh et. al. [17] for optimising the parameters of three COCOMO-based models is the Firefly Algorithm. The fundamental COCOMO (Constructive Cost Model) model and two additional models that have been suggested in the literature as expansions of the fundamental COCOMO model are among these models. Utilizing several assessment indicators, the constructed estimating models are assessed. The Firefly Algorithm outperformed other metaheuristic optimization algorithms such as Particle Swarm Optimization, Genetic Algorithms and in experimental findings for great accuracy and substantial error reduction.

SDEE is a challenging undertaking since at the time of software effort estimating, the properties of the programme that needs to be produced are unknown. But because it eventually contributes to the success of the project, this is crucial for companies that produce software. In their non-algorithmic technique for SDEE, Kaushik & Singal [25] suggest a hybrid model comprising a wavelet neural network (WNN) and a metaheuristic algorithm. The bat algorithm and the firefly algorithm are two examples of metaheuristic algorithms. It is being looked into if WNN is effective when each of these metaheuristic algorithms is integrated. WNN uses the Morlet and Gaussian wavelet variations as its functions of activation. On the PROMISE SDEE repository, the recommended methodologies are empirically assessed. It was found that combining WNN metaheuristic algorithms perform better than conventional WNN, which lacks optimization with any metaheuristic technique, in terms of software effort prediction. The outcomes are also statistically confirmed using an IBM SPSS tool and a non-parametric statistical test.

Failure mode effects analysis (FMEA) and ISO 31000-based hybrid strategy has been proposed in the study by Rahimi et. al. [49] in order to effectively identify, analyse, and control the issue. Mixed-integer programming (MIP) model was suggested to choose the project's most effective risk response methods because this hybrid technique does not provide a suitable risk response. In this study, a model that takes into account different benchmarks in the goal function and optimises them based on the described projects was established. It is built on project risk response synergy. In order to look into the model provided in this paper empirically, a sizable tall apartment structure was reviewed as a case study. Project objectives (such as price, duration, and efficiency) were employed as three assessment norms in the optimization model's objective function. A large-scale project's choice of risk response is a challenging issue. Due to the nondeterministic polynomial time (NP)-hardness of the suggested model, two metaheuristic algorithms—the self-adaptive imperialist competitive algorithm and the invasive weed optimization—were developed to solve the proposed MIP model. The findings demonstrated that this model was an effective tool for project managers to anticipate suitable solutions to project risks prior to project implementation to maximise the anticipated effects of project goals.

In their study on traversing user functional needs, Swathine & Sumathi [54] used an adaptive optimization meta-heuristic and optimal priority scheduling. Defects, design, test artifacts, code inspection, functional requirements and system construction are taken into account and fall within the management phase with the help of the traceability concept. To illustrate link and traceability kinds, it is also crucial to evaluate large industrial companies. The link between requirements, their source, and system

designs the subject of traceability. The user may follow every modification made to the requirements and trace their origins thanks to bi-directional traceability, which deals with multiple connected needs. By adding uncertainties and hazards, Chakraborty et al.'s [8] work gives managers and decision-makers the pertinent information they need to plan projects (including scheduling and budgeting). Their post offers an enhanced version of a particular iteration of the integrated definition standard as a business procedure to help readers perceive the risk. They used a self-developed heuristic technique called the enhanced move-based local search heuristic to solve a real-world case study to demonstrate the viability of the suggested SRAF under various dynamic settings. According to Amaral & Elias [1], metaheuristics are utilised to address optimization issues and present a set of recommendations with the maximum client satisfaction and the reduced costs of development. Apart from their efforts, the majority of current plans ignore software risks, a crucial factor that can have a significant impact on project costs and stakeholder satisfaction. In this vein, they put up a multi-objective, risk-based solution to the NRP problem, which incorporates a risk analysis to calculate the effect of software risks on stakeholder satisfaction and development costs. The integrated project scheduling and bi-objective problem is presented in a novel way by Namazian et al. [44]. By determining the anticipated cost of a time schedule delay, the first goal is to reduce the overall risk, and the second goal is to maximise the resultant profit. An objective function built on Bayesian networks is suggested to assess the expected aggregated effects of hazards. In the extent that mathematical models of the coupled problem of project selection and scheduling are used, projects are chosen and scheduled without taking into account the risk network of the projects, which indicates the individual and interaction effects of hazards imposing the duration of the activities.

The study by Rajani & Singh [48] assessed the various aspects of the a model for computation of parameter based on system reliability. In their article, they discussed using different optimization algorithms to estimate the parameters of software reliability models. The proposed parameter estimation model's performance was also compared in the research to that of other methods like ABC, GA, and PSO. To investigate how to best optimise the network parameters and forecast the size of a software test crew, a promising metaheuristic method and an artificial neural network were merged [24]. This integration aimed to improve the accuracy of network prediction. Two datasets have been used to examine the suggested technique. These datasets, which were taken from the industrial repository, have various properties. The compared outcomes demonstrated the proposed method's advantage over the alternative methods.

A comprehensive review of the strategies for meta-heuristics as well as machine learning that are currently adopted by the ever-growing field of IoT (Internet of Things) based smart applications were discussed by Saha et al. [50] in which they examined machine learning and meta-heuristics techniques in accordance with various representative IoT application sectors (like smart cities, smart agriculture, smart waste management, smart homes, etc.), and mentioned the newly developed learning at the edge model. Boehm [5] built up the COCOMO, normally called COCOMO 81. It is an algorithmic programming cost estimation demonstrate. It utilizes a fundamental relapse recipe with parameters got from recorded task information, and attributes of current and future ventures. COCOMO comprises a progressive system of progressively point by point and exact structures. Fundamental COCOMO at the main level with constrained precision is useful for fast, early, unpleasant request of size evaluations of

programming costs. It needs factors that record for contrast in venture traits (Cost Drivers). The Intermediate COCOMO considers the Cost Drivers, while the Detailed COCOMO too represents the impact of individual undertaking stages. A fervent COCOMO II display is proposed for programming cost assessment by Kazemifard et. al. [26] as evidence. In COCOMO II, just the venture qualities are taken into account and no consideration is given to the qualities of the coworkers. It is advised to use the Fluffy Emotional COCOMO II Software Cost Estimation (FECSCE) layout, wherein other than venture attributes, it thinks about the relational abilities, identity, temperament and capacities of group individuals. Multi - Agent System (MAS) is utilized to reenact group correspondences. Parametric cost estimation models request constant adjustment and change to guarantee more exact programming appraisals to mirror the adjustments in the programming improvement settings. Neighborhood alignment is visited as a subset of model parameters and is regularly tuned to demonstrate how simple its ease of use and exactness.

The Software Cost Estimation (SCE) in the process of developing software is one of the most significant effective aspects that software businesses deal with. One of the topics that has received recent consideration in numerous studies is SCE. The application of algorithmic and artificial intelligence (AI) models allows for the accurate estimate of effort and cost aspects in software development. In 1981, Boehm employed the COCOMO model, an algorithmic approach, for SCE. The computational models' poor accuracy and unreliable structural design increased the hazards associated with software development. The cost of the project must therefore be estimated annually and in comparison to other options. Recently, software disciplines and SCE have made great advancements in the development of Meta-Heuristic algorithms. Meta-heuristics (MH), Genetic Algorithms (GA) and Ant Colony Optimization (ACO) are particularly successful at optimizing algorithmic models and key elements in cost estimation. They handle difficulties in accordance with the optimization of the problems. A hybrid model based on GA and ACO was presented for the purpose of optimizing the weight of the potent components in NASA dataset software projects. The experiments' findings demonstrate that the suggested model is more effective than the COCOMO model in estimating the cost of software projects and has smaller Magnitude of Relative Errors (MRE) compared to the COCOMO model [37].

Gharehchopogh [16] utilised Artificial Neural Networks (ANNs) for the estimate of software projects. In this study, ANNs were used to test 11 of the 60 projects from the NASA dataset [39]. They were contrasted with the COCOMO model, and it was discovered that in many instances, the COCOMO model inaccuracy was greater than ANNs. The findings demonstrate that ANNs outperformed the COCOMO model in more than 90% of the cases. Therefore, it is conceivable to draw the conclusion that AI-based methods complement algorithmic methods well and provide a good substitute for them. FP, COCOMO, SLIM, and ESTIMACS patterns have all been researched by KEMERE [29] for a precise analysis of cost estimation in software projects. The findings of his research show that all four models have substantial error percentages. Therefore, it is fair to conclude that the estimating models are quite efficient in terms of effort and cost accuracy as well as project completion within a specified timeframe. The GA was used by Sheta [51] to determine the COCOMO model parameters' optimal value. Finding the optimal value for the parameters is one of the issues with the COCOMO model. The projects of the NASA dataset are used in this study to demonstrate the suggested model's improved efficacy. Additionally, 18 projects are

used to study the two DLOC and ME variables, which are highly useful in cost estimation. According to the findings, it is feasible to conclude that utilising GA, improved estimation is attainable. Hakkarainen [21] used ANNs to study the SCE. The analysis of the data reveals that ANNs are excellent at estimating the expenses of software projects. Other researchers [36] have investigated Rule Induction, Case-Based Reasoning (CBR), ANNs, and three machine learning (ML)-based techniques (RI). 77 projects were used to study the software project cost assessments. The findings of this investigation demonstrate that ANNs are much precise than any other approaches.

Using GA, Singh and Misra [52] tested SEE. According to this method, the COCOMO model performs poorly in effort estimation when compared to the other models. Therefore, efforts are made to improve the parameter values in the suggested model and increase the precision of the effort estimation. The experiment results in this study were obtained using NASA database software packages. The suggested model outperformed the COCOMO model with respect to estimate, resulting in a Mean Magnitude of Relative Error (MMRE) value of 0.2298 percent. Researchers [67] examined the cost estimation of software projects using soft computing approaches. For more accurate cost estimation, they used Particle Swarm Optimization and fuzzy logic (FL) in their research. For their experiment outcomes, they employed 30 NASA dataset projects. The findings indicate that the suggested model has produced MMRE up to 7.512 percent more than the other models and has improved estimation. FL has been used by researchers [41] to estimate software projects. They described SCE as one of the difficult and crucial steps in software development. Their suggested approach demonstrates how FL is a good model for development of software. 14 projects from the KEMERE projects set were used. They found that PRED (N) as well as Mean Absolute Relative Error (MARE) and excelled in the suggested model than algorithmic techniques. The cost function in software projects has a lot of variables. Kilo Line of Code and Line of code (LOC) are some software process variables that have a direct impact on cost estimation (KLOC). The method known as Multi-Objective Particle Swarm Optimization (MOPSO) has been implemented by researchers [46] for SCE. They used the MOPSO algorithm to optimise the COCOMO model's parameters while minimising MARE. The suggested model was put to the test on both minor and major projects in order to further study the findings. The trials show that MARE is 18.1548 percent for large projects in the COCOMO model and 20.9717 percent in the suggested model, compared to 16.1306 percent for small projects in the COCOMO model and 9.0143 percent in the proposed model. Experiment findings demonstrate the suggested model's superior estimating performance. Data mining methods and algorithmic models have been employed by Khalifelu and Gharehchopogh [30] to analyse and assess the SCE. The precise calculation of software costs is considered as an important software development topics. The COCOMO model has been examined using data harvesting strategies. ANNs, Support Vector Regression (SVR), K-Nearest Neighbors and Linear Regression (LR) are the four data mining techniques used by SCE (KNN). It is conceivable to determine the dependence of the efficient variables in SCE using the LR model. The LR model determines how the data relate to independent and dependent variables. In order to produce more precise cost estimation, ANNs train and test the data. The SVR model is utilised to optimise the SCE's practical factors. KNN is considered a data mining method utilized to categorise data in a collection that has already been categorised and has certain features. The weight of the effective adjectives in SCE is calculated using KNN. The experiments' findings indicate that the SVR model holds less MRE than the others. A novel regression-based model for software

development costs and effort has been put out by researchers [31]. On NASA projects, the proposed model's effectiveness is assessed. The outcomes of the studies demonstrate that the regression model has a lower MRE and performs the COCOMO model calibration more successfully. Data mining methods have been examined by researchers [32] in the SCE. They have researched Multiple LR (MLR), Bayesian Networks (BN), ANNs, FL, NeuroFuzzy (NF), LR, and Fuzzy Decision Trees (FDTs). In BN and MLR models, estimate is done by looking at the dependent variables. Utilizing ANNs, any input factor is valued, determined via the submerged layers, and in the output layer the optimum value is attained. Any estimating factor is a fuzzy member in FDTs, FL, and NF models. It is certain that the Artificial intelligence methods are much precise than algorithmic models because SCE has developed utilising the AI models. AI models are able to optimise the efficient factors in estimating and reduce the effort and budget of projects of software since they are repeated continually and trained on data regularly.

Previous research on estimation of COCOMO software effort, the three modes of Embedded Mode, Semi Detached Mode and Organic Mode were used as the cluster. After that, Genetic algorithms, Differential evolution algorithm [23], Intelligent grey theory [3] and Neural networks [22] were combined and applied to software effort estimation and computation of parameter optimization. Since the group was clustered using K-Means, the results of the clustering in this study will differ from how the cluster of three modes was classified by the COCOMO model's law expert. Project clustering is followed by parameter optimization utilising particle swarm optimization techniques, application of the test project, and calculation of the predicted effort and computed mean of MRE (MMRE). In comparison to differential evolution algorithm and genetic algorithms, particle swarm optimization algorithm [28] simulates the feeding and social behaviour of birds; each element has a memory and is able to recall how to locate the best solution after discovering the best solution; Each particle seeks for the optimal spatial solution as a result of social behaviour; PSO lacks complicated mating, mutation, natural selection, and other processes. In order to analyse the software development effort, clustering algorithms in conjunction with the best algorithm can be used in software engineering.

The BAT algorithm is probably more effective than Harmony Search, particle swarm optimization, and genetic algorithms. The primary factor is that BA makes use of a strong combination of these algorithms' key benefits. Additionally, with the appropriate simplifications, Harmony search and PSO are special examples of the BAT algorithm. Despite being more difficult to develop than many other metaheuristic algorithms, it does demonstrate that the method makes use of a combination of benefits of other effective algorithms and motivational elements based on the echolocation behavior of bats, which is unbiased. Loudness and pulse rate, which are indicators of how well a location or solution matches the overall best solution, are used to control or characterize the quality of a solution, and it determines whether or not the proposed solution is accepted [65]. By varying pulse emission rates, loudness, and frequencies, new solutions can be produced. A critical examination of optimization methods including Firefly, Human Opinion Dynamics, MOPSO, Bee Colony Optimization, BAT, and has been provided by the authors. They also proposed the innovative notion of utilising BAT and HOD (Human Opinion Dynamics) for the same [47].

PSO was utilized by Benala et. al. [56] to tutor the PSO-FLANN functional link artificial neural network, which outperforms FLANN in terms of effort prediction. The

author maps the input data into some other form using Chebyshev polynomials. Datasets from Maxwell, NASA 93, and Cocomo 81 were used in the evaluation. The MOPSO algorithm was suggested by Rao et. al. [53] for the multi-objective optimization problem. Since MOPSO operated on a multi-objective problem, MARE (mean absolute relative error) was lowered and efficiency was increased, yielding superior results than COCOMO for effort estimation. The findings of the author's two tests are accurate for minor projects under 50 KDLOC but are only occasionally accurate for large projects. Analogy Based Estimate Approach was employed by Bardsiri et. al. [57] for the estimation process when PSO was also applied. The suggested approach entails developing and evaluating an estimating model during the testing and training phases. The findings demonstrate that the PSO and ABE combination produces superior outcomes and enhances the functionality of pre-existing models. When results from the proposed technique are compared to intermediate COCOMO, they show that it reduces the mean absolute relative error to 0.1619. Dijazi et. al. [66] suggested a bee colony optimization strategy for effort estimate.

Genetic algorithm method was used by Sheta et. al. [51] to estimate COCOMO model parameters. The modified COCOMO model and the fitness function VAF (Variance Accounted For) are taken into consideration while evaluating the generated GA-based model. The generated model was performed on software projects for NASA and has a good estimation capacity, but it can be improved by adding a more sophisticated function to make the estimated effort more precise. Aljahdali et. al. [2], the authors of this research, suggested using the COCOMO-DE model for the estimate as an alternative Differential Evolution (DE) technique. Comparing the generated model to others like Halstead, Doty, and Walston-Felix, it was able to provide good estimates. In a systematic review, the authors Magne et. al. [35] found 304 cost-estimating papers in 76 journals and categorized them based on research methodology, estimation methodology, study setting, research topic, and data collection. Chelouah et. al. [9] devised and tested a heuristic based on ant colony optimization and an evolutionary algorithm modified for multi-objective issues. To hasten the research study's convergence and lower the cost associated with the evaluation process, it was hybridized using a tabu search and a greedy algorithm. The results of the studies showed that it is possible to present the decision maker with fewer options, which he can more properly assess in order to determine on the basis of technical, economic, and financial factors.

In order to choose the metaheuristic that performs the best for the given situation, MOFs support the evaluation and comparison of many metaheuristics [45]. Using a comparison framework can help you choose the MOF that will work best in a given situation. However, framework comparisons in the literature are either casual assessments on performance-based or using author criteria [61]. Over six features, Gagné and Parizeau compare MOFs that facilitate evolutionary algorithms. Voß [59] offers a helpful description of several software libraries, but there isn't a side-by-side comparison. The perspectives and comparisons provided by those research, however, are constrained to a more condensed set of MOFs. As an alternative, several articles [7, 10] displaying a concrete MOF should include a section on relevant work that compares certain elements to those found in other MOFs. Table 4 depicts the ups and downs of using MOFs.

Table 4: Benefits and downsides of usingMOFs [45]

| ADVANTAGES | DRAWBACKS |
|---|---|
| Reduced implementation effort and ability to apply various techniques and variants with little additional effort | Steep learning curve |
| Additional tools to help problem solving (monitoring, reporting, parallel and distributed computing) | Advanced knowledge needed for adaptation and inflexibility to adapt to use some metaheuristics variants |
| Optimized and error-free implementation (except the extensions and adaption created by users or the undetected errors that could be present in the MOF) | Induced complexity (when debugging and testing) and additional dependencies |
| New users with little knowledge can use the framework not only as a tool for software application development environment but as a methodological aid | The choice of the right MOF may be an issue, since switching from one MOF to another has a high cost, they provide diverse features support and there are no comparative benchmarks in literature |

The majority of meta-heuristic methods are often appropriate for global optimization [64]. In recent years, metaheuristics have grown significantly [58], gained popularity, and been utilized to address a wide range of problems in numerous fields [20, 4]. For eachmetaheuristic approach and issue type, we have a collection of subordinate heuristics that describe how the metaheuristic is customized to the particular problem type. For instance, three supporting heuristics are used while applying simulated annealing (SA) [34], creating a first-pass solution to the issue, creating solutions that are similar to (neighboring) another option based on predetermined criteria, and evaluating solutions (objective function). These heuristics are heavily reliant on the specific problem at hand and how we encode solutions, but by using them, we may build a general iterative algorithm that has been used to successfully address a variety of situations. However, metaheuristics need to be used and tested when new things are taken intoaccount, which comes with costs and hazards.

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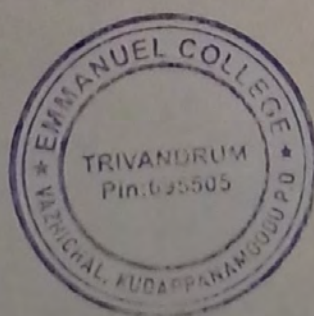
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TABLE OF CONTENTS

| Sl. No. | Title of the Paper | Page No. |
|---------|--|----------|
| 1. | Signature Verification System Ashigha J and Dr. J. R. Jeba | 1 |
| 2. | A review on tele- medicine using data mining Techniques Divya R Unnithan and Dr. J. R. Jeba | 8 |
| 3. | Deep learning and neural networks: a review Dr. S. V. Divya, G. Hemavarshini, P. Lovelin Preethi, S. Sowmiya and R. Shanmuga Priya | 21 |
| 4. | A study on data mining algorithms used for analyzing patterns in diabetic type 2 data Neethu John and Dr. J.R Jeba | 35 |
| 5. | A Survey on various Secure Data Sharing Methods in Multi-User Cloud Using Key Aggregation and Block Chain based Approaches a frame work Badugu Ranjith Kumar and Dr. M. Victor Jose | 43 |
| 6. | A review on intelligent deep learning based product recommendation system using sentiment analysis Roshy Thomas and Dr. J. R. Jeba | 52 |
| 7. | A study of Detection of Early Diabetic Retinopathy using Deep Learning Concepts Sabeena A S and Dr. M. K. Jeya Kumar | 66 |
| 8. | A review on design and development of risk assessment models for software development projects using meta heuristic approach Selvin Jose G and Dr. J. Charles | 73 |
| 9. | Highly accurate feature selection and data classification using extreme learning machine Shini Lawrance and J.R. Jeba | 92 |
| 10. | Exploring Classification Techniques in Data Mining: A Comprehensive Review Shyni. A. L and Dr. J. R. Jeba | 102 |
| 11. | Arduino – based ultrasonic radar system via IOT Soni. T. Thomas and Ms. M. Tharanya | 110 |
| 12. | A detailed review on recent trends in machine learning and deep learning approaches for signature verification Veena V G and Dr. J. R. Jeba | 118 |
| 13. | Application of Semantic Databases in Dravidian Languages Dr. J. R. Jeba | 131 |

EXPLORING CLASSIFICATION TECHNIQUES IN DATA MINING: A COMPREHENSIVE REVIEW

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Abstract

Classification is a fundamental task in data mining, which involves categorizing a set of data instances into predefined classes or categories. Classification techniques are useful to handle large amount of data. The goal of classification is to accurately predict the target class for each case in the data. Classification models predict categorical class labels. Constructing fast and accurate classifiers for large data sets is an important task in data mining and knowledge discovery. This paper provides an overview of various data mining classification techniques like Decision Tree, K-Nearest Neighbor, Support Vector Machines, Naive Bayesian Classifiers, and Neural Networks. The paper also discusses the factors that influence the choice of classification techniques, such as the nature of the data, the classification task, and the desired level of interpretability. Additionally, the paper highlights the importance of evaluating the performance of classification techniques using various metrics, such as accuracy, precision, recall, F1 score and ROC. Classification techniques are powerful tools for data mining, and they have applications in various fields such as finance, healthcare, and marketing. With the increasing availability of large datasets, the demand for effective and efficient classification techniques is expected to continue to grow.

Keywords: Classification, Data Mining, Decision Trees, K-Nearest Neighbor, Support Vector Machines, Naïve Bayesian Classifier, Random Forest, Neural Networks, Performance evaluation

Introduction

Data mining is the study of collecting, cleaning, processing, analyzing, and gaining useful insights from data. A wide variation exists in terms of the problem domains, applications, formulations, and data representations that are encountered in real applications. Therefore, "data mining" is a broad umbrella term that is used to describe these different aspects of data processing [1]. Data classification is a two-step process, consisting of a learning step (where a classification model is constructed) and a classification step (where the model is used to predict class labels for given data). In the first step the classification algorithms build the classifier. The classifier is built from the training set made up of database tuples and their associated class labels. Each tuple

that constitutes the training set is referred to as a category or class. These tuples can also be referred to as sample, object or data points. In the second step, the classifier is used for classification. Here the test data is used to estimate the accuracy of classification rules. The classification rules can be applied to the new data tuples if the accuracy is considered acceptable.

Because the class label of each training tuple is provided, this step is also known as supervised learning (i.e., the learning of the classifier is "supervised" in that it is told to which class each training tuple belongs). It contrasts with unsupervised learning (or clustering), in which the class label of each training tuple is not known, and the number or set of classes to be learned may not be known in advance [2].

Various Classification techniques

The goal of a classification algorithm is to accurately assign data instances to predefined classes or categories based on their attributes or characteristics. The algorithm learns from a set of labelled data, known as the training data, and then uses this knowledge to classify new, unlabelled data. The accuracy of a classification algorithm is measured by its ability to correctly classify new data instances. A good classification algorithm should have a high accuracy and be able to handle various types of data, including numerical, categorical, and textual data. There are several classification techniques used for classification and some of them are:

- ❖ Decision tree
- ❖ K Nearest Neighbor
- ❖ Support Vector Machines
- ❖ Naïve Bayesian Classifier
- ❖ Random Forest
- ❖ Neural Networks

1. Decision Tree

Decision tree classification is a popular technique in data mining that is based on a tree-like model of decisions and their possible consequences. It works by dividing the data into smaller subsets based on their attributes, and then making a series of decisions that classify the data into different categories. The decision tree model is constructed through a recursive process, where each internal node of the tree represents a decision based on a specific attribute, and each leaf node represents a class label. The construction process involves selecting the best attribute to split the data based on a measure of information gain or impurity reduction.

2. K Nearest Neighbor

K-Nearest Neighbors (KNN) is a popular classification algorithm used in data mining and machine learning. In this algorithm, the classification of an unknown data point is determined based on the classification of its k-nearest neighbors in the training set.

Here are the basic steps involved in the KNN classification technique:

Load the dataset: Load the dataset into memory.

Preprocessing the data: Preprocessing the data involves cleaning, normalizing and transforming the data to a format that can be used for analysis.

Splitting the data: The dataset is split into training and test sets, typically with a ratio of 70:30 or 80:20.

Determine the value of k: The value of k is determined based on the size of the dataset and the complexity of the problem. Typically, an odd value of k is chosen to avoid ties.

Calculating the distance: The distance between the test point and each training point is calculated using a distance function such as Euclidean distance.

Selecting the k-nearest neighbors: The k- nearest neighbors of the test point are selected based on the shortest distance.

Voting: The classification of the test point is determined by a majority vote of the k- nearest neighbors.

3. Naïve Bayesian Classifier

Naive Bayes is a classification technique in data mining that is based on Bayes' theorem. It is a probabilistic algorithm that makes predictions based on the probability of an event occurring given the evidence available. It is particularly useful when dealing with large datasets, as it can be trained quickly and is relatively insensitive to irrelevant features.

The "naive" in Naive Bayes refers to the assumption that all features are independent of each other, which may not always be the case in real-world applications. The Naive Bayes algorithm works by calculating the probability of a particular class given the values of the input features. This is done using Bayes' theorem, which states that the probability of a hypothesis (in this case, a particular class) given the evidence (the input features) is proportional to the probability of the evidence given the hypothesis, multiplied by the prior probability of the hypothesis.

Mathematically, this can be expressed as follows:

$$P(\text{class} \mid \text{features}) = P(\text{features} \mid \text{class}) * P(\text{class}) / P(\text{features})$$

where $P(\text{class} \mid \text{features})$ is the probability of the class given the input features, $P(\text{features} \mid \text{class})$ is the probability of the input features given the class, $P(\text{class})$ is the prior probability of the class, and $P(\text{features})$ is the probability of the input features.

To use Naive Bayes for classification, we first need to train the algorithm on a labeled dataset. This involves estimating the probabilities of each class and the conditional probabilities of each feature given each class. Once the model is trained, we can use it to make predictions on new, unlabeled data by calculating the probabilities of each class given the input features and selecting the class with the highest probability.

4. Support Vector Machines

Support Vector Machines (SVMs) are a popular and powerful classification technique in data mining. SVMs work by finding a hyperplane that separates the different classes in the data with the widest possible margin. The hyperplane is chosen to minimize the classification error on the training data while maximizing the margin between the classes.

SVMs are particularly useful when dealing with high-dimensional data and can handle both linear and nonlinear classification problems. They are also effective in dealing with noisy data and can generalize well to new data.

The basic idea of SVMs is to map the input data to a higher-dimensional space where it is easier to find a hyperplane that separates the different classes. This is done using a kernel function that measures the similarity between two data points in the input space. Common kernel functions include linear, polynomial, radial basis function (RBF), and sigmoid kernels.

5. Random Forest

Random Forest is a popular classification technique in data mining that uses an ensemble of decision trees to improve the accuracy and robustness of the classification model. The basic idea of Random Forest is to build multiple decision trees using different subsets of the training data and different subsets of the features, and then combine their predictions to make a final classification.

In Random Forest, each decision tree is built using a randomly selected subset of the training data and a randomly selected subset of the features. This helps to reduce overfitting and improve the generalization of the model. The final classification is then made by aggregating the predictions of all the trees in the forest, either through majority voting or weighted voting.

Neural networks are a popular and powerful classification technique in data mining that are inspired by the structure and function of the human brain. Neural networks consist of layers of interconnected nodes, or neurons, that are capable of learning complex patterns in the input data and making accurate predictions.

There are several types of neural networks used for classification, such as feed forward neural networks, recurrent neural networks, and convolutional neural networks. In feed forward neural networks, the input data is processed through one or more hidden layers of neurons to produce an output, which represents the predicted class label. In recurrent neural networks, the output of each neuron is fed back into the network, allowing it to capture temporal dependencies in sequential data. In convolutional neural networks, the input data is processed through multiple layers of convolutions and pooling operations to learn hierarchical features.

Evaluation metrics of various classification techniques in data mining

Evaluation metrics are used to assess the performance of classification techniques in data mining. The most commonly used evaluation metrics include:

Accuracy

Accuracy is a common metric used to evaluate the performance of classification techniques in data mining. It measures the proportion of correctly classified instances among all instances in the dataset, and is calculated using the following formula:

$$\text{Accuracy} = (\text{Number of correctly classified instances}) / (\text{Total number of instances})$$

For example, if we have a dataset with 100 instances, and a classification model correctly predicts 85 of them, then the accuracy of the model would be:

$$\text{Accuracy} = 85 / 100 = 0.85 \text{ or } 85\%$$

The higher the accuracy of a classification model, the better it is at correctly classifying instances. However, accuracy may not always be the most appropriate metric to use, especially when dealing with imbalanced datasets where the frequency of instances in different classes is not equal.

Precision

Precision is a commonly used evaluation metric in classification techniques in data mining. It measures the proportion of true positives (correctly classified positive instances) among all instances predicted as positive, and is calculated using the following formula: $\text{Precision} = \text{True positives} / (\text{True positives} + \text{False positives})$

where True positives (TP) are the instances that are correctly classified as positive and False positives (FP) are the instances that are incorrectly classified as positive.

For example, suppose a classification model predicts that 100 instances are positive, out of which 80 are actually positive and 20 are negative. If out of these 100 instances, 75 are actually positive, then the precision of the model would be:

$$\text{Precision} = 80 / (80 + 20) = 0.8 \text{ or } 80\%$$

A high precision value indicates that the model is good at predicting positive instances, and a low precision value indicates that the model is predicting too many false positives. However, precision should not be used in isolation as a measure of the effectiveness of a classification model, and it should be used in conjunction with other metrics like recall and F1 score to get a more complete picture of the model's performance.

Recall and F1 Score

Recall and F1 score are two commonly used evaluation metrics in classification techniques in data mining. They are often used together with precision to evaluate the performance of classification models. Recall measures the proportion of true positives (correctly classified positive instances) among all actual positive instances in the dataset. It is calculated using the following formula:

$$\text{Recall} = \text{True positives} / (\text{True positives} + \text{False negatives})$$

where True positives (TP) are the instances that are correctly classified as positive, and False negatives (FN) are the instances that are incorrectly classified as negative.

For example, suppose a classification model is trained on a dataset with 100 positive instances, out of which it incorrectly classifies 70 and incorrectly classifies 30 as negative. In this case, the recall of the model would be: $\text{Recall} = 70 / (70 + 30) = 0.7$ or 70%.

A high recall value indicates that the model is good at detecting positive instances, while a low recall value means that the model is missing many positive instances.

F1 score is a harmonic mean of precision and recall. It is a commonly used metric to evaluate the overall performance of a classification model. It is calculated using the following formula:

$$\text{F1 score} = 2 * ((\text{Precision} * \text{Recall}) / (\text{Precision} + \text{Recall}))$$

A high F1 score indicates that the model is good at both precision and recall, and is therefore a good overall measure of the model's performance.

It is important to note that precision, recall, and F1 score are highly dependent on the specific problem and the nature of the data. Therefore, it is important to use appropriate evaluation metrics that are relevant to the specific problem being solved.

ROC

ROC (Receiver Operating Characteristic) curve is a widely used evaluation metric in classification techniques in data mining. It is a plot of the true positive rate (TPR) against the false positive rate (FPR) at various thresholds of the classification model.

The TPR is the proportion of true positives (correctly classified positive instances) among all actual positive instances in the dataset. It is calculated using the following formula:

$$\text{TPR} = \text{True positives} / (\text{True positives} + \text{False negatives})$$

where True positives (TP) are the instances that are correctly classified as positive, and False negatives (FN) are the instances that are incorrectly classified as negative.

The FPR is the proportion of false positives (incorrectly classified positive instances) among all actual negative instances in the dataset. It is calculated using the following formula:

$$\text{FPR} = \text{False positives} / (\text{False positives} + \text{True negatives})$$

where False positives (FP) are the instances that are incorrectly classified as positive, and True negatives (TN) are the instances that are correctly classified as negative.

ROC curve is a plot of TPR against FPR at various thresholds of the classification model. Each point on the curve represents a different threshold of the classification model. The area under the ROC curve (AUC-ROC) is a commonly used metric to evaluate the overall performance of the classification model. The AUC-ROC ranges from 0 to 1, where 0 indicates a poor classifier and 1 indicates a perfect classifier.

The ROC curve and AUC-ROC provide a useful visual representation of the trade-off between the true positive rate and the false positive rate at different classification thresholds, and can be used to select an appropriate threshold for the model based on the desired balance between sensitivity (true positive rate) and specificity (true negative rate).

Conclusion

Classification techniques in data mining are an essential part of many data analysis tasks, and there are various algorithms available to perform this task. Each algorithm has its strengths and weaknesses, and the choice of algorithm depends on the specific problem being solved and the nature of the data.

To evaluate the effectiveness of classification models, several metrics are used, such as accuracy, precision, recall, F1score, and ROC curve. Each metric provides a different perspective on the performance of the model, and it is important to use appropriate metrics that are relevant to the specific problem being solved.

Classification techniques play a critical role in many applications, such as fraud detection, spam filtering, medical diagnosis, and more. The ability to accurately classify data can provide valuable insights and can help make better decisions, improve business processes, and enhance overall performance. With the increasing availability of data and the advancements in machine learning, the importance of classification techniques is only going to increase in the future.

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| S.NO | TITLE | PAGE NO |
|------|---|---------|
| 1 | A MICRO STUDY ON ECO CONSUMERISM EVENTUALITIES IN INDIA Dr. Mekala Lecturer in Commerce, Government Polytechnic College for Women, Coimbatore | 1 |
| 2 | A STUDY ON CONSUMERS BUYING PERSPECTIVE WITH RELATES TO ELECTRONIC APPLIANCES IN COIMBATORE REGION Dr. M Arumugam Lecturer, Government Polytechnic College for Women, Coimbatore | 4 |
| 3 | THE INFLUENCE OF „DEMOGRAPHIC CHARACTERISTICS ON INVESTMENT PATTERN AMONG PROFESSIONALS Mr.Vishakh V T Research Scholar (Part Time) Bharath Institute of Higher Education Selaiyur, Chennai Dr.Kannan J Associate Professor & HOD, Bharath Institute of Higher Education Selaiyur, Chennai | 8 |
| 4. | DEVELOPMENT OF WOMEN ENTREPRENEURSHIP IN INDIA R.Balaji Assistant Professor of Commerce (SF), VHNSN College (Autonomous), Virudhunaga | 11 |
| 5. | The Impact of Human Resource Management Practices on Employee Retention Giridhar Rao P.M Corresponding Author: Dr. M. NirmalDev, (Ph.D. Research Scholar), **Associate Professor and Research Supervisor, Department of Commerce, VELS Institute of Science, Technology and Advanced Studies (VISTAS), Pallavaram, Chennai-600117 | 15 |
| 6. | A COMPARATIVE STUDY TO ANALYSE THE EFFECTS OF STRESS ON WOMEN WORKING FROM HOME AND WORKING FROM OFFICE J.SINDHU, Ph.D. Research Scholar, Department of Commerce, VELS Institute of Science, Technology and Advanced Studies, Pallavaram, Chennai – 600117, Dr.T.SUJATHA, Assistant professor, Department of Commerce, VELS Institute of Science, Technology and Advanced Studies, Pallavaram, Chennai – 600117 | 20 |
| 7. | A STUDY ON CONSUMER BUYING BEHAVIOUR TOWARDS ORGANIC PRODUCTS WITH REFERENCE TO CHENNAI CITY Mr. A. Badrinath, Part Time Research Scholar, Jaya GovindHarigopalAgarwalAgarsen, College, Madhavaram, Chennai – 600 060 Supervisor :Dr. P.G. LathaMaheswari, Assistant Professor, Department of Commerce, Jaya GovindHarigopalAgarwalAgarsen College, Madhavaram, Chennai – 600 060 | 24 |
| 8. | SIGNIFICANCE OF EMPLOYEE MOTIVATION& JOB SATISFACTION FOR ORGANIZATIONAL PERFORMANCE MsAswathy S A Research Scholar (Part Time) Bharath Institute of Higher Education Selaiyur, Chennai Dr.Kannan J Associate Professor & HOD Bharath Institute of Higher Education Selaiyur, Chennai | 33 |
| 9. | IMPACT OF EMPLOYEE DEVELOPMENT ON ORGANIZATIONAL CITIZENSHIP BEHAVIOR AND TURNOVER INTENTIONS IN AUTOMOBILE INDUSTRY, TAMILNADU Mrs. R. Velanganni, Ph.D. (Part-Time) Research Scholar, Department of Business Administration, Annamalai University, Chidambaram, Tamilnadu, India | 37 |
| 10. | CASHLESS PAYMENT SYSTEM IN INDIA Dr. Rekha rani Assistant Professor, J.C.M.M, Assandh, Karnal, Haryana | 41 |
| 11. | EMERGING TRENDS OF E-COMMERCE IN INDIA: CHALLENGES AND OPPORTUNITIES Dr.G. Anandhi, Assistant Professor in Commerce, Bharath Institute Of Higher | 43 |



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**THE INFLUENCE OF 'DEMOGRAPHIC CHARACTERISTICS ON INVESTMENT
PATTERN AMONG PROFESSIONALS**

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Abstract

Investment behaviours are defined as how the investors judge, predict, analyse and review the procedures for decision making, which includes investment psychology, information gathering, defining and understanding, research and analysis. The whole process is —Investment Behaviour. Many economic theories are based on the belief that individuals behave in a rational manner and that all existing information is embedded in the investment process. This assumption is the crux of the efficient market hypothesis. But researchers questioning this assumption have uncovered evidence that rational behaviour is not always as prevalent as we might believe. Behavioural finance attempts to understand and explain how human emotions influence investors in their decision-making process. This study attempts to analyse the influence of demographic characteristics influence on their investment pattern. It also tries to study the significance between the type of investors and the corporate announcements made by the companies.

Keywords: corporate announcements, demographic profile, investor behaviour.

Introduction

The globalization of financial markets has increased the participation and number of retail investors 'over the past two decades by providing a wide variety of market and investment options. However, it makes their investment decisions process more complex. There are many investment products which are available for investment to investors in the stock market ranging from bonds to options. These products vary regarding risk factor involved and the return. Investor can choose the investment products which have matching to their risk tolerance. Indian financial market is highly impulsive, responsive, and combative. The role and importance of individual investors and their trading behaviour in Indian financial market is also imperative.

Objectives of the study

- To analyse the influence of demographic characteristics of investor on their investment pattern.
- To examine the significance between type of investor and their perception towards corporate announcements

Scope of Study

The scope of the present study is confined to investment behaviour among professionals. In the world of investment, relatively a limited number of attempts have been made to conceptualize the investment patterns of specified strata. The concept of family and individual spending, saving has been tremendously undergone changes. There is a proactive change in consumption rather than investing. On the other side the flow of income has been increased. The investment is equally important to earning income. The income earned today should result in creating wealth in long term. Also, the created wealth can be well managed, if there is well managed investment plan

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| | | |
|-----|--|-----|
| | REVOLUTIONIZING INVESTMENT MANAGEMENT WITH DATA-DRIVEN INTELLIGENCE. | |
| | Mr. V. Vinodh kumar, Mr. V. Vignesh, Miss. M. Dinasha Zen and Dr. G. Arunmozhi | 180 |
| 31. | THE PERSPECTIVES OF DIGITAL BANKING. | 184 |
| | Mrs. D. Jaya Shreea and Dr. S. Ramola Ponmalar. | |
| 32. | CUSTOMER SATISFACTION TOWARDS BUY ONLINE, PICKUP INSTORE(BOPIS) | 191 |
| | S. Fareetha Fairzwana, S. Haji Halima and R. Ahamedrifza | |
| 33. | TECHNOLOGICAL PERSPECTIVES OF AGRICULTURIST IN TIRUNELVELI DISTRICT. | 197 |
| | M. Ramalakshmi and Dr. V. Darling Selvi. | |
| 34. | ROLE OF E-BANKING IN THE ECONOMIC GROWTH OF INDIA. | 204 |
| | Dr. N. Rajesh kumar. | |
| 35. | A STUDY ON THE IMPORTANCE OF ELECTRONIC PAYMENT SOLUTIONS TOWARDS ORGANISATIONAL DEVELOPMENT. | 209 |
| | Shely R. M and Dr. G. Sreekanth. | |
| 36. | A STUDY ON CUSTOMERS PERCEPTION TOWARDS USAGE OF GOOGLE PAY IN NAGERCOIL TOWN. | 215 |
| | C. Abi and T. Sirthiga | |
| 37. | A STUDY ON CUSTOMER PERCEPTION TOWARDS DIGITAL BANKING SERVICES PROVIDED BY COMMERCIAL BANKS IN INDIA. | 219 |
| | Dr. M. Abdul Rahman. | |
| 38. | FACTORS INFLUENCING THE TECHNOLOGICAL FEASIBILITY OF WOMEN HOMEPRENEURS. | 227 |
| | A. Anusuya and Dr. V. Darling Selvi | |
| 39. | A STUDY ON CRYPTOCURRENCY IN FINANCIAL SERVICES. | 233 |
| | Sam Y. jijo and Dr. H. Sajeena. | |
| 40. | ICT PRACTICES AMONG SOUTHERN RAILWAY EMPLOYEES. | 240 |
| | R. Shanmuga Selvi and Dr. V. Darling Selvi. | |
| 41. | ROLE OF DIGITAL BANKING IN TOURISM - A REVIEW | 244 |
| | C. L. Jeba Melvin and Dr. S. Ramola Ponmalar | |
| 42. | DIGITAL BANKING: THE PATH TO GROWTH AND CHALLENGES. | 250 |
| | N. Saromi, Dr. S. Sahaya selvi. | |
| 43. | A STUDY ON CUSTOMERS' SATISFACTION TOWARDS GPAY AND PHONEPE IN MELAPALAYAM | |
| | P. Ashika, S. Ravoo akila, M. Safrin jamilla | |



A STUDY ON THE IMPORTANCE OF ELECTRONIC PAYMENT SOLUTIONS TOWARDS ORGANISATIONAL DEVELOPMENT

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ABSTRACT

In electronic payment systems, financial transactions are carried out with the help of non-paper methods. Organisational Development is the process of bringing change in the entire aspects of the working of an organisation. In India, for a few years, the e-payment system has increased organisational development due to its popularity among citizens. The covid-19 pandemic situation could drive the world faster towards electronic payment solutions. In the current scenario, Digital payments plays an important role and have many advantages over cash, such as easy transaction, security and transparency. A digital payment system, sometimes called an electronic payment, is the transfer of value from one payment account to another using a digital device such as mobile phones, e-readers and smart phones. This article deals with various aspects related to the benefits derived from electronic payment and what types of method are used in electronic payment solutions. Digital payment will reduce a huge amount of cost that government and companies used to invest.

Key words; Security, Transactions, Payment system, Transparency, company

INTRODUCTION

The government of India has been taking several measures to promote and encourage digital payment in the country. As part of 'Digital India' Campaign, the government aims to create a 'digitally empowered' economy that is faceless, paperless, cashless. E-payment mechanism which enables individuals, business, government and non-profit organisations to make cashless payments for goods and services through cards, mobile phones over the internet. The important feature of e payment systems are ease of use, trust, efficiency, reliability, security and applicability. The important aspects of electronic payment system can allow users to facilitate easier transactions and accept a variety of digital payment methods. This will lead to increase the relationship between business and consumers. Security is one of important characteristics of E-payment systems.

Organisational Development is the process of bringing change in the entire aspects of the working of an organisation. Organizational development is used to provide organization with the right tools so that it can adapt and respond positively to changes in the market.

DIGITAL PAYMENT MODES IN INDIA

Electronic Payments entail the transfer of funds through electronic or digital mediums. You can choose from different e-payment methods like mobile wallets, bank cards, mobile

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| | | |
|----|---|----|
| 14 | A STUDY ON ROLE OF SKILL DEVELOPMENT PROGRAMME ON EMPLOYABILITY OF GRADUATES IN KERALA <i>Anu.M & Dr. A. Safia</i> | 49 |
| 15 | A STUDY ON THE AWARENESS ABOUT MSME SCHEMES IN KERALA SPAECIAL REFERENCE TO THIRUVANANTHAPURAM DISTRICT <i>Ajitha G. V. Dr. A. Safia</i> | 52 |
| 16 | WORK LIFE BALANCE OF WOMEN ENTREPRENEURS IN TIRUNELVELI DISTRICT <i>M. Esakkidevi, Dr. S. Mabel Latha Rani</i> | 57 |
| 17 | A STUDY ON PROBLEMS AND PROSPECTS OF CUSTOMER'S MINDFUL MARKETINGIN DIGITIZED ERA <i>Shely R.M & Dr.G. Sreekanth</i> | 61 |
| 18 | A STUDY ON SOCIO - ECONOMIC CONDITIONS OF SMALL SCALE ENTREPRENEURS IN THIRUVANANTHAPURAM DISTRICT <i>Vidya V, Dr.G.Sreekanth</i> | 63 |
| 19 | GREEN ENTREPRENEURSHIP PRACTICES IN SMES IN KANYAKUMARI DISTRICT <i>Mrs. P. Antony Perceptualfelishia, Dr. Y. Hemalatha</i> | 66 |
| 20 | THE BANKING BEST PRACTICES FOR THE GROWTH OF WOMEN ENTREPRENEURS WITH REFERENCE TO COMMERCIAL BANK IN KERALA <i>Divya Raj U S And Dr. R. Shoba Rani</i> | 69 |
| 21 | A STUDY OF CUSTOMER SATISFACTION IN POST OFFICE SAVING SCHEMES <i>Rajasekar, Lt Dr. M. Jagathish</i> | 71 |
| 22 | A STUDY ON CONSUMER BUYING BEHAVIOR TOWARDS ECO-FRIENDLY PRODUCTS IN KANYAKUMARI DISTRICT <i>Mrs. L. Jenita Florence, Dr. S. Nava Rethna Bala Kumari</i> | 74 |
| 23 | ROLE OF HR STRATEGIES IN INCREASING EFFICIENCY OF EMPLOYEES IN PHARMACEUTICAL INDUSTRY IN TRIVANDRUM DISTRICT <i>Mrs. Sreethy Mohan V S & Dr. R Shoba Rani</i> | 78 |
| 24 | A STUDY ON JOB SATISFACTION AND ORGANIZATIONAL COMMITMENT OF INFORMATION TECHNOLOGY EMPLOYEES IN NAGERCOIL <i>K. Anitha Shalini, Dr. M.P. Asha Kumari</i> | 81 |
| 25 | A STUDY ON CUSTOMER BUYING BEHAVIORS TOWARDS ITC CLASSMATE NOTEBOOKS IN TIRUNELVELI <i>Dr.M.Esakkiammal, Dr.M.Syedsulaiga Benazir</i> | 83 |
| 26 | CHALLENGES FACED BY SMALL SCALE ENTREPRENEURS IN NAGERCOIL TOWN <i>S.T.Johnslin Joy</i> | 86 |

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A Study on Role of Skill Development Programme on Employability of Graduates in Kerala

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Abstract

Modern era mostly concentrates on skill rather than the theoretical knowledge. In order to improve the Skillfulness of graduates in Kerala, both State and Central Government drafted and implemented many skill development programmes in order to develop the skills of in order to make them competent in knowledge era. The various programmes conducted by the state as well as central for the same are KASE (Kerala Academy for Skills Excellence), ASAP (Additional Skill Acquisition Programme), DDU-GKY (DeenDayalUpadhyayaGrameenKaushalyaYojana), MES (Modular Employable Skill), Skill India, NSDC (National Skill Development Corporation). The skill development programmes aimed at to bridges the gap between theoretical knowledge to employability of students. Globalised world require efficiency in operation, the efficiency was based on skill and easiness of doing job effectively, so the nation taking more effort on Skilling through skill development programmes.

Keywords : Skill development, employability, efficiency and effectiveness

Introduction

Kerala has been a net exporter of trained and skilled force for the rest of the world. In fact, the remittances from the population who work outside Kerala, both abroad and in other state in India, has been vital to the socio-economic development in the state. It is important for the state to preserve and foster this advantage. Though Kerala has a very rich human resource pool, the overall employability is considered generally to be below twenty fifth percent. If strategies for meeting the growing need of various sectors of economy for skilled manpower is not conceived and implemented on a war footing, the state will lose its advantage, as a human resource restrictive in the region. The lack of working hands in different sectors of the economy even in Kerala is the cause of serious concern. As a result of this, migrant labour is being increasingly used in the state to perform various activities, to date done by local persons. One of the main hurdles in ensuring a readily employable talent pool is the lack of sufficient training infrastructure in the state.

Kerala is traditionally known for its high quality manpower all over the world. The human resource function has social and ethical objectives. It has to make the best possible use of human resources to improve society's welfare. As availability of trained manpower is a crucial factor for the industry to setup their business, it is necessarily that Kerala should give impetus to the growth of its human resources. The HR function should contribute the achievement of organizational goals. It has to provide the right type of talent and develop them. The number of skills and ability of employees should be matched with human resource requirements. It has to suitably place employees, have effective appraisal system and reward performance.

The new governance of Honorable PM Modi mainly emphasizes on skill education mainly SKILL INDIA, PMKVY, NSDC which shows the nation having second highest population regulate a job skill for global sourcing of human resource. The various programmes conducted by state are KASE (Kerala Academy for Skills Excellence), ASAP (Additional Skill Acquisition programme) etc. In this scenario it is essential to study the impact and role of skill development programmes in Kerala.

OBJECTIVES

1. To determine the factors that support Skilling among graduates in Kerala
2. To study the relationship between quality improvement and the training programmes attended

Review of Literature

Davis (2020) studied the influence of ASAP classes on general education of the beneficiaries. The study also analysed the hindrances faced as well as the reasons for joining the skill development programme by the beneficiaries. The results concluded that the skill training classes of ASAP did not had a negative effect on the general education of the beneficiaries and in turn, helped in improving English language skills. Most of the beneficiaries joined the programme as a course in addition to their higher secondary education. One major hindrance faced is the inability to balance ASAP and school classes due to overlapping.

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Contemporary Research in Commerce and Management

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| | | | |
|--|--|--|-------------|
| 36 | A Study On Demographic Profile Of Banking Service In Rural Area In Chengalpattu District | Dr. V. Victor Solomon Dr. Renuka Devi S V | 214 |
| 37 | A Study On Customer Satisfaction On E- Payment Application | S. Sathiya Priya Dr. V. Sampathkumari | 221 |
| 38 | Financial Inclusion And Banking Behaviour Among The Common People | Dr.Melbha.D | 225 |
| 39 | A Study On Index Mutual Fund In India | Dr.Manjunatha M.K. | 232 |
| HUMAN RESOURCE MANAGEMENT | | | |
| S.NO. | Title | Author (S) | Page |
| 40 | Managing Grievances Of Women Entrepreneurs And Its Linkage On Quality Of Work Life | Dr. M.Dhanabhakym Monish P | 238 |
| 41 | Analysing Level Of Cultural Intelligence And Its Impact On Employee Engagement: A Study Among It Sector Employees In Kerala | Dr. M. Dhanabhakym Fahad K.P | 243 |
| 42 | A Study On Result Analysis Of Evening College (Shift II) B.Com And B.B.A. Final Year Students In C.Kandaswami Naidu College For Women, Cuddalore | Dr.R.Selvi | 251 |
| 43 | The Negative Effects Of Sectoral And Geographical Concentration Of Startups: A Socio- Economic Perspective | Dr. Ambuj Gupta | 255 |
| 44 | The Impact Of Students Performance In Their Online And Offline Education An Overview Around Thiruvallur District | Dr.Dhanalakshmi S Dr.K.Komala Valli | 261 |
| FINANCE | | | |
| S.NO. | Title | Author (S) | Page |
| 45 | Scope Of Supply Under GST- A Study | Dr S Suguna Dr S Senthilraja | 270 |
| 46 | Integrated Ratio: An Emerging Tool For Integrated Reporting Analysis | Dr. Sudipta Mondal | 277 |
| CORPORATE SOCIAL RESPONSIBILITY | | | |
| S.NO. | Title | Author (S) | Page |
| 47 | Partnering For Progress : The Intersection Of CSR And Sustainable Development | Dr Maulik K Rathod | 284 |

Chapter 38

Financial Inclusion and Banking Behaviour among the Common People

DR.MELBHA.D, ASSISTANT PROFESSOR,
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Abstract

The basic concept of financial inclusion is that minimum one account per every citizen should be opened with any bank and delivery of banking services at an affordable cost to the vast sections of disadvantaged and low-income groups. Tribal people constitute a vast majority of financial excluders in the country. Banking industry has shown tremendous growth in the volume and complexity during the last few decades. The bank is reluctant to deal with vulnerable group because of small size of transaction, high transaction cost, lack of clearly defined property right and fear of risk. Absence of access to institutional finance results in tribal being exploited by money lenders, middle man and loan sharks also these tribal people chronically stuck in a web of poverty and indebtedness. The credit needs of the tribal people are frequent and small quantity. Tribal are not aware of financial services they can avail or are unable to access the same. The savings and investment of tribal community is comparatively low than other section in the society. So, the present study aims to examine the financial inclusion and banking behaviour of common people.

Key words: Financial inclusion, bank, income, investment, economic growth etc.,

INTRODUCTION

Sustainable Growth requires participation of all segments of society. Financial Inclusion is a drive towards attaining inclusive growth and sustainable development and plays a major role in driving away the poverty from the country. The primary purpose of financial Inclusion is to deliver and spread awareness regarding banking and financial services at affordable costs to the unbanked sections of disadvantage and low-income sections of society so as to unlock their savings and investment potential. Access to finance, especially by the poor and vulnerable groups, is an essential requisite for employment, economic growth, poverty alleviation and social upliftment. Finance is essential to the economy as fuel to engine. Whoever it is, rich, poor, or the middle class, all need finance to pursue their respective vocations and make a living. Financial inclusion has become one of the most critical aspect in the context of inclusive growth and development. It can be important tool to remove financial backwardness. Financial inclusion is the process of ensuring access to appropriate financial product and services needed by the vulnerable group such as weaker section and low-income group at an affordable cost in a fair and transparent manner by mainstream institutional players. Banking sector plays an important role in bringing financially excluded people in to formal sector. This will help to serve dual purpose that is financial inclusion and growth of banking business of the country. Traditionally, financial inclusion has been understood to opening new bank branches in rural and unbanked area to take formal financial services across the length and breadth of the country. India is a country with diverse economic condition. This diversity is prominent in every aspect of life including

TRANSGENDER STUDIES

Dr. Visweswara Rao Chenamallu

Dr. S. Veera Lakshmi



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Truth, Perception, and Gender Identity: The Nexus of Post-Truth and Transgender Realities

HariPriya R. J. Nair and Dr. Manjula K. T.

Abstract

The contemporary landscape of social discourse has been significantly impacted by the rise of post-truth politics, a phenomenon wherein objective facts are supplanted by appeals to emotion and personal belief. Amidst this backdrop, the discourse surrounding gender identity, particularly within the transgender community, has become an arena where the interplay of truth, perception, and ideology takes centre stage. This article delves into the intricate nexus between post-truth dynamics and transgender realities, scrutinizing the multifaceted ways in which post-truth narratives have influenced discussions pertaining to transgender experiences. By exploring the historical context and emergence of post-truth politics, as well as its characteristic features, the article lays the groundwork for comprehending the broader implications of its collision with transgender identity discussions. Furthermore, it highlights the complexities of gender as a social construct and the significance of self-identification in the realm of transgender experiences. The article also examines the ramifications of post-truth narratives on various aspects of the transgender experience, including medical and scientific discourse, political battles, and societal implications. It concludes by emphasizing the urgency of fostering media literacy, critical thinking, and inclusive conversations to navigate the intersection of post-truth and transgender realities, and to pave the way for a more informed and equitable future for all individuals, regardless of their gender identity.

Keywords: Truth, Perception, Gender Identity, Nexus, Post-Truth, Transgender Realities

Introduction

In recent times, the global stage has borne witness to the ascent of post-truth and its far-reaching influence on a multitude of social and cultural quandaries. Among these issues, one has emerged as both a focal point of post-truth dynamics and intense debate – the realm of transgender identity. The

convergence of these intricate and multifaceted realms sets the stage for an intricate exploration into how the notions of truth, perception, and ideology intertwine to shape our comprehension of transgender experiences. This article delves deep into the juncture of post-truth and transgender topics, dissecting the manners in which post-truth narratives have impacted discussions surrounding transgender discourse and the broader societal repercussions.

Objectives

The chief objectives of the research article are:

- (1) To objectively examine the intersection of post-truth and transgender identities, dissecting the multifaceted implications of their convergence.
- (2) To elucidate how objective facts are supplanted by emotionally charged narratives and personal beliefs, subsequently influencing public sentiment.
- (3) To emphasize the societal construct of gender and the importance of self-identification.

Methodology

This article adopts a qualitative research approach to investigate the intricate interplay between truth, perception, and gender identity within the context of post-truth dynamics and transgender realities. The qualitative methodology is chosen for its ability to delve into the nuanced and multifaceted aspects of this intersection, facilitating an in-depth exploration of individual experiences, perspectives, and societal dynamics.

Data collection

The primary data for this research is derived from a comprehensive review of academic literature, scholarly articles, books, and reports that address the themes of truth, perception, gender identity, and post-truth dynamics. The selection of sources is guided by their relevance to the research objectives and their contribution to a comprehensive understanding of the complex relationship between these elements.

Data analysis

The analysis of the collected data employs a thematic approach. Pertinent passages, quotes, and concepts from the selected sources are identified and organized into recurring themes. These thematic patterns are then synthesized to construct a coherent narrative that illuminates the intricate connections

between truth, perception, and gender identity within the context of post-truth dynamics.

Ethical considerations

Throughout the research process, ethical considerations remain paramount. Proper attribution and meticulous citation of sources are maintained to uphold the principles of academic integrity. A commitment to sensitivity and respect for the experiences and identities of transgender individuals underpins the analysis, ensuring their stories are portrayed with accuracy and empathy.

Limitations

It is essential to acknowledge the inherent limitations of this qualitative research approach. Given the article's scope, a comprehensive examination of all facets of the intersection between truth, perception, gender identity, and post-truth dynamics may not be feasible. Moreover, the subjective interpretation of data introduces an element of researcher bias, which is addressed through rigorous analysis and an openness to diverse perspectives.

The chosen qualitative research methodology thus facilitates a comprehensive exploration of the intricate relationship between truth, perception, and gender identity within the context of post-truth dynamics. By drawing from a diverse range of sources, analysing thematic patterns, and incorporating illustrative case studies, this research contributes to a deeper understanding of the complexities at play and their far-reaching implications.

The Intersection of Post-Truth and Transgender Identities

The Essence of Post-Truth

In an age marked by rapid technological advancements and information dissemination, the notion of truth has undergone a transformative evolution. The emergence of post-truth politics and the subsequent impact on society's perception of reality have sparked profound debates and raised crucial questions about the nature of objective facts and the power of subjective beliefs. The concept of post-truth, encompassing a paradigm where emotions and personal convictions often outweigh empirical evidence, has emerged as a critical lens through which we understand the dynamics of contemporary discourse and decision-making.

Post-truth politics, a term that gained prominence in the 21st century, describes a phenomenon in which objective facts and rationality take a backseat to emotional appeals and individual beliefs when shaping public opinion and influencing policy. This shift has redefined the boundaries of truth, challenging

the very foundation upon which informed decision-making rests. In a post-truth environment, narratives that resonate emotionally with individuals often gain traction, regardless of their alignment with verifiable evidence. This transition has significant implications for a society that has long relied on the pursuit of truth as a cornerstone of progress and understanding.

One of the distinguishing characteristics of post-truth politics is the creation of echo chambers, where individuals are exposed primarily to information that reinforces their pre-existing beliefs. This self-reinforcing cycle further deepens the divide between differing perspectives, rendering constructive dialogue and the convergence of viewpoints increasingly difficult. The proliferation of misinformation within echo chambers not only distorts reality but also weakens the foundations of trust that underpin democratic societies.

The advent of the digital age has amplified the impact of post-truth dynamics, providing a fertile ground for the rapid dissemination of emotionally charged narratives and unsubstantiated claims. Social media platforms, with their algorithms tailored to user preferences, can inadvertently contribute to the formation of echo chambers, nurturing the spread of information that aligns with preconceived notions. The viral nature of such content, regardless of its factual accuracy, can significantly shape public sentiment, leading to misguided decisions and perpetuating divisiveness.

The implications of the post-truth phenomenon extend beyond the realm of politics, seeping into areas such as public health, science, and social issues. The rejection of established scientific consensus, often fuelled by emotionally driven narratives, can hinder progress in addressing critical challenges such as climate change and vaccine hesitancy. Similarly, discussions surrounding social issues like gender identity, where personal beliefs sometimes overshadow empirical evidence, can lead to the marginalization of vulnerable communities and the perpetuation of harmful stereotypes.

Addressing the complexities of post-truth dynamics requires a multifaceted approach. Media literacy and critical thinking skills become essential tools for individuals to discern credible sources of information amidst a sea of misinformation. Encouraging open and respectful dialogue that welcomes diverse viewpoints can help bridge gaps and challenge echo chambers. Moreover, a renewed emphasis on the value of objective facts, rationality, and empirical evidence can serve as a compass to navigate the turbulent waters of post-truth politics.

Post-truth, a term that has garnered prominence in the 21st century, as indicated before, denotes a scenario in which objective verities wield diminished

influence in moulding public sentiment, yielding to appeals rooted in emotion and individual belief systems. In the realm of post-truth, narratives aligned with preconceived notions often take precedence over empirically supported evidence. This paradigm shift holds profound implications for dialogues concerning social and political matters, including the discourse on transgender rights and identities.

The concept of post-truth thus represents a significant departure from traditional notions of truth and reality. The rise of emotionally charged narratives and the erosion of objective facts have redefined the way society engages with information and makes decisions. The collision between post-truth dynamics and the digital age has underscored the need for a vigilant and discerning citizenry, capable of navigating a landscape where perception often challenges reality. As we grapple with the implications of post-truth, the pursuit of truth, rationality, and informed discourse remain vital in preserving the integrity of our democratic institutions and fostering a society that values accuracy, empathy, and shared understanding.

The Intricate Terrain of Transgender Identities

Transgender identities encompass a diverse spectrum of experiences that challenge conventional binary notions of gender. The discourse enveloping transgender issues involves the recognition of gender as a societal construct, coupled with the acknowledgment of the imperative nature of self-identification. Amidst society's endeavour to grapple with these intricate concepts, the interplay between post-truth narratives and transgender realities adds an additional layer of intricacy.

Post-Truth Encounters with the Transgender Experience

The convergence of post-truth narratives and transgender encounters holds far-reaching consequences. Spanning from medical deliberations to the realm of public policy, the dynamics of post-truth politics have left an indelible mark on how transgender issues are comprehended and debated.

In an era characterized by the relentless surge of post-truth politics, the narratives that shape our understanding of critical social issues have undergone a profound transformation. The transgender experience, a deeply personal and multifaceted journey, has not been immune to the impact of post-truth dynamics. As we navigate this juncture where truth and perception collide, it becomes evident that the interplay of post-truth narratives with the transgender experience has far-reaching consequences that demand careful examination.

The essence of post-truth lies in its departure from objective facts, favoring emotion-driven narratives and personal beliefs. This phenomenon has seeped into every facet of public discourse, including discussions surrounding gender identity. Within the transgender experience, the collision with post-truth politics is palpable, casting a shadow over the pursuit of authentic self-expression and societal recognition.

One of the profound ways in which post-truth narratives intersect with the transgender experience is through the distortion of medical and scientific discourse. Traditionally anchored in empirical evidence, discussions about the complexities of transgender identities have increasingly been subjected to emotional appeals and misinformation. This distortion leads to debates over biological determinism versus identity, where objective scientific knowledge is overshadowed by personal convictions. The repercussions are tangible, as access to medical interventions, which hold immense significance for transgender individuals, becomes mired in a landscape tainted by post-truth narratives.

Furthermore, the rise of post-truth politics has led to a polarization of public opinion and a fragmentation of understanding, directly affecting the transgender experience. Advocacy efforts for transgender rights and recognition are met with resistance fueled by emotionally charged narratives that reject empirical evidence. This climate of disbelief can hinder progress, perpetuating discrimination and stigmatization of transgender individuals. The impact is particularly evident in the realm of policy-making, where the rise of anti-trans legislation has been bolstered by the distortion of facts and the amplification of misinformed beliefs.

In parallel, the transgender community has faced the discrediting of its voices and the amplification of harmful stereotypes in the post-truth landscape. The suppression of transgender perspectives is exacerbated by narratives that appeal to preconceived notions rather than objective realities. The resulting silencing of marginalized voices perpetuates a cycle of misunderstanding and erodes the prospects of meaningful dialogue and empathy. Additionally, the amplification of injurious stereotypes compounds the challenges faced by transgender individuals, reinforcing social biases and misconceptions.

As we confront the intricate web of post-truth encounters within the transgender experience, it becomes evident that navigating this terrain requires a multi-faceted approach. The cultivation of media literacy and critical thinking emerges as a vital tool in discerning fact from fiction and dismantling the echo chambers that propagate misinformation. By fostering an environment that

values diverse perspectives and inclusive conversations, we can begin to bridge the chasm between truth and perception.

In the modern landscape characterized by the ascendance of post-truth politics, the very fabric of truth and perception has undergone a fundamental shift. This phenomenon, driven by the sway of emotion and personal beliefs over objective facts, has significantly impacted discussions on critical social issues, including the multifaceted and deeply personal experience of being transgender. The convergence of post-truth narratives with the transgender journey presents a complex interplay that demands thorough exploration, unveiling the far-reaching implications that extend beyond mere discourse.

A poignant example of post-truth dynamics infiltrating the transgender experience is observed within the realm of medical and scientific discourse. Traditionally rooted in empirical evidence and rigorous research, discussions concerning transgender identities have encountered a growing divergence into emotion-driven narratives and misleading information. For instance, debates revolving around the question of biological determinism versus self-identification have shifted from rational deliberations to emotionally charged assertions. The notion that one's identity is solely determined by biological factors, rather than embracing the more nuanced interplay of biology and self-identification, gains traction within the post-truth framework. This misalignment of perspectives often disregards the complex realities of transgender individuals and the critical importance of medical interventions for their well-being.

Moreover, the ripple effects of post-truth encounters resonate deeply within the political and legislative arena, significantly impacting the transgender experience. An illustrative case is the rise of anti-trans legislation that seeks to curtail the rights and recognition of transgender individuals. These legislative efforts, often supported by emotionally resonant but factually dubious narratives, perpetuate an environment where public policies are moulded by personal convictions rather than objective truths. The spread of misinformation through post-truth channels can hinder crucial advancements in transgender rights, contributing to a societal climate where discrimination and stigmatization persist unchecked.

The transgender community also grapples with the undermining of their voices and the reinforcement of harmful stereotypes, a phenomenon exacerbated by the prevalence of post-truth narratives. Take, for instance, the perpetuation of the stereotype that transgender individuals are merely seeking attention or are engaged in a phase. Such misconceptions, amplified through emotionally charged narratives, not only invalidate the experiences of transgender

individuals but also hinder broader understanding and acceptance. This post-truth-induced distortion of reality perpetuates biases and exacerbates societal divides, making it difficult for genuine empathy and productive conversations to flourish.

In light of these challenges, the imperative to navigate the intersection of post-truth and transgender experiences becomes clear. Fostering media literacy and nurturing critical thinking skills emerges as a potent antidote to the misinformation epidemic. By equipping individuals with the tools to discern factual information from emotionally charged narratives, we can begin to dismantle the echo chambers that amplify post-truth dynamics. Additionally, creating safe spaces for inclusive and informed conversations becomes pivotal in bridging the gap between divergent perceptions.

The interplay between post-truth politics and the transgender experience forms a complex tapestry of challenges and opportunities. The intrusion of post-truth narratives into medical discourse, the distortion of public policy, and the perpetuation of stereotypes have profound implications for transgender individuals and society as a whole. However, the power of example-driven dialogue, rooted in empathy and informed by objective truths, offers a beacon of hope. By nurturing an environment that values open discourse, embraces diverse perspectives, and upholds the importance of verified information, we can pave the way for a more inclusive, equitable, and enlightened future for everyone, irrespective of their gender identity.

The collision of post-truth politics with the transgender experience is a deeply complex and consequential phenomenon. The distortion of medical discourse, the polarization of public opinion, the discrediting of voices, and the amplification of stereotypes collectively paint a vivid picture of the challenges faced by transgender individuals within a post-truth landscape. Yet, amidst these challenges, there exists a glimmer of hope – the power of informed dialogue, empathy, and a commitment to truth can pave the way for a more inclusive and equitable future for all, regardless of their gender identity.

Objective Facts and Emotionally Charged Narratives

In the realm of public discourse, the influence of post-truth politics has led to a paradigm shift, where objective facts have taken a backseat to emotionally charged narratives and personal beliefs. Within this complex landscape, the discussion surrounding transgender identities and experiences stands as a poignant example of how post-truth dynamics can sway public sentiment. As we delve into this intersection, it becomes evident that the clash between objective facts and emotionally driven narratives significantly shapes our

understanding of transgender issues, posing unique challenges to the pursuit of truth and societal acceptance.

Post-truth politics, marked by the dominance of emotional appeals and subjective beliefs over verifiable evidence, has infiltrated discussions concerning transgender identities. In this context, objective facts related to the scientific, psychological, and sociological understanding of gender are often overshadowed by narratives that align with preconceived notions and emotional biases. As a result, transgender individuals may find themselves grappling with the burden of disproving deeply ingrained, emotionally charged misconceptions about their identities and experiences.

For instance, the scientific consensus on gender as a multifaceted construct encompassing both biological and social elements is sometimes dismissed within the post-truth framework. Instead, emotionally charged narratives that emphasize binary notions of gender and deny the complexities of transgender identities are amplified. Consequently, objective truths regarding the fluidity and diversity of gender become obscured, making it difficult for transgender individuals to engage in meaningful dialogue about their experiences.

Moreover, the personal beliefs of individuals, fueled by post-truth narratives, can significantly influence public sentiment surrounding transgender issues. Emotionally driven assertions that undermine the validity of transgender identities as self-determined, often in favor of rigid traditional norms, have been instrumental in shaping anti-trans sentiment within some segments of society. These beliefs, rooted in emotional convictions rather than factual understanding, create barriers to empathy and acceptance, perpetuating discrimination and marginalization.

The media plays a critical role in disseminating information and shaping public sentiment, further amplifying the impact of post-truth dynamics on transgender discourse. Emotionally charged narratives, driven by personal beliefs rather than objective facts, can gain traction in media platforms, leading to the creation of echo chambers. In such environments, confirmation bias reinforces existing beliefs, making it challenging for objective information to penetrate and challenge emotionally driven misperceptions.

The intersection of post-truth politics and transgender discourse underscores the urgency of promoting media literacy and critical thinking skills within society. By encouraging individuals to question information sources, analyze claims, and seek evidence-based knowledge, we can begin to counteract the influence of emotionally charged narratives. Additionally, fostering open and inclusive dialogues that consider diverse perspectives can create a space where

objective facts can be presented and understood, transcending the boundaries of post-truth dynamics.

Ultimately, to navigate the complexities of post-truth and its impact on transgender discourse, it is essential to recognize the value of empirical evidence and objective facts. By acknowledging the fluidity and diversity of gender identities and promoting the understanding that emotions should not supersede verifiable information, we can strive to create a more informed and empathetic society.

The clash between objective facts and emotionally charged narratives has transformed the landscape of public discourse, particularly in relation to transgender issues. Post-truth dynamics, driven by emotional appeals and personal beliefs, have obscured objective truths, creating barriers to understanding and acceptance. To address this challenge, media literacy and critical thinking become crucial tools to foster a more informed and empathetic society, where transgender individuals' experiences are recognized, respected, and embraced in a truthful and compassionate manner.

The Societal Construct of Gender and The Significance of Self-Identification

The concept of gender, a cornerstone of human identity, has long been subject to societal interpretation and construction. This intricate interplay between societal norms and individual self-identification has profound implications for how we perceive and understand ourselves and others. The discourse surrounding the societal construct of gender and the significance of self-identification stands as a pivotal exploration into the dynamic and evolving nature of human identity in the modern world.

At its core, gender is a societal construct that encompasses a spectrum of identities, roles, and expectations. Throughout history, societies have adhered to binary notions of gender, wherein individuals are categorized as either male or female, based primarily on biological attributes. However, as societal perspectives have evolved, a more nuanced understanding of gender has emerged. The societal construct of gender recognizes that these roles and identities are not fixed but rather shaped by culture, tradition, and societal norms. As a result, the concept of gender transcends biological determinants, allowing for a richer and more inclusive understanding of human identity.

Inextricably linked to the societal construct of gender is the importance of self-identification. The ability for individuals to define their own gender identity, regardless of societal expectations or preconceived notions, is a fundamental

aspect of personal autonomy and agency. This recognition of self-identification allows individuals to align their internal sense of self with their external expression, enabling a harmonious and authentic life. By embracing self-identification, society acknowledges that an individual's understanding of their own gender is valid and deserving of respect, regardless of whether it aligns with traditional norms or not.

The significance of self-identification becomes especially pronounced within the context of transgender individuals. For these individuals, the journey of self-discovery and self-acceptance often involves aligning their gender identity with their self-identified gender rather than the one assigned at birth. By allowing space for self-identification, society can create an environment that fosters empathy, understanding, and validation for transgender individuals. This recognition can have far-reaching positive effects, from mental health and well-being to social integration and overall quality of life.

Nevertheless, the acceptance of self-identification within the societal construct of gender is not without its challenges. Traditional norms and deeply ingrained beliefs can clash with the idea of individuals asserting their own gender identity. The resulting tension can lead to resistance, discrimination, and even violence against those who dare to challenge the established norms. This underscores the need for a comprehensive shift in societal understanding and acceptance of the importance of self-identification.

To address these challenges and promote a more inclusive understanding of gender, education and awareness play a vital role. By engaging in open and respectful dialogue, individuals can be exposed to diverse perspectives and come to appreciate the significance of self-identification. Furthermore, legal recognition and protection of gender identity, as well as the provision of appropriate healthcare and social services, are essential steps toward affirming the validity of self-identification within the societal construct of gender.

The societal construct of gender is a complex tapestry woven from cultural, historical, and societal influences. The recognition of this construct, combined with the significance of self-identification, forms the basis for a more inclusive and empathetic understanding of human identity. By embracing self-identification, society acknowledges the multifaceted nature of gender and paves the way for individuals to lead authentic lives in a world that values diversity and personal agency.

Within the discourse surrounding transgender issues, the societal construct of gender and the significance of self-identification take on added layers of complexity due to the influence of post-truth dynamics. As we navigate this

intersection, it becomes evident that the clash between the societal construct of gender and self-identification, amidst the distortion of objective facts by emotionally charged narratives, poses unique challenges for transgender individuals and their quest for understanding and acceptance.

Post-truth dynamics, with its emphasis on emotional appeals and personal beliefs over objective truths, can exacerbate the challenges faced by transgender individuals in asserting their self-identified gender. The traditional societal construct of gender, deeply ingrained in binary notions of male and female, often clashes with the more nuanced and diverse gender identities experienced by transgender individuals. The emotional resonance of these established norms can reinforce resistance to accepting and validating gender identities that deviate from the norm, perpetuating a cycle of discrimination and marginalization.

Additionally, post-truth narratives can distort the understanding of the importance of self-identification within the context of transgender experiences. Misinformation and disinformation may lead to the denial of the validity of self-identified gender identities, undermining the agency and autonomy of transgender individuals in defining their own identities. The emotional charge behind these narratives can create barriers to empathetic understanding and societal acceptance, hindering progress towards a more inclusive and supportive environment.

The societal construct of gender, shaped by post-truth dynamics, may also hinder the recognition of transgender individuals' experiences and challenges. Emotionally driven narratives that deny the fluidity and complexity of gender can undermine the lived realities of transgender individuals, resulting in erasure of their experiences and voices. This distortion of objective facts can perpetuate harmful stereotypes and further marginalize transgender communities, impeding the path to genuine empathy and social integration.

To address the impact of post-truth dynamics on transgender issues, fostering media literacy and critical thinking becomes vital. By equipping individuals with the tools to discern objective information from emotionally charged narratives, society can dismantle the echo chambers that amplify post-truth dynamics and pave the way for informed, empathetic, and supportive conversations around transgender experiences.

Moreover, promoting an environment that recognizes the significance of self-identification is essential for affirming the identities and experiences of transgender individuals. Legal recognition and protection of gender identity, as well as inclusive healthcare and social services, are integral components of

creating an environment that embraces self-identification and fosters a more equitable and understanding society.

The societal construct of gender and the importance of self-identification are intertwined with the complexities of transgender issues and the influence of post-truth dynamics. The collision between traditional norms, emotionally charged narratives, and objective truths shapes the understanding and acceptance of transgender identities. By promoting media literacy, critical thinking, and legal recognition of gender identity, society can move towards a more inclusive and empathetic understanding of transgender experiences, transcending the barriers imposed by post-truth dynamics.

Conclusion

The intersection where post-truth politics intersects with transgender identities underscores the intricacies that pervade contemporary discourse. As societies traverse this intricate terrain, it becomes imperative to acknowledge the pivotal roles played by empirical evidence, an array of perspectives, and empathetic understanding in nurturing an all-encompassing and truth-driven comprehension of transgender experiences. Through engaged and reflective dialogues that transcend the confines of post-truth narratives, a pathway is forged towards cultivating a more just and enlightened future for all individuals, regardless of their gender identity.

The journey through the nexus of post-truth and transgender experiences has shed light on the far-reaching consequences of emotionally charged narratives supplanting objective facts. It has revealed the fragility of shared truths and the susceptibility of public sentiment to distortion. Yet, amidst these challenges, a pathway to an enlightened and inclusive future emerges.

Society's acknowledgment of gender as a societal construct, rather than a rigid binary, presents an opportunity for acceptance, empathy, and growth. Embracing the significance of self-identification within this construct acknowledges the autonomy and authenticity of each individual's experience. It underscores the importance of listening, learning, and creating spaces where diverse voices can contribute to a tapestry of shared understanding.

As we navigate the landscape of post-truth realities, media literacy and critical thinking become the cornerstones of a well-informed citizenry. By discerning fact from fiction and engaging in respectful conversations, we can dismantle echo chambers and elevate the discourse around transgender experiences. Legal recognition and protection of gender identity stand as tangible steps toward

affirming the validity of self-identification, fostering an environment that respects and honors individual agency.

In shaping a more truthful and inclusive future, the collision of post-truth and transgender realities calls for collective action. It challenges us to challenge ourselves, to unlearn biases, and to embrace complexities. Through empathy, we can bridge divides and foster connections; through education, we can empower minds to distinguish between perception and reality; through open dialogue, we can construct bridges across the gaps of understanding.

The nexus of post-truth and transgender experiences ultimately invites us to reevaluate the very essence of truth itself. In this dynamic era, truth is no longer a fixed point but a journey of exploration, understanding, and growth. As we traverse this evolving landscape, may we emerge with a renewed commitment to empathy, knowledge, and unity. By forging a path that values truth, respects identity, and upholds human dignity, we embark on a collective journey toward a more just, inclusive, and enlightened future for all, regardless of their gender identity.

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Diving into Indian Mythology's Gender Kaleidoscope

Haripriya R. J. Nair and Manjula K. T.

Abstract

The paper entitled Diving into Indian Mythology's Gender Kaleidoscope delves into the rich tapestry of Indian mythology to explore the representation and significance of transgender individuals within the cultural and religious narratives of the subcontinent. Drawing from a diverse range of ancient texts, epics, and folklore, this study examines the ways in which Indian myths have depicted and shaped perceptions of gender diversity. By analyzing prominent figures such as Ardhanarishvara, the two-spirit-like characters in various regional traditions, and the fluidity of gender in Hindu, Buddhist, and Jain mythologies, this paper illuminates the multifaceted nature of gender in Indian culture.

Furthermore, this research investigates the role of these mythological narratives in influencing contemporary attitudes towards transgender individuals in India and beyond. It highlights the potential for mythological stories to challenge conventional gender norms and contribute to a more inclusive and accepting society. Through a comprehensive examination of Indian myth and its connection to transgender identities, this paper provides valuable insights into the complex interplay between culture, religion, and gender diversity.

Purpose

This article explores the multifaceted dimensions of gender diversity within the narratives of Indian mythology. It aims to uncover the ways in which these ageless tales reflect, influence, and enrich our understanding of gender, challenging conventional norms and beliefs. By delving into the fluidity of deities, the empowerment of goddesses, the transformations of heroes, and the complexities of love beyond gender, this exploration seeks to provide a comprehensive and nuanced perspective on the subject.

Methodology/Approach

Our methodology employs a multidisciplinary approach that integrates literary analysis, cultural studies, and sociological perspectives. Through a meticulous selection of mythological narratives, close textual analysis, comparative examination, and interdisciplinary exploration, we navigate the gender kaleidoscope of Indian mythology. This methodology also incorporates insights from contemporary adaptations and expert consultations to contextualize the narratives within both ancient and modern contexts.

Findings/Result

The findings of this article reveal that Indian mythology is a rich repository of narratives that challenge and transcend the confines of traditional gender roles. From the fluidity of deities like Ardhanarishvara to the empowerment of goddesses such as Durga and Kali, from heroes like Arjuna and Shikhandi who redefine heroism to the complexities of divine love exemplified by Krishna and Radha, these narratives continue to resonate in contemporary society. Moreover, the article explores how modern interpretations of Indian mythology contribute to ongoing conversations about gender identity, equality, and inclusivity.

Originality/Value

This article contributes original insights by synthesizing extensive research and providing a holistic view of Indian mythology's portrayal of gender diversity. It bridges the gap between ancient narratives and contemporary discourse, shedding light on the evolving understanding of gender identity and expression within the context of Indian culture. By addressing the subject with cultural sensitivity and ethical considerations, it offers valuable perspectives for scholars, students, and readers interested in mythology, gender studies, and cultural exploration.

Type of Paper

This article is a comprehensive scholarly exploration that combines literary analysis, cultural studies, and sociological perspectives. It incorporates elements of research, comparative analysis, and thematic organization to present a cohesive examination of Indian mythology's gender kaleidoscope.

Keywords: Indian mythology, gender diversity, Ardhanarishvara, goddess empowerment, hero transformations, divine love, mythology and contemporary culture, cultural studies, gender studies, fluidity of gender, inclusivity in mythology.

Introduction

Transgender individuals have existed throughout history and across cultures, often in the context of various myths, legends, or folklore. These stories can reflect societal attitudes and beliefs about gender diversity. For example, some Native American cultures have Two-Spirit people, who are believed to embody both masculine and feminine qualities and are often revered as spiritual leaders. In Hindu mythology, the god Shiva is sometimes depicted as Ardhanarishvara, a fusion of both male and female aspects. It's important to approach these stories with cultural sensitivity and avoid reducing them to mere myths, as they hold significant cultural and historical meaning for the communities they belong to. Additionally, the experiences and identities of transgender individuals should be respected and understood independently of mythology.

In the intricate tapestry of Indian culture, the realms of mythology have always held a special place, serving as a mirror reflecting the multifaceted aspects of human existence. Yet, within the vivid narratives of gods, goddesses, and epic tales, there exists a lesser-explored dimension that is as diverse as it is fascinating — the rich and often enigmatic landscape of gender diversity. As we embark on this journey, we will delve into the heart of Indian mythology, where the conventional boundaries of gender blur, and identities transcend the binary. In a society renowned for its historical traditions and cultural richness, we uncover stories that challenge our preconceptions and open doors to understanding the intricate interplay of gender roles, expressions, and fluidity within the vibrant narratives of the Indian pantheon. Join us as we embark on a captivating exploration of the many facets of gender within Indian mythology's intricate and ever-evolving kaleidoscope.

Within the sprawling and intricate tapestry of Indian culture and spirituality, the narratives of mythology have always stood as a profound mirror reflecting the various facets of human existence. These tales, passed down through generations, transcend time and provide us with an unparalleled glimpse into the essence of the Indian psyche. However, as we embark on this voyage into the heart of Indian mythology, we aim to explore a realm that often remains shrouded in mystery, overlooked amidst the grandeur of gods and goddesses, celestial battles, and cosmic mysteries. We are about to uncover a dimension that is as captivating as it is profound — the diverse and often enigmatic world of gender identity and expression.

Indian mythology, a treasure trove of storytelling, weaves together a complex narrative that embraces the rich diversity of human experience. Within its intricate web of tales and allegories, we find a plethora of characters who

challenge and transcend the conventional boundaries of gender. As we delve deeper into these narratives, we discover that the lines between male and female, masculine and feminine, blur into a captivating spectrum of gender diversity. Our journey will be a fascinating exploration of these myriad gender identities and expressions within the context of Indian mythology. It's an exploration that goes beyond the mere retelling of stories; it is an attempt to understand the cultural, social, and spiritual significance of these narratives. Through this exploration, we hope to shed light on the complex interplay of gender roles and the fluidity of identities within the vibrant stories of the Indian pantheon.

In a society renowned for its historical traditions and cultural richness, these narratives offer us a unique opportunity to challenge preconceptions and engage in a dialogue that transcends time and place. Join us as we embark on a captivating odyssey into Indian mythology's gender kaleidoscope, where each story is a vibrant facet of a larger, ever-evolving mosaic, inviting us to question, reflect, and appreciate the beauty of human diversity. Transgender individuals, often existing at the intersection of various cultures and histories, have found their stories interwoven with myths, legends, and folklore throughout human civilization. These narratives, though diverse in their origins, share a common thread: they reflect societal attitudes and beliefs about gender diversity.

For instance, within several Native American cultures, there are Two-Spirit people who are believed to embody both masculine and feminine qualities. They are often revered as spiritual leaders and play significant roles within their communities. These stories underscore the recognition of a gender spectrum that extends beyond the binary, offering a perspective that values and celebrates diversity. Similarly, Hindu mythology, with its rich tapestry of deities and epic tales, also presents us with narratives that challenge conventional notions of gender. One of the most striking examples is that of Lord Shiva, who, at times, is depicted as Ardhanarishvara—the god who embodies both male and female aspects in perfect unity. This portrayal symbolizes the harmonious coexistence of opposites, challenging the binary constructs that often shape our understanding of gender.

However, it is crucial to approach these narratives with cultural sensitivity and respect, acknowledging that they hold profound cultural and historical meaning for the communities from which they originate. These stories are not mere myths but are woven into the very fabric of the societies they belong to, influencing their beliefs, values, and perceptions of gender diversity. Furthermore, it's essential to recognize that the experiences and identities of transgender individuals should not be reduced to or solely defined by

mythology. These individuals have unique journeys, challenges, and triumphs that should be understood independently of the stories found in ancient legends. We must respect and validate their experiences, ensuring that they are heard, seen, and valued in contemporary society.

Within the intricate tapestry of Indian culture, mythology has always held a special place. These narratives are more than tales of gods and goddesses; they are reflections of the complexities of human existence. In this exploration, we embark on a journey through the vast and intricate landscape of Indian mythology, where the boundaries of gender blur, and identities defy the confines of a binary world. As we venture deeper into this captivating realm, we encounter a diverse array of characters and stories that challenge conventional notions of gender. In a society renowned for its historical traditions and cultural richness, these narratives provide us with a unique opportunity to question preconceptions, engage in meaningful dialogue, and appreciate the beauty of human diversity.

Here the journey is not a mere retelling of stories; it is a profound attempt to understand the cultural, social, and spiritual significance of these narratives. The article aims to shed light on the intricate interplay of gender roles, expressions, and fluidity within the vibrant narratives of the Indian pantheon. Through this exploration, the aim is to inspire reflection and promote a deeper appreciation of the complex and evolving nature of gender identity. Indian mythology, with its fluid deities, powerful goddesses, and diverse heroes, serves as a reflection of the multifaceted aspects of gender. These narratives are not stagnant relics of the past; they are dynamic, evolving, and relevant in the modern world. They continue to inspire art, literature, activism, and social change, fostering a more inclusive and compassionate society.

Objectives

The primary objective of this article is to comprehensively explore and analyze the multifaceted dimensions of gender diversity within Indian mythology. Specifically, the article aims to achieve the following objectives:

Examine Mythological Narratives: To meticulously select and analyze mythological narratives from a diverse range of Indian texts, shedding light on characters, deities, and events that challenge conventional gender roles and norms.

Contextualize within Ancient Culture: To contextualize the narratives within the sociocultural framework of ancient India, considering how societal norms, values, and beliefs influenced the portrayal of gender diversity.

Highlight Fluidity and Transformation: To explore instances of gender fluidity, transformation, and ambiguity within the mythological narratives, emphasizing their relevance in contemporary conversations about gender identity.

Empowerment of Goddesses: To spotlight narratives featuring powerful goddesses like Durga and Kali, analyzing their roles as symbols of feminine strength and independence, and considering their impact on the perception of women in society.

Redefine Heroism: To examine narratives that challenge traditional gender roles, such as those of Arjuna and Shikhandi, and explore their contributions to the evolving discourse on heroism and gender expectations.

Explore Divine Love Beyond Gender: To investigate the divine love between Krishna and Radha, emphasizing its transcendence of gender boundaries and its significance as a symbol of unconditional love.

Integrate Contemporary Relevance: To analyze modern interpretations, adaptations, and creative works inspired by Indian mythology, demonstrating how these narratives continue to evolve and shape contemporary conversations about gender diversity and inclusivity.

Promote Cultural Sensitivity: To approach the subject matter with cultural sensitivity and ethical considerations, fostering a respectful and inclusive dialogue that promotes a deeper understanding of gender diversity within the context of Indian culture.

Contribute to Academic Discourse: To contribute original insights and scholarship to the fields of mythology, gender studies, and cultural exploration, offering a valuable resource for scholars, students, and readers interested in these areas.

Bridge Ancient and Modern Perspectives: To bridge the gap between ancient narratives and contemporary discourse, emphasizing the enduring relevance of Indian mythology in shaping our understanding of gender identity and expression.

By fulfilling these objectives, this article seeks to provide a comprehensive and nuanced exploration of Indian mythology's gender kaleidoscope, inviting readers to engage in meaningful dialogues about gender diversity and inclusivity within the rich tapestry of Indian culture and spirituality.

EXPLORING THE MULTIFACETED DIMENSIONS OF GENDER DIVERSITY IN ANCIENT INDIAN MYTHOLOGY

I. The Fluidity of Deity

Shiva and Ardhanarishvara: Embodying Unity in Duality

In the world of Indian mythology, gods and goddesses are not confined to fixed gender roles. The tale of Ardhanarishvara, the half-male and half-female manifestation of Lord Shiva, illustrates this fluidity. This unique deity symbolizes the cosmic balance of male and female energies and challenges binary notions of gender. The story of Ardhanarishvara invites us to contemplate the harmonious coexistence of seemingly opposing forces within ourselves and the universe.

II. Goddesses and Empowerment

The Shakti of Durga and Kali: Unleashing Feminine Power

Indian mythology is replete with powerful goddesses who defy stereotypes and embody empowerment. Durga, the fierce warrior goddess, and Kali, the embodiment of destruction and creation, represent the strength and independence of the feminine. Their stories resonate as powerful symbols of women's resilience and power in the face of adversity, transcending traditional gender roles.

III. Fluid Transformations

The Enigma of Vishnu's Incarnations

Vishnu, the preserver of the cosmos, is known for his ten avatars or incarnations. These avatars often involve dramatic transformations, where Vishnu assumes various forms, including male, female, and non-human entities. The story of Vishnu's incarnations challenges fixed gender identities and highlights the fluidity of existence itself.

IV. Heroes and Heroines

Arjuna and Shikhandi: Redefining Heroism

In the epic of the Mahabharata, characters like Arjuna and Shikhandi blur the lines between male and female identities. Arjuna, during his time in disguise as Brihannala, experiences a period of gender transformation, questioning societal norms. Shikhandi, born female but later identified as a male warrior, challenges traditional gender roles within the epic's context.

V. The Dualities of Love

Krishna and Radha: Divine Love Beyond Gender

The love between Lord Krishna and Radha transcends earthly norms, embodying a spiritual connection that defies gender boundaries. Their relationship serves as a powerful symbol of unconditional love and devotion, highlighting that love knows no gender.

VI. Legends of Transformation

The Story of Ila: Embracing Ambiguity

The legend of Ila, who alternated between male and female identities due to a celestial curse, explores the complexities of gender transformation and identity. Ila's tale prompts us to consider the intersections of destiny, choice, and societal expectations.

VII. Modern Interpretations

Reimagining Mythological Narratives in Contemporary India

In contemporary India, artists, authors, and activists are revisiting these ancient mythological narratives to explore and express diverse gender identities. We examine the works of modern creators who draw inspiration from mythology to challenge gender norms and promote inclusivity.

The Endless Exploration of Indian Mythology's Gender Kaleidoscope

Indian mythology is a treasure trove of narratives that reflect the ever-evolving understanding of gender. From the fluid deities and powerful goddesses to heroes and heroines who transcend societal expectations, these stories continue to resonate with contemporary audiences, inviting us to contemplate the complexities of gender diversity. As we dive into Indian mythology's gender kaleidoscope, we find that each narrative serves as a vibrant facet in the mosaic of human existence, reminding us that the fluidity of gender is not a modern invention but an intrinsic part of our shared heritage. Through these stories, we can engage in meaningful dialogues about gender, identity, and inclusivity, bridging the ancient and the modern, and promoting a more inclusive and compassionate society.

VIII. The Divine and the Diverse

Transcending Gender in Divine Beings

While many mythological narratives focus on mortal heroes and heroines, Indian mythology also introduces us to divine beings who transcend gender boundaries, challenging conventional notions of identity.

Bahuchara Mata: The Goddess of Transgender Devotees

In the region of Gujarat, there exists a unique deity known as Bahuchara Mata, who is revered by transgender individuals. Bahuchara Mata's narrative highlights the acceptance of diverse gender identities within the mythological context. Legend has it that she transformed a group of arrogant men into eunuchs, symbolizing a form of divine intervention to teach humility and promote gender diversity. This narrative is a testament to the inclusivity present within Indian mythology, where even deities embrace and acknowledge the fluidity of gender. The worship of Bahuchara Mata continues to this day, serving as a symbol of empowerment and acceptance for transgender individuals in India.

IX. The Power of Androgyny

Exploring Ardhanarishvara in Depth

Returning to the concept of Ardhanarishvara, the half-male and half-female manifestation of Lord Shiva, we delve deeper into its symbolism and significance.

Cosmic Balance and Complementarity

Ardhanarishvara represents more than just the fusion of male and female attributes; it embodies the concept of cosmic balance and complementarity. The male aspect, symbolizing the masculine principle, represents Purusha, the universal soul, while the female aspect, embodying the feminine principle, represents Prakriti, the creative force of the universe. Together, they illustrate the inseparable interplay of these dualistic energies that give rise to creation, preservation, and destruction—the fundamental processes of existence.

This divine androgyny challenges the binary categorization of gender and invites us to contemplate the interconnectedness of opposites. It serves as a powerful reminder that unity and diversity can coexist harmoniously, both within the individual and in the cosmos at large.

X. The Evolution of Gender Discourse

Indian Mythology in Modern Context

As we explore the intersection of Indian mythology and gender diversity, it becomes evident that these narratives have not remained static relics of the past but have evolved to address contemporary gender issues.

Empowerment through Mythological Discourse

In modern India, mythological narratives are often invoked to challenge prevailing gender norms and promote empowerment. Women and marginalized groups draw strength from the stories of powerful goddesses like Durga and Kali, using them as symbols of resilience and determination in their struggle for gender equality and social justice.

Moreover, scholars and activists continue to reinterpret ancient myths to advocate for greater inclusivity. The celebration of characters like Shikhandi in contemporary discourse resonates with the broader conversation about transgender rights and recognition.

Artistic Expressions and Social Commentary

Indian art and literature continue to draw inspiration from mythology to create contemporary narratives that challenge gender stereotypes and celebrate diversity. Paintings, sculptures, novels, and films incorporate mythological themes to critique societal norms and prompt discussions on gender fluidity, identity, and equality.

Celebrating Diversity in Mythology and Beyond

The exploration of gender diversity within Indian mythology unveils a rich tapestry of narratives that transcend time and societal constraints. From the divine androgyny of Ardhanarishvara to the empowerment of goddesses like Bahuchara Mata, Durga, and Kali, and from the heroic journeys of characters like Arjuna, Shikhandi, and Ila to the spiritual love of Krishna and Radha, these stories continue to resonate across generations. Indian mythology, with its fluid deities, powerful goddesses, and diverse heroes, serves as a reflection of the complex, multifaceted nature of gender. These narratives are not stagnant; they adapt and evolve to address contemporary gender discourse, empowering individuals and communities alike. As we celebrate the diversity within these mythological tales, we are reminded that the fluidity of gender is not a recent development but an inherent aspect of human existence. Indian mythology stands as a testament to the enduring significance of embracing and celebrating diverse gender identities. In the modern world, these narratives continue to

inspire art, literature, activism, and social change, fostering a more inclusive and compassionate society. By engaging

Conclusion

As we draw our journey through the intricate tapestry of Indian mythology's gender kaleidoscope to a close, it is evident that the narratives we have explored are not mere relics of the past but timeless reflections of the human experience. From the fluidity of deities to the empowerment of goddesses, from heroes who challenge norms to the complexities of love beyond gender, these stories continue to resonate and evolve in contemporary society, inviting us to engage in profound discussions about gender, identity, and inclusivity. The essence of Indian mythology lies in its ability to transcend time and space, serving as a living testament to the fluid nature of human existence. It defies rigid boundaries and invites us to see the world in all its vibrant diversity. In our exploration, we have encountered gods and goddesses who shatter the confines of gender, teaching us that unity resides in duality. Ardhanarishvara, the half-male and half-female deity, reminds us that the balance between masculine and feminine energies is not only essential but also transcendent.

The goddesses Durga and Kali stand as formidable symbols of empowerment. Their stories remind us that strength, courage, and independence are not the exclusive domain of any gender but are qualities inherent in the human spirit. The fierce battles they wage against injustice and oppression inspire generations to confront adversity with unwavering determination. Vishnu's incarnations demonstrate that life itself is a series of transformations. Whether assuming the form of a man-lion, a dwarf, or a beautiful enchantress, Vishnu teaches us that the boundaries of identity are fluid, and the soul transcends physical form. In a world where change is constant, his avatars offer profound lessons on adaptability and resilience. The Mahabharata introduces us to characters like Arjuna and Shikhandi who challenge traditional gender roles. Arjuna's experience as Brihannala highlights the spectrum of human identity and the acceptance of one's true self. Shikhandi, born a woman but living as a man, raises questions about the complexities of gender and societal expectations, echoing contemporary conversations about gender fluidity and transgender identity. The divine love between Krishna and Radha is a testament to the idea that love transcends the boundaries of gender. Their spiritual connection serves as a reminder that the deepest bonds are forged beyond physical form, reminding us that love is a powerful force that defies categorization. The story of Ila, caught in a celestial curse that alternates their gender, challenges our understanding of destiny, choice, and societal

expectations. Ila's journey reflects the ambiguity and fluidity that can exist within a single life, prompting us to reevaluate our assumptions about gender.

In our exploration of modern interpretations, we witnessed how contemporary artists, authors, and activists draw inspiration from these timeless narratives to challenge and reshape societal norms. These creative expressions allow for a dynamic dialogue about gender, identity, and inclusivity that bridges the gap between the ancient and the modern. They invite us to rethink our preconceptions, fostering a more inclusive and compassionate society. Indian mythology's gender kaleidoscope is a reminder that diversity is not a new concept but an inherent part of our shared heritage. It challenges us to embrace the full spectrum of human identity and expression, transcending the limitations of binary thinking. These narratives serve as mirrors, reflecting our own complexities and potential for growth. They encourage us to break free from the constraints of fixed gender roles, fostering a society where every individual can thrive authentically. As we conclude our exploration, we carry with us the profound lessons of Indian mythology. These stories continue to evolve, inspiring us to challenge preconceptions, foster inclusivity, and celebrate the beauty of human diversity. The gender kaleidoscope of Indian mythology beckons us to navigate its intricate patterns with an open heart and mind, recognizing that each narrative is a vibrant facet of the ever-expanding mosaic of human existence. In our journey forward, let us heed the timeless wisdom of these narratives and strive for a world where gender is no longer a limitation but a celebration of our shared humanity.

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MORIN AMELIORATES DIABETIC ENCEPHALOPATHY, VIA REGULATING CEREBRAL GLUCOSE METABOLISM, ATTENUATING MITOCHONDRIAL DYSFUNCTION AND OXIDATIVE STRESS IN THE BRAIN

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ABSTRACT

Diabetic encephalopathy (DE) is the long-term neurological complication of diabetes. Morin is a bioflavonoid, isolated from Moraceae family including guava, onion, jackfruit, etc. It has significant antidiabetic, antioxidant and anti-inflammatory activity. The aim of the present study was to evaluate the role of morin on mitochondrial dysfunction, cerebral glucose metabolism and oxidative stress-induced dysfunction in DE rats. Rats were made diabetic by single intraperitoneal injection (40mg/kg) of streptozotocin. The treatment was started after four weeks of diabetes induction for confirming diabetic encephalopathy. Morris water maze test was used to evaluate the memory and cognition of diabetic rats. DE rats were treated orally with Morin at a dose of 50 mg/kg bodyweight for 60 days. It was compared with standard anti-diabetic drug metformin(100mg/kg). Rat brain mitochondria were isolated after 60 days of treatment. Then several parameters of citric acid cycle enzymes were analyzed and activity of antioxidant enzymes, glycolytic enzymes and lipid peroxidation levels were also monitored. Morin supplementation restored diabetes-induced mitochondrial dysfunction by decrease oxidative stress, enhancing diminished activities of the citric acid cycle enzymes, glycolytic enzymes, antioxidant enzymes and decreasing lipid peroxidation products in DE rats. The results of the study demonstrated that morin possesses the potential to modulate mitochondrial function in the brain and delaying the progression of CNS complications.

Keywords: Diabetic encephalopathy, Morin, brain, oxidative stress

INTRODUCTION

Diabetic encephalopathy, a confirmed complication of diabetes, is related to gradually growing end-organ damage in the CNS, increasing the chance of stroke, seizure, cognitive decline or Alzheimer's disease¹. Mitochondrial dysfunctions have been suggested as a central mediator of neurodegeneration. About 90% of the ATP required for the normal function of neurons is provided by mitochondria². Thus mitochondrial dysfunction may contribute to the neuronal metabolic control loss and consequently to neurodegeneration. Oxidative stress plays a key role in neuronal damage.

The incremented oxidative stress in diabetes condition produces damage of hippocampus and cerebral cortex, which provide to the morphological changes and memory impairments³. The brain is a principal target for free radical attack which leads to lipid peroxidation, membrane damage and protein nitration, also the initiation of programmed neuronal death. Antioxidants have been shown to protect neurons towards neurodegenerative conditions⁴. In addition, glucose is known to be the principal source of energy in the mature, healthy and non-starved mammalian brain. An undisturbed glucose metabolism is the basis of normal neuronal function. Glucose metabolism declines with age in many brain regions, and glucose hypometabolism and brain atrophy are associated with concurrent cognitive dysfunction⁵.

Plants produce several types of secondary metabolic products. Most of the secondary metabolites are helpful in plant defence mechanisms. Among them, flavonoids have different pharmacological activities like antihepatotoxic, anti-inflammatory, anti-ulcer activity. Morin is a naturally occurring bioflavonoids has marked attention in life. It is ubiquitously present in the family of Moraceae, including mulberry, guava, onion, mill, fig, jackfruit, almond, red wine and some other herbs⁶. The present investigation aimed to evaluate the ameliorative potential of morin in diabetic encephalopathy, via attenuating mitochondrial dysfunction, oxidative stress and regulating cerebral glucose metabolism.

MATERIALS AND METHODS

Chemicals:--The chemicals used in the present study were of analytical reagent grade. They were purchased from Sigma Aldrich, St. Louis, MO, USA and SRL Pvt. Ltd., Mumbai, India

Animals and Experimental design

Male Sprague Dawley rats of body weight 150-250g were used for the study. They were provided with laboratory chow (Hindustan Lever Lab diet) and water ad libitum throughout the experimental period. Animals were housed in polypropylene cages and maintained under standard conditions [12hours light and 12hours dark cycles, (25 ± 100C)]. All the animal care was taken as per the guidelines of the Committee for Control and Supervision of Experiments on Animals (CPCSEA), and the experimental protocol was approved by Institutional Animal Ethics Committee[IAEC-KU-04/2017-18-BCH-SM(40)].] were assayed by previously described method¹⁰⁻¹⁶

Protein estimation-Protein was measured in all brain samples according to the method of Lowry et al¹⁷. Bovine serum albumin (BSA) (1mg/ml) was used as standard.

Assay of carbohydrate metabolising enzymes --Hexokinase activity and Pyruvate kinase activity was measured by the previously described method¹⁸.

Isolation of mitochondria—Mitochondria were isolated from the brain by the method of Kudin et al.¹⁹.

Assay of TCA cycle enzymes-- Citrate synthase activity, Isocitrate dehydrogenase activity, succinate dehydrogenase activity and malate dehydrogenase by the previously described method^{20,21,22, 23}.

Statistical analysis--Data were analysed by one-way analysis of variance followed by Duncan's Mul-

multiple Range Test (DMRT) using SPSS version 22. The limit of statistical significance was set at $p < 0.05$. All results were expressed as mean \pm standard error of the mean (SEM) of eight rats in each group ($n=8$).

RESULTS

Changes in body weights--At the end of the study, DE control rats showed a marked reduction in their body weight as compared to normal rats (Fig 2A) which could be due to poor glycemic control. Morin treatment significantly improved the body weights of DE rats. A comparable effect was observed in both morin and metformin-treated groups. Oral administration of morin to normal rats has no significant effect compared to normal control rats.

Effect of Morin on learning and memory--The effect of Morin on spatial learning was evaluated using the Morris water maze test (Fig 1A and B). After 30 days of diabetes induction, all diabetic groups in untreated conditions exhibited longer escape latencies (Fig 1A) throughout the training sessions than the normal rats. It confirmed diabetic encephalopathy. Then the treatment was started. After 60 days of treatment, Morin treated DE groups significantly decreased mean latency time at 3rd and 4th session as compared to the 1st session. Morin treatment in DE rats significantly ($p < 0.05$) improved learning and memory as compared to DE untreated rats (Fig 1B).

Fasting blood glucose, HbA1c, and plasma insulin levels--The effect of Morin on the levels of fasting blood glucose, blood HbA1c and plasma insulin levels in the control and experimental groups of rats were shown in Fig 2B, C & D. The concentration of glucose and HbA1c were significantly ($p < 0.05$) elevated in the diabetic encephalopathic control group (DE) in comparison with normal (N) rats. The increased levels of glucose and HbA1c were significantly ($p < 0.05$) reduced in DE rats administrated with Morin (DE+M) and metformin (DE+Met). Plasma insulin level was decreased significantly in the diabetic group when compared with other groups. Administration of morin and metformin in DE groups significantly increased ($p < 0.05$) the level of plasma insulin.

Liver toxicity markers--In diabetic condition liver toxicity markers are altered due to the leakage of enzymes from the damaged liver cells. In our study, serum toxicity markers like SGOT, SGPT, ALP, and ACP were significantly increased in DE rats when compared to normal (Table 1). Treatment of diabetic rats with Morin or metformin resulted in significantly ($p < 0.05$) lower SGOT, SGPT, ALP and ACP activities compared with the untreated DE rats. The liver toxicity markers were not significantly altered in normal rats treated with the Morin group in comparison with a normal control group.

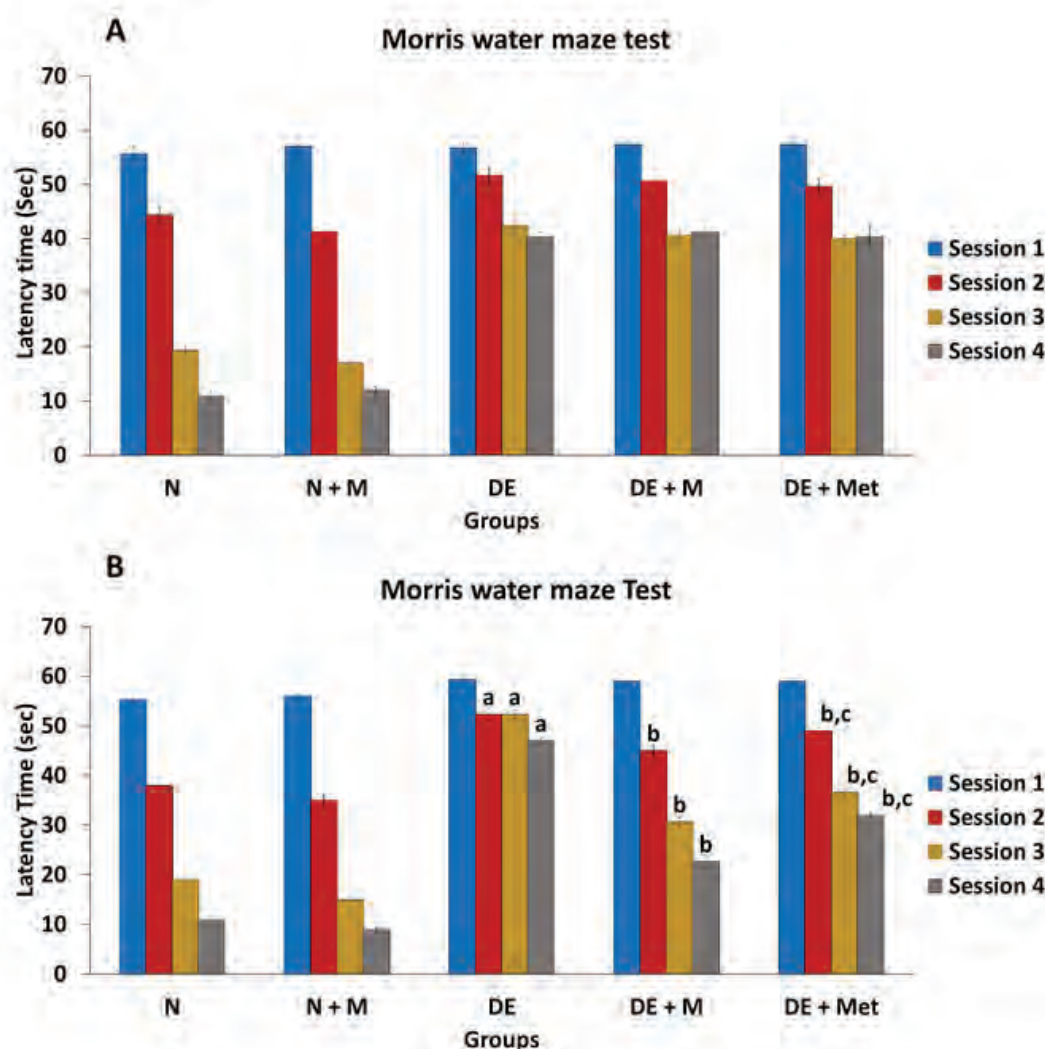


Fig. 1. Effect of Morin on learning and memory. A. Morris water maze test before treatment. B. Morris water maze test after treatment. Values are expressed as mean \pm SEM (n=8). 'a' indicates values were significantly different from N, 'b' indicates values were significantly different from DE and 'c' indicates values were significantly different from DE+M. $p < 0.05$. DE (diabetic encephalopathy), DE+M (Diabetic encephalopathy+ Morin, 50mg/kg), DE+Met (Diabetic encephalopathy + Metformin, 100mg/kg).

Activities of tricarboxylic acid cycle enzymes--There was a marked decrease in the activities of mitochondrial tricarboxylic acid cycle enzymes (Fig 3 A & B) like isocitrate dehydrogenase (ICDH), succinate dehydrogenase (SDH), malate dehydrogenase (MDH) and citrate synthase (CS) in DE group as compared to normal. Morin and metformin administration significantly increased the activities of these enzymes in DE rats. Morin showed a superior effect than metformin.

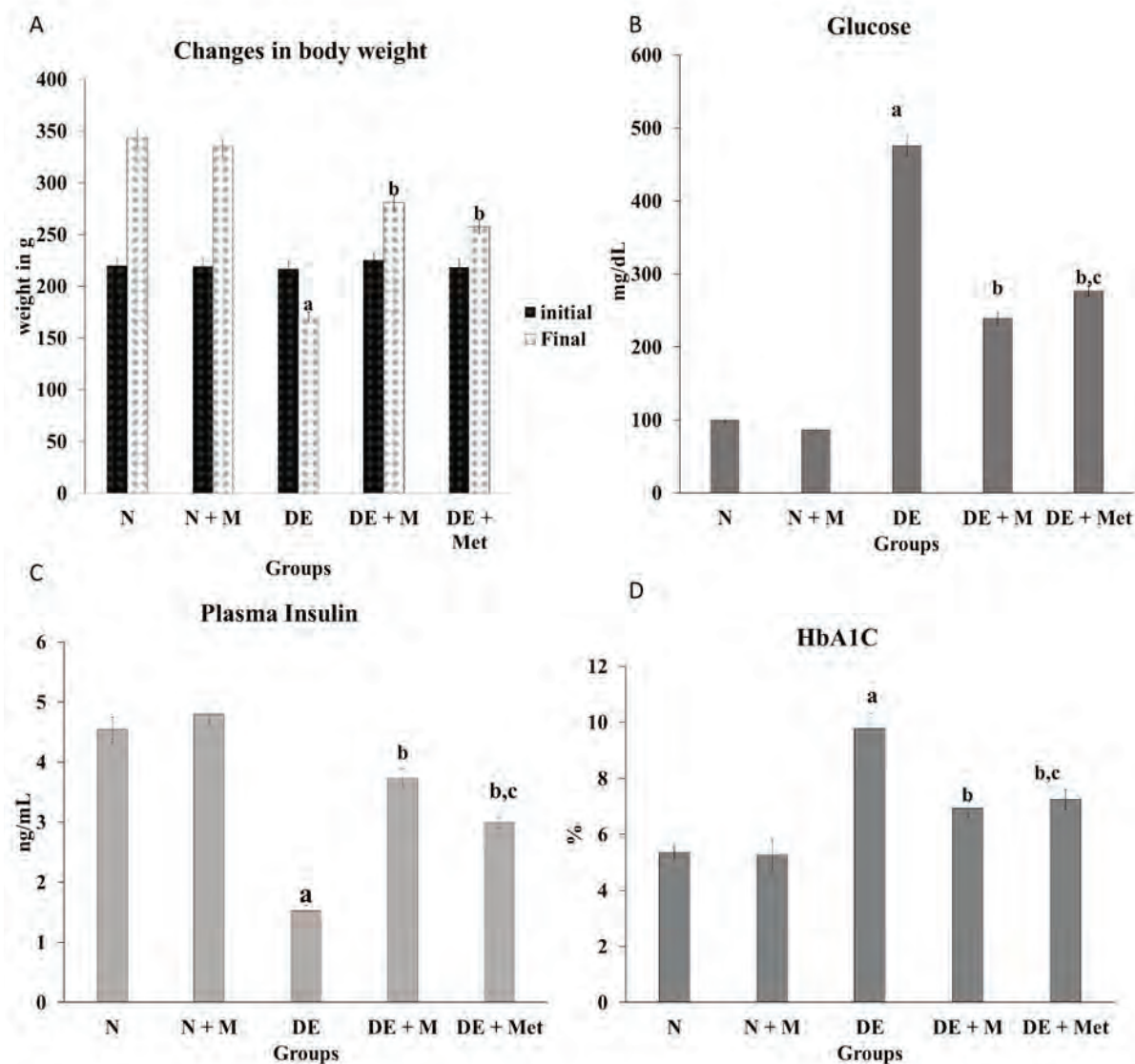


Fig. 2. A. Effect of morin on body weight. B. Effect of morin on glucose. C. Effect of morin on Plasma insulin level. D. Effect of morin on HbA1C. Values are expressed as mean \pm SEM (n=8). 'a' indicates values were significantly different from N, 'b' indicates values were significantly different from DE and 'c' indicates values were significantly different from DE+M. $p < 0.05$. DE (diabetic encephalopathy), DE+M (Diabetic encephalopathy+ Morin, 50mg/kg), DE+Met (Diabetic encephalopathy + Metformin, 100mg/kg).

Table 1- liver toxicity markers

| Groups | GPT (U/L) | SGOT(U/L) | ALP (U/L) | ACP (U/L) |
|--------|---------------------------|----------------------------|---------------------------|----------------------------|
| N | 42.30 ± 2.11 | 59.53 ± 3.13 | 8.84 ± 0.40 | 113.37 ± 5.40 |
| N+M | 38.14 ± 2.00 | 55.50 ± 2.92 | 7.64 ± 0.40 | 100.54± 5.02 |
| DE | 95.26 ± 4.76 ^a | 110.2 ± 8.55 ^a | 18.42 ± 0.92 ^a | 201.65±10.08 ^a |
| DE+M | 55.98 ± 2.79 ^b | 73.46 ± 3.49 ^b | 9.91 ± 0.96 ^b | 128.25±6.75 ^b |
| DE+Met | 66.12±4.66 ^{b,c} | 80.08 ±5.73 ^{b,c} | 11.73±0.31 ^{b,c} | 149.92±7.14 ^{b,c} |

Values are expressed as mean ± SEM (n=8). 'a' indicates values were significantly different from N, 'b' indicates values were significantly different from DE and 'c' indicates values were significantly different from DE+M. $p < 0.05$. N (Normal), N+M (Normal + Morin), DE (diabetic encephalopathy), DE+M (Diabetic encephalopathy+ Morin, 50mg/kg), DE+Met (Diabetic encephalopathy + Metformin, 100mg/kg). SGPT (Serum glutamate pyruvate transaminase), SGOT (Serum glutamate oxaloacetate transaminase), ALP (Alkaline phosphatase), ACP (Acid Phosphatase)

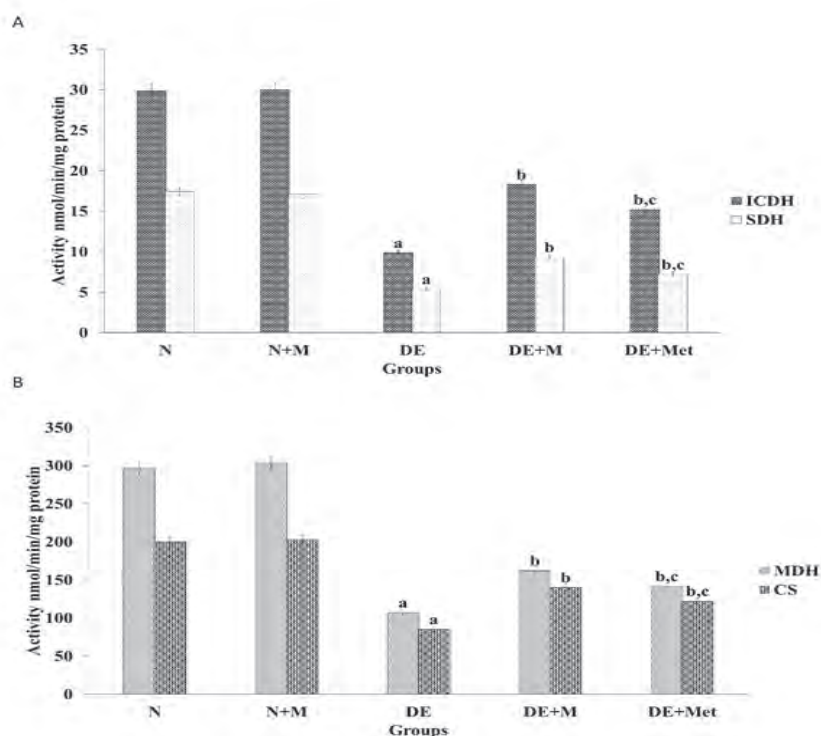


Figure 3. A.Effect of morin on Isocitrate dehydrogenase and succinate dehydrogenase activity. B. Effect of morin on malate dehydrogenase and citrate synthase activity. Values are expressed as mean ± SEM (n=8). 'a' indicates values were significantly different from N, 'b' indicates values were significantly different from DE and 'c' indicates values were significantly different from DE+M. $p < 0.05$. DE (diabetic encephalopathy), DE+M (Diabetic encephalopathy+ Morin, 50mg/kg), DE+Met (Diabetic encephalopathy + Metformin, 100mg/kg).

Activities of brain antioxidant enzymes--The effects of morin treatment on the activities of antioxidant enzymes SOD, CAT, GPx and GRd in the brain of rats were shown in Fig: 4A. Activities of antioxidant enzymes were significantly ($p < 0.05$) decreased in the brain of DE rats compared with the normal control group. Morin and metformin supplementation significantly ($p < 0.05$) increased the activities of antioxidant enzymes in DE rats when compared to DE control rats. Morin administration significantly improved the activities of antioxidant enzymes than metformin in DE rats. Results were comparable in normal and normal + morin groups.

Table 2- glycolytic enzymes

| Groups | Hexokinase (* U/mg protein) | Pyruvate kinase (*U/mg protein) |
|----------|----------------------------------|---------------------------------|
| N | 0.092 \pm 0.0046 | 1.48 \pm 0.074 |
| N + M | 0.0940 \pm 0.0047 | 1.47 \pm 0.073 |
| DE | 0.0720 \pm 0.0045 ^a | 1.11 \pm 0.058 ^a |
| DE + M | 0.0851 \pm 0.0040 ^b | 1.26 \pm 0.039 ^b |
| DE + Met | 0.0840 \pm 0.0040 ^b | 1.25 \pm 0.035 ^b |

Values are expressed as mean \pm SEM (n=8). 'a' indicates values were significantly different from N, 'b' indicates values were significantly different from DE DE+M. $p < 0.05$. N (Normal), N+M (Normal + Morin), DE (diabetic encephalopathy), DE+M (Diabetic encephalopathy+ Morin, 50mg/kg), DE+Met (Diabetic encephalopathy + Metformin, 100mg/kg). *Unit/mg protein.

Activities of cerebral glycolytic enzymes-- The activities of the cerebral glycolytic enzymes viz, hexokinase (HK) and pyruvate kinase (PK) were decreased significantly ($p < 0.05$) in the diabetic control group when compared to N and N+ Morin groups (Table 2). Treatment with morin and metformin significantly increased the activities of these enzymes in diabetic rats. Comparable effect was observed in both morin and metformin supplemented DE groups.

Concentration of lipid peroxidation products--The effect of morin treatment on lipid peroxidation products TBARS, HP, and CD levels in the brain of rats are shown in Fig: 4 B. Lipid peroxidation products were Significantly ($P < 0.05$) higher in the brain of DE rats compared to normal control rats. The augmentation of lipid peroxidation level in the DE groups was significantly decreased by morin and metformin treatment in the brain. Results were comparable in treated groups. There were no significant ($P < 0.05$) differences between the normal and normal + morin groups.

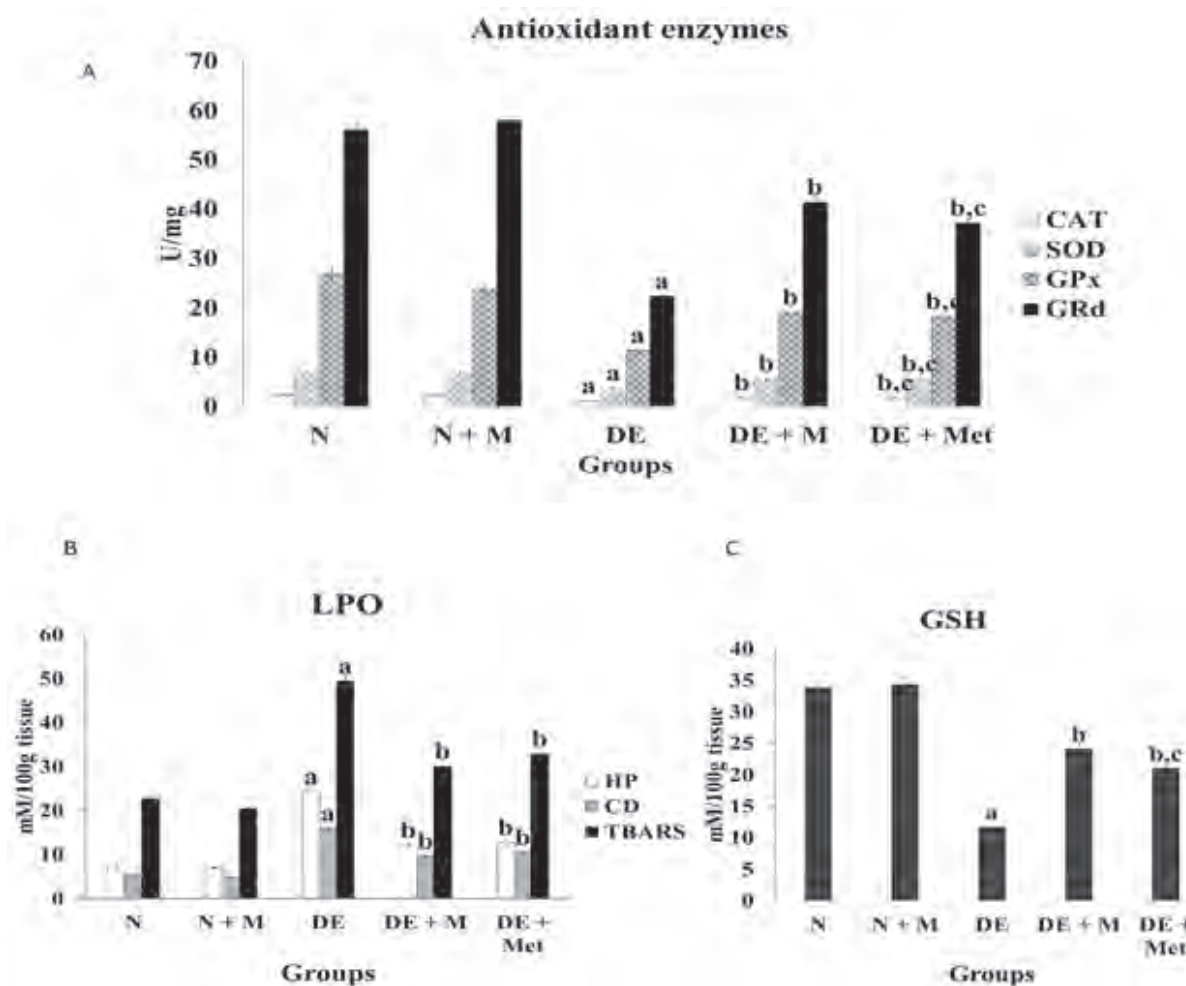


Fig 4. A. Effect of morin on Antioxidant enzymes activity. B. Effect of morin on Lipid peroxidation products level. C. Effect of morin on Reduced glutathione content. Values are expressed as mean \pm SEM (n=8). 'a' indicates values were significantly different from N, 'b' indicates values were significantly different from DE and 'c' indicates values were significantly different from DE+M. $p < 0.05$. DE (diabetic encephalopathy), DE+M (Diabetic encephalopathy+ Morin, 50mg/kg), DE+Met (Diabetic encephalopathy + Metformin, 100mg/kg).

GSH content --The effect of morin treatment on GSH level in the brain of STZ induced rats is shown in Fig: 4 C. Levels of non-enzymatic antioxidant GSH was significantly ($P < 0.05$) depleted in the brain of DE group compared to the normal group. GSH level in DE groups was significantly ameliorated by morin and metformin supplementation when compared to untreated DE rats. Administration of morin and metformin increase the level of GSH and Significant effect was observed in morin administrated DE rats. The levels of GSH were not significantly ($P < 0.05$) changed in morin supplemented normal groups.

DISCUSSION

Diabetes mellitus and Alzheimer's disease affect millions of people worldwide. The long duration of diabetes mellitus accompanied by impairment of cognitive functions and electrophysiological changes. These functional changes accelerated memory dysfunctions and degenerative changes in the brain. Reduced cognitive functions in diabetes is mainly because of the abnormal accumulation of glucose in the brain²⁴. Hyperglycemia has been evaluated as the key factor correlated with the onset and development of DE and other diabetes mediated complications. Previous studies have reported that antihyperglycemic medications and insulin sensitizers reduce cognitive dysfunction in diabetic conditions²⁵.

In the present study, the Morris water maze test was done after 30 days of diabetes induction for employed to assess spatial learning and memory. A poor performance in Morris water maze revealed the rats with learning and memory dysfunction. Morin and metformin treatment was started after confirming cognitive impairment in rats and continued for 60 days. After 60 days, morin and metformin-treated DE rats showed significantly reduced escape latency time as compared to DE control rats. That means Morin treatment improved the learning and memory in diabetic rats. These results suggest that morin could improve memory and cognitive function in DE rats.

The current study, STZ-treatment, produced a significant increase in blood glucose and HbA1c, along with a reduction in plasma insulin and body weight. Morin treatment significantly prevented the rise in blood glucose and HbA1c level and improved the body weight and plasma insulin level of diabetic animals. This hypoglycemic and insulin secretory effect may be due to the strong antioxidant²⁶ and direct stimulatory action of morin on the pancreatic beta-cell that could contribute towards its hypoglycemic activity²⁷.

Oxidative stress and alteration of mitochondrial function in the diabetic condition are related to liver damage. SGOT, SGPT, ALP, and ACP are the liver-specific enzymes. Assay of serum toxicity markers are indicator of the extent and type of liver damage. In our results, SGOT, SGPT, ALP and ACP activities were increased considerably in the serum of diabetic rats, which is clear evidence for liver damage. The elevation of liver toxicity markers, perhaps due to the necrotic and oxidative changes taking place membrane damage in the liver resulting leakage of these enzymes from hepatocytes²⁸. Treatment with morin and metformin considerably reduced the activities and levels of these functional markers. It was observed that morin could protect membrane integrity, thereby decrease enzyme leakage in the liver and protect from damage.



Hyperglycemia mediates oxidative stress. In diabetic condition, high glucose level altered the balance of reactive oxygen species (ROS) and the antioxidant defence mechanisms of a cell or tissue. This lead to lipid peroxidation and inactivation of antioxidant enzymes. Antioxidants have been shown to secure neurons against neurodegenerative conditions ²⁹. Hence, Imbalance of ROS and antioxidant activity has been considered as one of the principal factors in the pathogenesis of diabetic encephalopathy. In the present study, we found, increased lipid peroxidation products (TBARS, HP, CD) and decreased antioxidant enzyme activities (SOD, CAT, GPx, and GRd), which indicated the oxidative stress in the diabetic brain. Morin treatment significantly reduced the lipid peroxidation products level and increased the activities of antioxidant enzymes. This revealed the protective effect of morin on oxidative stress-mediated brain damage.

Glucose is the main brain energy supply for the central nervous system. The insufficiency of glucose in the cells triggers neuronal injury. This is due to the altered energy metabolism in neurons which induce the production of increased amount of free radicals in the brain of DE rats, which in turn induce neuronal cell damage³⁰. Hexokinase and pyruvate kinase are the key enzymes in the glycolytic pathway, which is insulin-dependent and plays a crucial function in the maintenance of glucose homeostasis³¹. In the present study, the activities of hexokinase, pyruvate kinase and brain glycogen level were reduced in diabetic encephalopathic control rats as compared to normal rats. Supplementation of morin improved the enzyme activities and cerebral glycogen level in DE rats. It revealed that morin can modulate glucose metabolism in diabetic condition.

The increased formation of free radicals and altered cerebral metabolisms are associated with diminished function of TCA cycle. The enzymes of TCA cycle have a major role in energy production and neurotransmitter metabolism. In addition, TCA cycle contribute the metabolic relationship between mitochondria and cytoplasm³². TCA cycle is an assembly of eight enzymes. Alteration of any of the TCA cycle enzyme can impair mitochondrial bioenergetics. In the current study, we evaluated the activities of four mitochondrial TCA cycle enzymes. Activities of TCA cycle enzyme isocitrate dehydrogenase (ICDH), succinate dehydrogenase (SDH), citrate synthase (CS) and malate dehydrogenase (MDH) were significantly declined in the brain of DE groups. However, chronic treatment with morin could increase TCA cycle enzyme activities and protect brain neurons. Furthermore, these improvements in the brain of diabetic rats accompanied by amelioration of behavioural deficits.

In conclusion, the results from the present study demonstrated impaired learning and memory associated with altered cerebral glucose metabolism, TCA cycle enzyme activity, and antioxidant defence

mechanisms in diabetic rat brain. Morin treatment alleviates behavioural and biochemical alterations in diabetic rats. These findings confirm that morin might be beneficial for reducing the complications of diabetes mediated neuronal damage.

Conflicts of Interest

Author declare no conflict of interest

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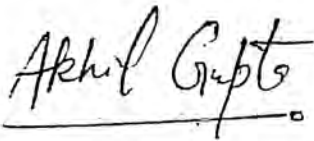
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To,
Dear Dr. Melbha D

This certificate confirms that **Dr. Melbha D** is the author of book chapter titled "**Impact of Behavior Finance to Change in Investors Decision**" of published book entitled "**Perspectives in Finance (Volume - 4)**" having ISBN 978-93-5570-327-9.

Yours Sincerely,





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Abstract

Behavior finance is the branch of economics which is concerned with the application of psychology to financial behavior. It studies the influence of psychology on the behavior of financial practitioners and the subsequent effect on market. Behavioral finance treats investors as normal human being and not rational human being. Investors actually have limits to their self-control and are influenced by their own biases which in turn will lead to cognitive error and wrong decisions. Investors exhibit irrational behaviour in their decision-making. The decision-making process itself is considered to be a cognitive process as the investors have to make a decision based on various alternatives available to them. The researchers have found that the investors' decision-making was adversely affected by the various psychological/behavioral factors. The current study was carried forward to identify impact of behavior finance to change in investors' decision.

Keywords: Behaviour finance biases, anchoring loss aversion biases, herd mentality

1. Introduction

Behavior finance is the branch of economics which is concerned with the application of psychology to financial behavior. It studies the influence of psychology on the behavior of financial practitioners and the subsequent effect on market. Behavioral finance treats investors as normal human being and not rational human being. Investors actually have limits to their self-control and are influenced by their own biases which in turn will lead to cognitive error and wrong decisions. It recognizes that people employ imperfect rules of thumb to process data which induces biases in their belief which in turn lead to committing errors. It basically deals with how typically human beings behave when it comes to handling different financial decisions. However, it is not that simple and as such, there is an entire subject dedicated to behavioural finance. But, strangely the subject was not



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| | | |
|----|--|-----|
| | Research Scholar, Vels University. | |
| 12 | SHIFT IN E-COMMERCE STRATEGIES BY MARKETERS DURING THE PANDEMIC *S PRATIKSHA and **Dr. KAVITHA M *Research Scholar, Department of Commerce, VISTAS Pallavaram, Chennai. **Professor & Research Supervisor, Department of Commerce, VISTAS, Pallavaram, Chennai. | 64 |
| 13 | PERSONNEL LEARNING MANAGEMENT SYSTEMS WITH ARTIFICIAL INTELLIGENCE TECHNOLOGIES *G RAMACHANDRAN and **S KANNAN *Assistant Professor, Department of Electronics and Communication Engineering, Vinayaka Mission's KirupanandaVariyar Engineering College, Salem. **Assistant Professor, Department of Electronics and Communication Engineering, Vinayaka Mission's KirupanandaVariyar Engineering College, Salem. | 68 |
| 14 | A STUDY ON ATTITUDE AND AWARENESS OF INVESTORS TOWARDS SAVINGS AND INVESTMENTS IN MUTUAL FUNDS WITH SPECIAL REFERENCE TO KERALA *VISHAKH V T and **Dr. Prof. J KANNAN *Assistant Professor, Vigyaan College of Applied Science, Kattakada, Trivandrum, Kerala, Ph. D Research Scholar, Bharath Institute of Higher Education and Research, Chennai. **Associate Professor & Research Supervisor, Department of Arts & Science, Bharath Institute of Higher Education and Research, Chennai. | 72 |
| 15 | STATUS AND SIGNIFICANCE OF SWARANJAYANTI GRAM SWAROZGAR YOJANA (SGSY) IN RURAL POOR: A CASE STUDY ON RAMANATHAPURAM DISTRICT OF TAMILNADU *S SIVAPRAKASH, **Dr. S PALANI and ***S SAKTHIVEL *Ph.D Research Scholar, Department of Economics, M.T.N, College, Madurai. **Associate Professor & Head, Department of Economics, M.T.N, College, Madurai. ***Ph.D Research Scholar, Department of Environmental Economics, School of Economics, Madurai Kamaraj University, Madurai – 625 021. | 76 |
| 16 | THE EFFECT ON SATISFACTION OF SUPPLY CHAIN MANAGEMENT (SCM) STUDENTS IN E-LEARNING COURSES USING CORRELATION ANALYSIS *Dr. S SURESH and **Dr. M SANKAR **Guest Faculty, Department of MBA, School of Management Studies, VISTAS, **Assistant Professor, Department of Commerce & Management, Sri Muthukumaran Arts and Science College, Chennai. | 84 |
| 17 | THE INFLUENCE ON STUDENTS' SATISFACTION IN ONLINE COURSES OFFERED IN HIGHER EDUCATION *Dr. M SANKAR and **Dr. S SUDHA *Assistant Professor, Department of Commerce & Management, Sri Muthukumaran Arts and Science College, Chennai. **Associate Professor & Research Supervisor, Department of MBA, School of Management Studies, VISTAS. | 93 |
| 18 | OUTLOOK OF COMMERCE STUDENTS' ON ONLINE EDUCATION DURING THE PANDEMIC PERIOD *C SASIKALA and **Dr. M SANKAR *Assistant Professor, Department of Commerce, Sri Muthukumaran Arts and Science College, Chennai. **Assistant Professor, Department of Commerce & Management, Sri Muthukumaran Arts and Science College, Chennai. | 104 |
| 19 | IMPACT OF COVID - 19 ERA - E COMMERCE *Dr. D VIJAYALAKSHMI and **Dr. C NITHYA *Assistant Professor, PG Department of Commerce, SRM IST, Ramapuram, Chennai. ** Assistant Professor, PG Department of Commerce, SRM IST, Ramapuram, Chennai. | 108 |
| 20 | STUDY OF THE EFFECTIVENESS OF ONLINE MARKETING ON INTEGRATED MARKETING COMMUNICATION P NIRANJANI BABY Associate Professor, Mother Theresa Institute of Management, Palamaner, Andhra Pradesh. | 112 |
| 21 | IMPACT ON LOGISTIC EFFECTIVENESS AND EFFICIENCY ON PERFORMANCE | 117 |





A STUDY ON ATTITUDE AND AWARENESS OF INVESTORS TOWARDS SAVINGS AND INVESTMENTS IN MUTUAL FUNDS WITH SPECIAL REFERENCE TO KERALA

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ABSTRACT

The role of Indian mutual fund industry as significant financial service in financial market has really been noteworthy. In fact, the mutual fund industry has emerged as an important segment of financial market of India, especially in channelizing the savings of millions of individuals into the investment in equity and debt instruments. Mutual funds are seemingly the easiest and the least stressful way to invest in the stock market. Quite a large amount of money has been invested in mutual funds during the past few years. Any investor would like to invest in a reputed Mutual Fund organization. Mutual funds are financial intermediaries concerned with mobilizing savings of those who have surplus and the canalization of these savings in those avenues where there is a demand for funds. These intermediaries employ their resources in such a manner as to provide combined benefits of low risk, steady return, high liquidity and capital appreciation through diversification and expert management. Reforms in the Indian economic system and the opening up of the economy have been the reasons for the tremendous growth in the Indian capital market. This study analyses the impact of different demographic variables on the attitude of investors towards mutual funds. Apart from this, it also focuses on the benefits delivered by mutual funds to investors.

Keywords: Mutual Fund, Investment, Diversification, Capital Market.

INTRODUCTION

The success of an investment activity depends on the knowledge and ability of investors to invest the right amount, in the right type of investment, and at the right time. A well-planned investment alone can ensure regular income, capital appreciation and can meet the financial requirements of the investors. An investor has to use his discretion in appropriate decision making for the selection of investment avenues, which is an art acquired by learning and practical experience. Those investors with lack of knowledge and expertise about the operation of the financial market may lose their money while investing in financial securities. So, they need professional advice for the selection of the right type of investment; otherwise, due to fear of losing their hard-earned savings, they will never come forward to invest their funds in the financial market.

Mutual fund is a pool of money collected from investors and is invested according to certain investment options. A mutual fund is a trust that pools the saving of a number of investors who share a common financial goal. A mutual fund is created when investors put their money together. It is, therefore, a pool of investor's fund. The money thus collected is then invested in capital market instruments such as shares, debentures and other securities. The income earned through these investments and the capital appreciations realized are shared by its unit holders in proportion to the number of units owned by them. The most



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|----|---|-----|
| | Department Of Commerce, Presidency College, Chennai-600005, Associate Professor & Research Supervisor, PG & Research Department Of Commerce, Presidency College | |
| 39 | PERSPECTIVES OF DIGITAL PAYMENTS APPLICATIONS IN INDIA: A STUDY ON THE IMPACT OF COVID-19 Dr.A.SARASWATHY & Ms.P.Shriya associate Professor & Head, PG & Research Department Of Commerce, Government Arts College For Men, (Autonomous), Nandanam, Chennai | 145 |
| 40 | TRAINING AND DEVELOPMENT EFFECTIVENESS IN HOSPITALITY SECTOR : AN INFERENTIAL ANALYSIS USING FRIEDMAN TEST Mrs.S.GOUTHAMI * Assistant Professor & HOD Department Of Business Administration, Sri Kanyaka Parameswari Arts & Science College For Women, No:1, Audiappa Street, Broadway, Chennai-600001, E-Mail: Gouthamisamanthi@Gmail.Com | 149 |
| 41 | PERSPECTIVES OF CUSTOMERS TOWARDS ECONOMY CARS: A MARKETING STUDY AMONG THE HOUSEHOLDS FROM CHENNAI CITY Dr. SUSHMA S CHAWL, Assistant Professor, Department Of Business Administration, Sri Kanyaka Parameswari Arts & Science College For Women, | 156 |
| 42 | CONSUMER PERSPECTIVES TOWARDS GREEN PRODUCTS: A PERCEPTION STUDY AMONG THE SELECTED HOUSEHOLDS FROM CHENNAI CITY Ms.S.Suwendy Dr.Y.Lokeswara Choudary Phd-Research Scholar & Research Supervisor, Department Of Commerce | 159 |
| 43 | TEMPORARY TOURISM PERSPECTIVES ON SOCIOECONOMIC CONDITIONS OF TOUR OPERATORS: A CASE STUDY OF CHENNAI Dr.Y.Lokeswara CHOUDARY Assistant Professor Of Commerce, Government Arts College For Men, Nandanam, Chennai-35 | 164 |
| 44 | CONSUMER BUYING BEHAVIOR TOWARDS ORGANIC PRODUCTS: A CASE STUDY OF CHENNAI, TAMILNADU Mrs.B. YAMINI & Dr.A.Saraswathy research Scholar Phd Department Of Commerce, Government Arts College For Men, | 167 |
| 45 | PERSONALITY AND WORK ENVIRONMENT FACTORS ROLE IN THE JOB SATISFACTION: A CASE STUDY OF ASSEMBLING INDUSTRY OF TAMILNADU Ms. M.JAYANTHI Dr.Y.LOKESWARA CHOUDARY Ph.D-Research Scholar & Research Supervisor, Department Of Commerce, Government Arts College For Men, Nandanam, Chennai-35 E-Mail:Drylcphd@Gmail.Com | 171 |
| 46 | E-Commerce In India And The Impact Of COVID-19 VISHAKH.V. T, Assistant Professor, (Vigyaan College Of Applied Science, Kattakada, Trivandrum, Kerala), Ph. D Research Scholar, BIHER. Dr. J. KANNAN, Associate Professor & Research Supervisor, Department Of Commerce, BIHER | 177 |
| 47 | ADMIRING ENTREPRENEURIAL INITIATIVES FOR COLLEGE STUDENTS Nirmala K & Dr. Shyamala K Assistant Professors And Research Scholar Department Of B.Com (Computer Applications) Shrimathi Devkunvar Nanalal Bhatt Vaishnav College For Women | 180 |
| 48 | THE IMPACTS OF BRAND EXPERIENCES ON BRAND LOYALTY: USING MULTIPLE MEDIATING OF BRAND LOVE AND BRAND TRUST * Dr. S. SURESH AND Dr. M. SANKAR ** *Dr S Suresh, GUEST FACULTY, Department Of Business Administration, VELS Institute Of Science Technology And Advanced Studies (VISTAS) Chennai, Tamil Nadu, India. E-Mail: Ssryders@Gmail.Com **Dr M Sankar, Assistant Professor, Department Of Business Administration, Sri Muthukumaran Arts And Science College (SMASC) Chennai, Tamil Nadu, India. E-Mail: Sankar06.Phd@Gmail.Com | 185 |





E-commerce in India and the impact of COVID-19

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BIHER

Abstract

The advent of smartphones and growth of the internet has completely transformed shopping experience. Online shopping is a rapidly growing phenomenon in India, enabling customers to shop at their convenience. To ensure continued growth of online shopping, understanding factors which influence customer satisfaction becomes paramount. The purpose of this research is to explore the key factors which influence consumers' online shopping behaviour. Also, e-commerce industry is majorly impacted due to COVID-19. This research looks into consumers' shopping behaviour during COVID-19 pandemic. By collecting data from online shoppers and analysing it, we found out the main factors which influence customers purchasing online. By comparing the shopping behaviour before and during COVID-19 lockdown, we were able to discern the changes in online shopping due to the pandemic. Our study will be helpful to understand the factors influencing e-commerce in India, and also in the context of COVID-19.

Keywords: Ecommerce in India; Covid-19 and ecommerce; Lockdown and ecommerce; Online shopping;

Introduction

E-commerce has had remarkable success and provides significant economic and social benefits in developed countries; however, it is still a niche in several developing countries. Various factors, including low levels of internet penetration, infrastructure, and government rules and regulation, hinder the growth of e-commerce in these countries. Moreover, consumers in developing countries are used to face to face transactions and do not have a clear understanding of the various processes involved in online shopping resulting in various trust issues. In recent times, there has been an increase in e-commerce companies in India due to the rapid spread of COVID-19. The pandemic is one of the reasons why people are not showing interest in shopping from physical stores, which means that there might be an increase in online shopping due to which there has been an evident increase of the companies like Metro Cash, Spencer's retail has tied up with internet firms, Future Group has started door delivery services, etc., moving to online platforms for their business.

Prior to COVID-19, online shopping was used for buying products which are not available in physical stores or when the top brands go for a clearance sale but the pandemic has increased both penetration and growth of e-commerce which has increased to 5% penetration rate from 3% before COVID-19 in India ("India's e-commerce penetration will double to 11 per cent by 2024: Goldman Sachs", The Economic Times, Jul 27, 2020). However, while e-commerce shows rapid growth in India, consumer behaviour in online shopping does not seem to have been researched fully. What are the different factors which encourage or discourage customers from shopping online? Are there any differences in online shopping behaviour based on the demographics of a customer? How do customers perceive online shopping amid COVID-19? This study specifically examines the of important factors which influence consumers towards e-commerce and the effect of COVID-19 on e-commerce.



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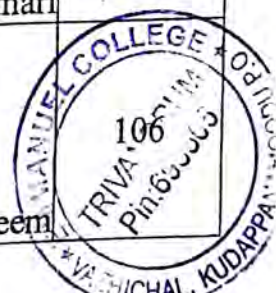
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| | | |
|----|--|-----|
| 20 | A STUDY ON JOB SATISFACTION OF EMPLOYEES IN SIDCO Vidya V.J and Dr. A. Safia | 65 |
| 21 | A STUDY ON CONSUMER SATISFACTION OF HERBAL PRODUCTS IN THIRISSUR DISTRICT Dhanya Rani RL and Dr.P.Antony Raj | 67 |
| 22 | THE ROLE OF MULTI-LEVEL MARKETING IN UNEMPLOYMENT REDUCTION IN INDIA Abhilash Philip and Dr. P Antony Raj | 71 |
| 23 | "IMPACT OF GST TOWARDS WHOLESALERS IN THIRUVANANTHAPURAM" Sunil Kumar.C | 75 |
| 24 | A STUDY ON CONSUMER AWARENESS TOWARDS ECO-FRIENDLY PRODUCTS Mrs. P. Antony Perpetual Felishia and Dr. Y. Hema Latha | 78 |
| 25 | A STUDY ON DIFFERENT TYPES ECO PRODUCTS AND ECOMARK Jiju Varghese | 81 |
| 26 | DIGITAL MARKETING AND ITS IMPORTANCE Haritha Haridas | 83 |
| 27 | A STUDY ON CHALLENGES FACED BY THE SEAFOOD INDUSTRIES IN KOLLAM DISTRICT, KERALA Dr. S Geetha and Sanal.S | 85 |
| 28 | A COMPARITIVE STUDY ON ONLINE AND OFFLINE PAYMENT SYSTEMS IN RETAIL BUSINESS Merlin K Joseph and Lt.Dr.M.Jagathish | 89 |
| 29 | A STUDY ON WORK LIFE BALANCE OF WOMEN EMPLOYEES IN IT SECTOR WITH SPECIAL REFERENCE TO TRIVANDRUM TECHNOPARK Soumya.S. and Dr.M.P.Ashakumari | 93 |
| 30 | STUDY ON THE IMPACT OF DIGITAL MARKETING Rejimol M, Lt.Dr.Jagathish M and Dr.H .Sajeena | 96 |
| 31 | ISSUES AND CHALLENGES OF ENTREPRENEURSHIP EDUCATION IN KERALA -A STUDY WITH SPECIAL REFERENCE TO THIRUVANANTHAPURAM DISTRICT Krishna Kumar R and Dr. M. P. Asha Kumari | 102 |
| 32 | A STUDY ON CUSTOMERS' SATISFACTION ON BRAND LOYALTY- AN EMPIRICAL ANALYSIS OF HOME APPLIANCES IN TIRUNELVELI DISTRICT K.Sindha Madhar and Dr.B.A. Abdul Kareem | |



A STUDY ON JOB SATISFACTION OF EMPLOYEES IN SIDCO

Vidya V.J* & Dr. A. Safia**

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Abstract Human resource management is the strategic approach to the effective management of people in an organization. Human resource plays a remarkable role in today's organizational development. In today's changing scenario, managing human resource is one of the major challenges. The success of the organization depends upon the proper utilization of human resource. Job satisfaction is the result of various attitudes possessed by an employee towards his/her job. Consequent to the increased globalization of the Indian economy, small scale industries are required to face new challenges. SIDCO is the nodal agency for providing support facilities to small-scale industries in the state. High job satisfaction effectively leads to the improved organizational productivity, decreased employee turnover and reduced job stress in modern organizations. Human resource is valuable and its end target is to obtain maximum individual development and maintain high morale among the employees. Manpower planning seeks to place the right number of qualified skilled employees at the right place at the right time. In the present complex environment no business or organization can exist and grow without appropriate human resource. So human resource has become the focus of attention of every progressive organization.

Keywords: SIDCO, Globalization, HRM, Organization, Job satisfaction.

Introduction

Human resource plays an important role in an organisation. Human resource are resource in an organisation which lives that creates other resources that have creativity, emotion and does not depreciate with passage of time. In today's world there is shortage of requisite talent. Employees are encouraged by competitive firms to change the jobs. HRM has the responsibility to acquire, develop, utilize, and maintain employees. The term job satisfaction is the combination of psychological, physiological, and environmental circumstances that cause a person to truthfully say I am satisfied with my job. In case of SIDCO employees the job satisfaction is the degree of contentment experienced by the workers with respect to those factors which influence his or her working. The level of satisfaction of an employee is derive s from his job mainly depend upon; The extent to which the job satisfies his needs and the extent to which his expectations regarding his job is fulfilled.

Statement of the Problem

Human resource management plays a remarkable role in today's organisational development. It is the deliberate approach that the organisation is able to achieve success through employees. Manpower planning seek to place the right number of qualified and skilled employees at the right place and at the right time, so that the organisation can achieve great objectives. In order to strike a harmonious balance between employee's expectation and long term organizations goals, better HRM practices must prevail in all type organisation. The main aim of this paper is to examine the job satisfaction of employees in SIDCO.

Objectives of the Study

- 1: To measure the level of satisfaction of SIDCO employees.
- 2: To study the various motivational factors that influence the performance of employees in SIDCO.
- 3: To evaluate the grievance redressal practices in SIDCO.

Research Methodology

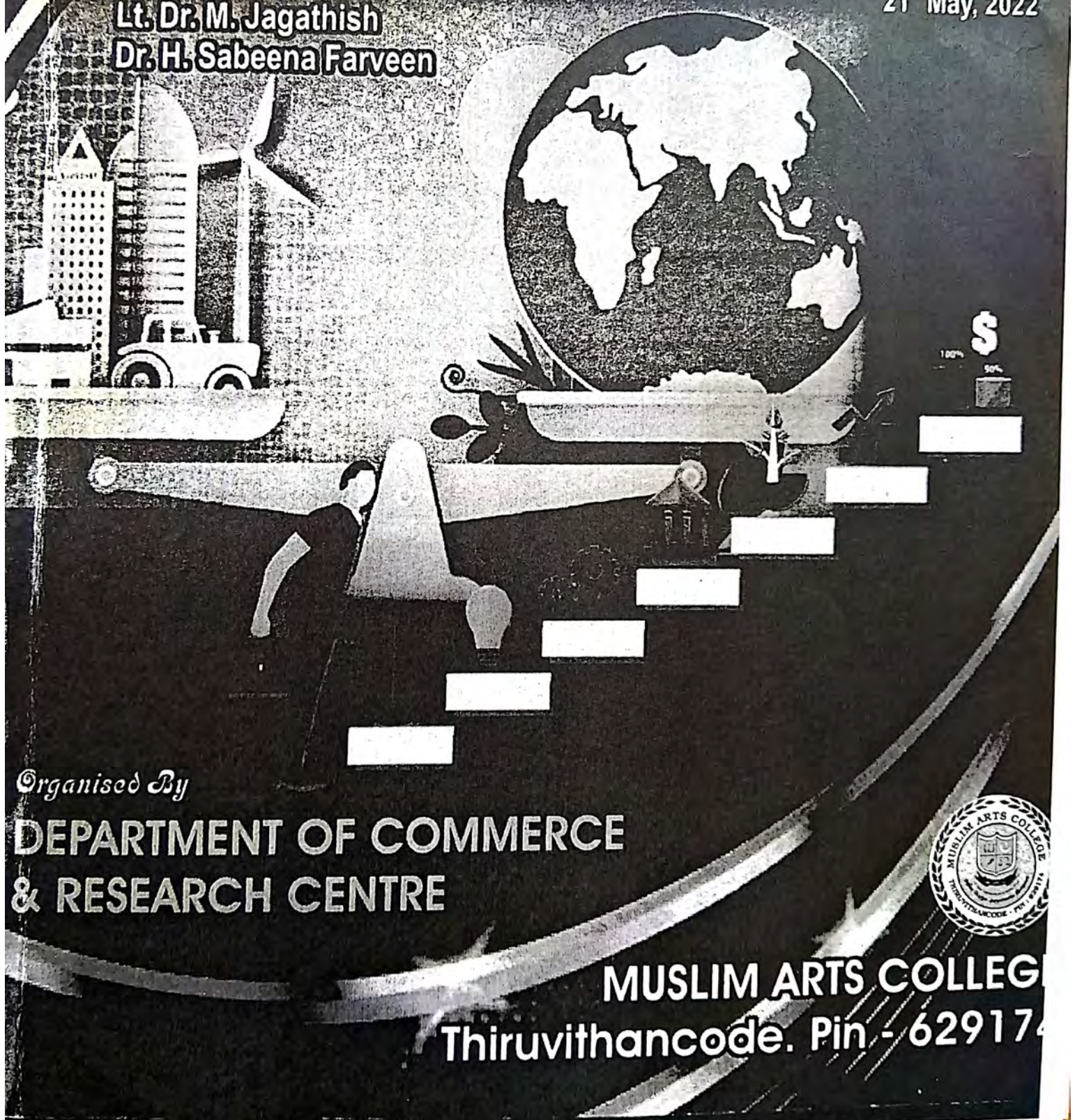
The data used for this study is primary and secondary in nature. Primary are collected directly from 100 respondents through questionnaire. All the respondents selected for the study belongs to Thiruvananthapuram district secondary data has been collected from journal, annual reports etc. The respondents are selected according to convenient sampling method. Correlation and chi-square methods are used to analyze the data.

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| | | |
|----|---|-----|
| 33 | EMPLOYEES PERFORMANCE AND WORK STRESS IN POST OFFICE SECTOR – AN ANALYSIS Mr. N. Raja Sekhar and Lt.Dr. M.Jagathish | 110 |
| 34 | ASSESSMENT OF PROBLEMS AND PROSPECTS OF APPLE MARKETING IN JAMMU&KASHMIR Lt.Dr.M.Jagathish and Dr.H.Sajeena | 113 |
| 35 | IMPACT OF TALENT MANAGEMENT STRATEGIES WITH REFERENCE TO EMPLOYEES OF INFORMATION TECHNOLOGY INDUSTRY G.J.Bini and Dr.JeyaBharathy | 116 |
| 36 | A STUDY ON FACTORS AFFECTING EMPLOYEES JOB SATISFACTION IN THE INFORMATION TECHNOLOGY INDUSTRY IN KANYAKUMARI DISTRICT K. Anitha Shalini and Dr.M.P.Asha Kumari | 120 |
| 37 | WOMEN ENTREPRENEURSHIP AND NEED FULFILMENT CRISIS: REVIEWING THE SCENARIO VISUALISING WITH THE LENS OF GLOBAL PANDEMIC Anjumol Sasi and Lt.Dr.M .Jagathish | 123 |
| 38 | ROLE OF ADDITIONAL SKILL ACQUISITION PROGRAMME ON EMPLOYABILITY OF GRADUATES IN KERALA Anu.M and Dr. A. Safia | 127 |
| 39 | EMPLOYEE ENGAGEMENT AND ITS RELATIONSHIP WITH JOB SATISFACTION – A STUDY WITH SPECIAL REFERENCE TO PUBLIC AND PRIVATE BANKS IN KANYAKUMARI DISTRICT T.Fermi Paul and Lt.Dr.M .Jagathish | 130 |
| 40 | A STUDY ON ORGANIZATIONAL CLIMATE AND JOB SATISFACTION OF HEALTH CARE WORKERS WITH SPECIAL REFERENCE TO KANNIYAKUMARI DISTRICT M.Uma Maheswari Pinky and Dr.M.P.Asha Kumari | 134 |
| 41 | FAST FOOD CONSUMPTION AND ITS IMPACT ON HEALTH Mrs.M. Akilavincy | 138 |
| 42 | A STUDY ON DEVELOPMENT OF WOMEN ENTERPRUNER IN ONLINE BUSINES WITH SPECIAL REFERENE TO THIRUATTAR TALUK R.Jayasree, Dr M.Krishna Kumar and Dr A. Shanthi | 141 |
| 43 | HRM PRACTICES IN INSURANCE COMPANIES, A STUDY OF INDIAN AND MULTINATIONAL COMPANIES Soumya I.R and Dr. B. Nalatha vijilin | 143 |

ROLE OF ADDITIONAL SKILL ACQUISITION PROGRAMME ON EMPLOYABILITY OF GRADUATES IN KERALA

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Abstract

Government of Kerala has initiated an ambitious programme, the Additional Skill Acquisition Programme(ASAP) with the objective of tackling the issue of growing unemployment in the state. The programme aims at equipping selected school/ college students with skills in communication, IT and selected areas of industry and service sectors. It is a joint initiative of General and Higher Education Department, Govt of Kerala. The motto behind this programme is to generate more employable skills in the student population of Kerala by providing sector specific skill training programme along with regular academic studies. This special training would be conducted during vacation and other holidays. An assessment of one lakh students on various skills has found that only 34% were employable and women fared better than men in the test. This convey two third of our skills pool id not fit to have a job. In this scenario it is essential to study the impact and role of Additional Skill Acquisition Programme in Kerala state in filling the employability gap.

Key words: ASAP , Employability

Introduction

Youth is the most valuable segment of the population. Human resource potential of individuals not only gain maximum but also reaches its peak during this era. Youth in reality represent the present country. They provided a great opportunity for the country to reap this demographic dividend for making rapid economic growth. Employment market is a dynamic system where people keep getting in and out of system. Unemployment though exist in every part of the country. Economic growth is a reflection of jobs created and skills and knowledge are evident requirements for any job. Both developed and developing countries are focusing on skilling people and India is no different. Our aim is to become the future skill capital of the world. Recent skill initiatives such as National Skill Development Mission, Amendment in The Apprentices Act are examples of Government's action to move towards reality. As India moves progressively towards becoming a global knowledge economy it must meet the rising aspirations of its youth. This can be partially achieved through focused through advancement of skills that are relevant to the emerging economic environment.

There are many research works concentrates on skill development programmes and the impact of the beneficiaries. Due to the same reason many of the students who scored colourful marks but they didn't get placed well. The reason behind was lack of potentiality for employment. Modern era mostly concentrates on skill rather than the theoretical knowledge. In order to improve the skillfulness of graduates in Kerala, both State and Central Government drafted and implemented many skill development programmes in order to develop the skills of graduate in order to make them competent in knowledge era. The most important programme conducted by state is ASAP(Additional Skill Acquisition programme).

Globalized world require efficiency in operation, the efficiency was based on skill and easeness of doing job effectively, so the nation taking more effort on skilling through Skill Development Programmes . The skill development programmes aimed to bridges the gap between theoretical knowledge to employability of students. So the study is significant why because being a second growing developing state still struggling on unemployment and under employment Hence the study is significant on this scenario.

Objectives

- To study the effectiveness of ASAP on filling employability gap
- To study the quality and customization of ASAP
- To identify the level of awareness of ASAP among students.

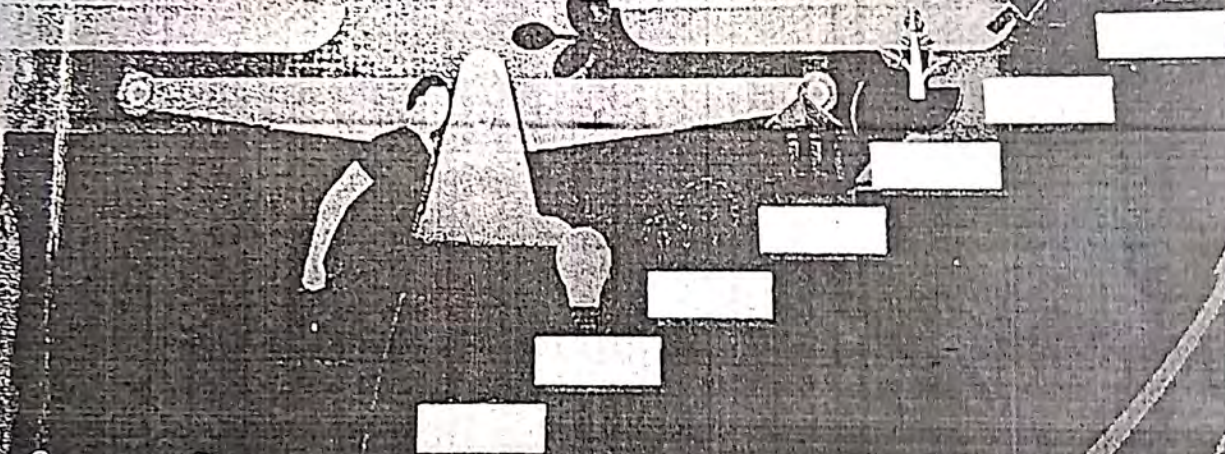
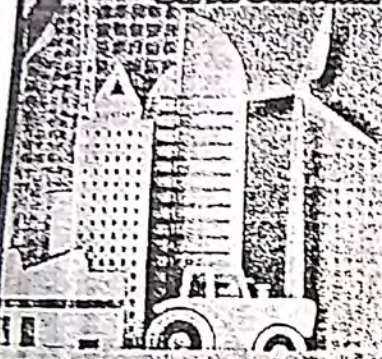
Review of Literature

Benson Davis (2019) The study focuses on the impact of ASAP training on the general education of the enrolled students. The study found that the beneficiary students of ASAP training did not have any major negative impact on their general education due to the simultaneous skill education training received through ASAP. The English communication classes, as part of skill training, is also said to

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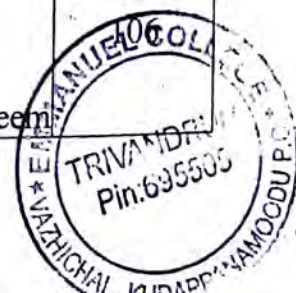


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| | | |
|----|--|-----|
| 20 | A STUDY ON JOB SATISFACTION OF EMPLOYEES IN SIDCO | 65 |
| | Vidya V.J and Dr. A. Safia | |
| 21 | A STUDY ON CONSUMER SATISFACTION OF HERBAL PRODUCTS IN THIRISSUR DISTRICT | 67 |
| | Dhanya Rani RL and Dr.P.Antony Raj | |
| 22 | THE ROLE OF MULTI-LEVEL MARKETING IN UNEMPLOYMENT REDUCTION IN INDIA | 71 |
| | Abhilash Philip and Dr. P Antony Raj | |
| 23 | "IMPACT OF GST TOWARDS WHOLESALERS IN THIRUVANANTHAPURAM" | 75 |
| | Sunil Kumar.C | |
| 24 | A STUDY ON CONSUMER AWARENESS TOWARDS ECO-FRIENDLY PRODUCTS | 78 |
| | Mrs. P. Antony Perpetual Felishia and Dr. Y. Hema Latha | |
| 25 | A STUDY ON DIFFERENT TYPES ECO PRODUCTS AND ECOMARK | 81 |
| | Jiju Varghese | |
| 26 | DIGITAL MARKETING AND ITS IMPORTANCE | 83 |
| | Haritha Haridas | |
| 27 | A STUDY ON CHALLENGES FACED BY THE SEAFOOD INDUSTRIES IN KOLLAM DISTRICT, KERALA | 85 |
| | Dr. S Geetha and Sanal.S | |
| 28 | A COMPARITIVE STUDY ON ONLINE AND OFFLINE PAYMENT SYSTEMS IN RETAIL BUSINESS | 89 |
| | Merlin K Joseph and Lt.Dr.M.Jagathish | |
| 29 | A STUDY ON WORK LIFE BALANCE OF WOMEN EMPLOYEES IN IT SECTOR WITH SPECIAL REFERENCE TO TRIVANDRUM TECHNOPARK | 93 |
| | Soumya.S. and Dr.M.P.Ashakumari | |
| 30 | STUDY ON THE IMPACT OF DIGITAL MARKETING | 96 |
| | Rejimol M, Lt.Dr.Jagathish M and Dr.H .Sajeena | |
| 31 | ISSUES AND CHALLENGES OF ENTREPRENEURSHIP EDUCATION IN KERALA -A STUDY WITH SPECIAL REFERENCE TO THIRUVANANTHAPURAM DISTRICT | 102 |
| | Krishna Kumar R and Dr. M. P. Asha Kumari | |
| 32 | A STUDY ON CUSTOMERS' SATISFACTION ON BRAND LOYALTY- AN EMPIRICAL ANALYSIS OF HOME APPLIANCES IN TIRUNELVELI DISTRICT | |
| | K.Sindha Madhar and Dr.B.A. Abdul Kareem | |



A STUDY ON WORK LIFE BALANCE OF WOMEN EMPLOYEES IN IT SECTOR WITH SPECIAL REFERENCE TO TRIVANDRUM TECHNOPARK

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Abstract

Work life balance means balancing the professional work and personal work. If we give importance to one among them the other will collapse. Therefore as a women employee, she has to maintain a proper balance between them. IT sector is the place where men and women are working very hard. The main objective of this study is to find out the situations which are not properly organised for a woman to work properly in IT sector. A woman must maintain a proper balance between the two life's.

Key words: work life balance, work stress, professional life, IT Field

Introduction

Indian economy has some social and cultural values. It has its own social rules, regulations and responsibility to live. While considering the early stage of life style in India is changing towards the modernization of the world. In India women are considered as mother, sister and daughter. Also she is only for taking care of her family and must obey and depend only on men in her family. Now the situation is changed. At present, Indian women have occupied good educational qualifications that substantially provide good employment opportunities to them. Work Life Balance doesn't mean an equal balance. It means the capacity to balance her professional life with personal life. When a woman achieves a successful work life balance, she has job satisfaction and becomes highly committed and productive and succeeded in her career. But in certain cases, the women are not able to succeed due to incapability in balancing her work and personal life. Kerala is the most literally populated state in India. It has high educational and life style standard considering to others. Changing conditions in educational sector provide tremendously qualified persons for the qualified and high risky job in IT sector. Women in IT became socially mobile to live in other cities away from their male relatives and families for the sake of their jobs. The IT sector women also faces many problem considering to go with their equal life in personal and professional.

Statement of the problem

In ancient times, men were living in forest, men and women were working for their livelihood. But after the modernization in India, most of the women were working. High salary and white collar job attract women towards IT companies. Even though they have to overcome many of the problems in IT sector such as shift in job, i.e., it may be a time schedule between morning and evening or night to morning. In such situation women have to adjust her family life for the smoothing of the work in IT sector. Then there arise a problem, how she manages her family life. Because women is the only person to manage her family i.e., children, old age parents etc. So there arise a need to conduct a research study on the problem of work life balance of women in Technopark, Thiruvananthapuram.

Scope of the study

Work Life Balance studied the effects of family life on women's job performance and work attitudes. The importance of work life balance highlights the current concern within our society and organisations about the impact of multiple roles on the health and wellbeing of professional women and its implications regarding work and family performance and women's role in society.

Objectives of the study

- To know the demographic details of the respondents
- To study the factors that influence work life balance of women employees in IT sector
- To examine the reasons for work life imbalance
- To analyse the benefits of work life balance

To suggest suitable strategies to improve the level of work life balance of women employees



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BOOK OF PROCEEDINGS



Contents

| Sl. No | TOPIC | AUTHOR | PAGE NO |
|--------|---|---|---------|
| 1. | Teaching Languages Online: Approaches And Techniques | Bharathi S. Rai 1, 2 & Amp; Rajeshwari M. 3 | 1-13 |
| 2. | A Study On Factors Affecting Welfare Catering In Mangaluru Taluk | Andrea Noronha 1 *, Laveena D'mello 2** | 14-25 |
| 3. | A Study On Digital Gaming Addiction Among High School Students | Sadiqa Patel , & Laveena D'Mello | 26-30 |
| 4. | Impact Of Human Resource Information Technology (Hrit) On The Functions Of Human Resource Of An Organisation | Shammy Shiri 1 , Laveena D'Mello 2** | 31-40 |
| 5. | Enhancing Competency Of Management Graduation Students Through Blended Learning | Shanthi M Nazareth & K M Chethana | 41-47 |
| 6. | Agricultural Informatics And Its Specialization Potentiality At M.Sc. And M.Tech. Information Science Program— <i>An Overview In Indian Context</i> | P. K. Paul ¹ , P. S. Aithal ² , R.R. Sinha ³ & Ricardo Saavedra ⁴ | 50-58 |
| 7. | Virtual Teaching Perceptions And Challenges Of School Teachers | Anuradha Shetty ¹ & Nikitha Reena Dsouza ² | 59-68 |
| 8. | Digital Humanities, Digital Society And Social Informatics— <i>The Areas, Relations And Roles</i> | P. K. Paul ¹ , Ricardo Saavedra ² & P. S. Aithal ³ | 69-78 |
| 9. | Dismantling Double Oppression In Jinaamucha | Haripriyar. J. Nair ^{1*} , & Laveenad'Mello ^{2**} | 79-86 |
| 10. | The Landscape Of Women Education In India | Pradeep M. D. | 87-90 |
| 11. | Social Interaction And Wellbeing Of Parents Of Children With Autism Spectrum Disorder - A Review Based Analysis | Menezes Ida Sylvia 1*, & D'Mello Laveena 2** | 91-105 |

| | | | |
|-----|---|--|-----------|
| 12. | Learning Style and Its Impact On Scholastic Performance | Gururaj Itagi ^a , Laveena D'Mello ^b , & Vidya N ^c | 106-114 |
| 13. | Forging Ahead To Thrive With E-Learning With Special Reference To Commerce And Management Graduation Students | Mrs. Nimitha K, Mrs Vineetha N T & Mrs. Shanthi M Nazareth | 115-120 |
| 14. | Emerging Issues In The Need For Oldage Homes- An Overview Of Professional Social Workers | 1*.Suphala.Kotian & Vidya.N2** | 121-128 |
| 15. | An Assessment On The Opinion Of College Students On Online Shopping | Vidya N* And Anuradha Shetty** | 129-137 |
| 16. | A Study On Organizational Commitment Of Soldiers In A Unit Of Indian Army | Pallavi Borse ^{1*} & Dr Vidya N ² | 138-151 |
| 17. | Profitable Uses, Values And Ethics Of Online Education And Its Role In Corporate Learning- A Review Study | Swarnakeerthi Shenoy *, Vidya N ** | 152-157 |
| 18. | The Lifestyle Of The Addicts Before And After Intervention Of Rehabilitation Centers At Mangaluru | D'Mello Laveena 1*, Vidya N 2** | 158-164 |
| 19. | The Hunter As The Protector: Views On The Conservation Of Nature In The Selected Works Of Kenneth Anderson | Ganesh Prasad A1, 2 & Dr. Manjula K T 1, | 165-171 |
| 20. | Students' Perception And Preference For Online Education In India During Covid -19 Pandemic | Elvira Monteiro & Lawren Castelino | 172 - 183 |
| 21 | Forecasting: The Bane For Youth | Laveena D'Mello 1*, Pradeep M.D.2** | 184-189 |
| 22 | Impact Of Professional Values And Ethical Principles In Education | Uma Maheswary.B. G. | 190-196 |
| 23 | A Conceptual Study Of Mudra Yojana For Development Of Small Scale Industries In Karnataka | Shashank B. S.1*, D'Mello Laveena 2** | 197-205 |

| | | | |
|-----|--|--|---------|
| 24 | Impact Of Family Environment On Marital Adjustment Among Employed And Unemployed Women In Malappuram District, Kerala | Abdul Hameed P.V.*, & D'Mello Laveena ** | 206-214 |
| 25 | Value Education For Students | Haripriya R. J. Nair | 215-218 |
| 26 | Relaxation Techniques And Its Benefits To Reduce The Levels Of Stress, Anxiety And Depression Among Chronic Kidney Disease Patients; A Review Based Analysis | Thejavathi.U.C 1* D'Mello Laveena,2** | 219-231 |
| 27 | Impact Of Adolescent's Behavior Modification Through The Use Of Mobile With Internet Facility – Teachers Perspective | Shashintha Montherow ¹ & Dr. Vidya. N ² | 232-237 |
| 28. | The Impact Of Pandemic On The Online Gaming Addiction Among High School Students - Case Study | Sadiqa Patel 1*, & Laveena D'Mello 2** | 238-242 |
| 29. | “Socially Responsible Business Strategy”- A Review of Model Adopted by Emirates Telecommunication Group Company PJSC (Etisalat) Amidst Covid-19 Pandemic | Shreepathy Rangabhatta B. ¹ & Jayaprakasha K. | 243-248 |

Paper 9

DISMANTLING DOUBLE OPPRESSION IN JINAAMUCHA

Haripriya R. J. Nair^{1*} & Laveena D'Mello^{2}**

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ABSTRACT

Feminism in India conceived the term "woman" as a metonymy for all Indian women oppressed for their womanhood and gender. Issues of class, caste, race, and ethnicity which were severe weapons against women were excluded from the general concerns of feminist studies in India for many years. Gender was considered the basic tool which oppressed all women in India. But this essentialization or sisterhood based on the shared experience of gender discrimination ignored many sections of women and their problems from sources other than gender. Dalit feminists from the 1970s argued against such a generalization by stating that they never found their issues taken fully in the existing realm of Indian feminism. Thus Dalit feminism needs to stand as a separate bough in Indian feminism as its concerns, aims, and issues are exclusively related to Dalit women. This research paper attempts to examine how double oppression, used to suppress Dalit women is criticized by Kamble using her Dalit feminist voice in the autobiography and also earnestly studies using Kamble's work as a piece of evidence, the general issues of Dalit women and concerns of Dalit feminist studies in India. Patriarchy and caste rupture the very existence of Dalit women and such to double oppression they faced is different from what their men faced from caste or other Indian women suffered from patriarchy. For them, both the oppressive forces operate hand in hand even today though not as before and thus their suffering needs special footage. This is the basic drive behind and concern of the paper.

Keywords: Dalit, Caste, Patriarchy, Double oppression, Dalit Feminism.

1. INTRODUCTION:

While Indian literature was for centuries been the most noted one, the literature of India, for many years failed to recognize the agonies of untouchables or Dalits whose subaltern voice remained feeble in the Indian social system due to the caste-based oppression in myriad forms [1,2]. The literature of elites never succeeded in addressing authentically the real torments faced by low caste. Rarely did a writer take up an untouchable character or discusses his problems sympathetically. Thus, the untouchables were invisible in Indian literature as in Hindu society or their issues were unheard of in the great literary texts of India framed by the upper class. Dalit women took even more years than their menfolk to appear in the literature. They remained 'downtrodden among the downtrodden' of literature [3, 4].

2. OBJECTIVES OF THE STUDY:

The paper tries to present in detail the oppression faced by Dalit women from the perspectives of caste and patriarchy which is problematized in Kamble's work using Dalit feminist theory. The present study also includes,

- 1) An etymological study of the term "Dalit"
- 2) Analysis of varied forms of oppression against Dalits
- 3) A historical survey of Dalit movements, and parallel movements from Dalit women leading to Dalit feminist writings as vehicles of expression like Kamble's autobiography.
- 4) Assertion of the relevance of Dalit autobiographies.
- 5) Identification of Baby Kamble's work in the field of the Dalit feminist school of criticism as a vibrant voice dismantling the hidden demonic face of casteist Indian society crushing Dalit women under caste, patriarchy, and gender is successfully stated [5].

3. DALITS AND OPPRESSION FACED BY THEM:

The term 'Dalit' meaning 'ground broken' or 'reduced to pieces generally' stands for a group of suppressed beings who are denied even the most fundamental rights by the Indian caste system [6, 7]. 'Untouchables' or 'Dalits' were not given access to public facilities like schools, rivers, wells, roads, and markets. In addition to this, Indian society granted them the status of animals or was treated as a bad omen. Thus they were asked to live a life of aliens in their homeland.

4. EMERGENCE OF DALIT LITERATURE:

A Dalit community for many years was silenced from revealing their haunting life story. Elite literature of the time never tried to sympathize with them or allowed them to travel from margins and furnish their sufferings in the form of literary texts. Moreover, the lack of education and awareness of basic rights prevented them from opposing the traumatic condition to which they are tied down by the upper class. It is only after Independence with the help of political movements headed by B .R. Ambedkar, Dalit Panthers, and other activists that the Dalit community started to realize their true rights and began to fight for it. Thus reformist current from politics slowly traveled to literature and an increased number of Dalit writings began to appear [8-10].

5. RISE OF DALIT WOMEN:

Indian women were and even now victims of serious oppression from patriarchy and when it comes to Dalit women, they are victims of both caste and patriarchy, thus are struggling under the cogs of crushing double oppression. The resistance against casteism voiced through social reformers like Phule, Ambedkar, and Periyar and, so on inspired Dalit women to fight against varied forms of oppression. They began to take part in political movements and social activities and organized various conferences to fight against oppressive social institutions like child marriage, enforced widowhood, and dowry system, and so on. Soon women from the Dalit community realized the power of literature and started to record the untold agonies of their life. Poems, stories, novels,

memoirs, and autobiographies were taken by them as a suitable medium for revealing their pathetic life condition [11, 12].

6. DALIT WOMEN AUTOBIOGRAPHIES:

Among various literary forms, the autobiography was selected by many women from the Dalit community to write about their stories. Due to lack of English education, mostly these women chose to write in their regional languages which were then translated by many others and thus made available for vast readership. Dalit women autobiographies by Urmila Pawar, Baby Tai Kamble, Bama, Santabai, and so on voiced the long unheard cries of the subaltern group called Dalit women [13,32].

7. JINA AMUCHA:

Baby Kamble's autobiography, JinaAmucha or The Prisons We Broke offers itself as a fine specimen for us to study the double oppression faced by Dalit women right from the time of birth from the caste system and patriarchy. These women need special footage as they are victims of twin-fold oppression while other subaltern classes like women, Dalit men, and so on are only victims of either caste or patriarchy. But in the life of a Dalit woman, both the oppressive systems operate hand in hand like in the case of black women where racism and patriarchy suppresses their existence. This difference in the form or nature of oppression faced by Dalit women is captured by Kamble through her autobiography [14].

8. CASTE AND DALIT WOMEN IN THE PRISONS WE BROKE:

Caste is not just religious and social, but also an economical factor in India. Indian caste system formulates rules and regulations for every group which ultimately decides their privileges and restrictions. Social, religious, and economical rights and restrictions are devised based on the caste. Such an uncivilized division of society neglected many sections placed outside such a structure called the untouchables or Dalits or denied them even their fundamental rights. Ruthless classification will never prove good for any society. It will only make a socially unjust and undemocratic. Though the victims of oppression from the Indian caste system are many, the most suppressed ones were the Dalit women themselves. They are forced to live a life without self-respect or self-love. They are made to submit themselves for the benefit of the upper class who are very oppressors for them. "Standing in the courtyard, keeping a distance from the shopkeeper, she would pull her pallav over her face and then, using the most reverential and polite terms of address, she would beg him with utmost humility to sell her the things she wanted. 'Appasab, could you please give this despicable Mahar woman some shikakai for one paisa and half a shell of dry coconut with black skin?' [15-16].

The diseased notions of caste hierarchy and untouchability are passed down to the coming generations also. Kamble clearly shows this through the attitude of shopkeepers, "Chabu, hay you, can't you see the dirty Mahar woman standing there? Now don't you touch her? Keep your distance" [17]. Due to ignorance and lack of education, Dalits unquestioningly followed senseless notions like the concept of "Vaghya or Potraj", child marriage, and possessions of god. They were living under the sky of many superstitious beliefs. The writer regretfully quotes this through the following lines. "The entire community had sunk deep in the mire of such dreadful superstitions. The upper castes had never allowed this lowly caste of ours to acquire knowledge. Generations after

generations, our people rotted and perished by following such a superstitious way of life. Yet, we kept believing in your Hindu religion and serving you faithfully." She vehemently opposes the ruthless nature of the upper caste whose uncivilized notions are threats to the simple and innocent lives of low caste people. She says, "We were the people who lived in your house, yet we dared not drink even a drop of water there. We never dared to cross your path. We dedicated ourselves to the service of the civilization and culture that was so precious to you, even though it was always unkind and unjust to us. Why we would ever spread out our hands like spittoons for you if you want to spit! Then why did you treat us with so much contempt?" Kamble also brings to light the animal-like existence of her people who were reduced to a condition that of the bullocks in the courtyard of high castes [18].

"Such was the condition of our people. We were just like animals, but without tails. We could be called human only because we had two legs instead of four. Otherwise, there was no difference between us and the animals. But how had we been reduced to this bestial state? Who was responsible? Who else, but people of the high caste! They destroyed our reasoning, our ability to think. We were reduced to a condition far worse than that of the bullocks kept in the courtyard of the high castes." Dalit women are the most vulnerable victims of the caste structure. Just like their male members they too suffer from poverty, slavery, humiliation, and so on but more than that they are also victims of sexual harassment and brutal treatment. They are made to meekly follow other people. The woman who opposes will either have her nose chopped off or killed or abused terribly. The following lines show the gravity of caste oppression Dalit women faced. "They were not allowed to use the regular road that was used by the higher castes. When somebody from these castes walked from the opposite direction, the Mahars had to leave the road, climb down into the shrubbery and walk through the thorny bushes on the roadside [19, 20]. They had to cover themselves fully if they saw any man from the higher castes coming down the road, and when he came close, they had to say, 'The humble Mahar women fall at your feet master.' This was like a chant, which they had to repeat innumerable times, even to a small child if it belonged to a higher caste".

There are even certain codes of dressing predetermined for the Dalit women that they must follow without any protest no matter whether they are covered in rags or tattered ones. Kamble points out that "There were caste rules even for how one tucked the pleats. Mahar women had to tuck them in such a way that the borders remained hidden. Only high caste women had the privilege of wearing their saris in such a way that the borders could be seen. A Mahar woman was supposed to hide the borders under the pleats; otherwise, it was considered an offense to the high castes." Kamble portrays the caste notions in the mind of upper-class women who fail to realize the troubles and tragedies of their gender. Though they are also women, a sense of sisterhood is lacking among them for the tragic Dalit women

"The Brahmin kaki, sitting in the cool shade and supervising this operation, would keep shouting instruction after instruction, 'Listen carefully, you dumb Mahar women, check the sticks well. If you overlook any of the threads sticking to the wood, there will be a lot of trouble. But what's that to you? Your carelessness will cost us heavily. Our house will get polluted. Then we will have to polish the floor with cow dung and wash all our clothes, even the rags in the house! Such trouble we'll have to undergo for your foolishness! And how will the gods tolerate this, tell me? They too will be polluted, won't they?... 'These idiotic Mahar women! Hey, you, why do you bring these brats

along? They'll touch things and pollute everything. Tell them to sit quietly'...Finally, the kaki would throw from above, to avoid any contact, a couple of coins on each palm. The same process was followed while selling grass as well. The kaki would get the women to carefully check each blade of grass!" Due to ignorance of their community "One in every ten lost their lives during childbirth. Infants died as well.". They are also made victims of cruel practices like Sati. Thus women in Kamble's community are doubly oppressed or are the 'downtrodden among the downtrodden'.The Dalit feminist standpoint of Kamble faithfully brings to the forefront varied facets of oppression faced by Mahar women from higher castes other than being victims of suppressive patriarchal dominance of their men [21-23].

9. PATRIARCHAL OPPRESSION AGAINST DALIT WOMEN IN THE PRISONS WE BROKE:

Dalit feminist writings are authentic attempts to expose the twin fold oppression that the Dalit women had to undergo right from her birth to her death bed. She is caught in the cages of malevolent caste structure and patriarchy which offer her predetermined roles and codes of conduct regarded proper. Baby Kamble and her autobiography are undoubtedly voicing the pathetic living conditions of Dalit women oppressed by caste and patriarchy. She offers a strong protest against the man-made notions meant to suppress fellow human beings without any reason [24-26]. Patriarchy which crushes the state of every woman is a true repressive apparatus in the case of Dalit women, as their already suppressed state under caste is further widened by patriarchy. Baby Kamble clearly shows through the following lines the very patriarchal notion that honor of each family lies with the range of restrictions put on their women, which again is a bait to trap poor women. "In those days, it was the custom to keep women at home, behind the threshold. The honor enjoyed by a family was in proportion to the restrictions imposed on the women of the house. When no one could see even a nail of the woman thus confined within the four walls of the house, then this 'honor' became the talk of the town – a byword among the relatives and friends in the surrounding villages. Then people would tell each other, how one Pandharinath Mistry kept his wife completely hidden in the house and how even the rays of the sun did not know her" [31, 33].

Kamble through her works says, "My father had locked up my aai in his house, like a bird in a cage"[11]. Her mother too faced the typical fate of a Maharwada woman that is to have a caged life at home as well as in the society. The following line shows the importance Mahars give for marriage in a girl's life no matter whether she is happy or not in it "Yesterday, I had gone to leave my daughter at her in-law's place. She is most lucky, you know, to get into such a house, what a prestigious house"[9]... They consider the luxury of in-law's house as probable to a girl's happiness even when she is a slave there. It's not the life of a daughter that is valued but it's the honor and prestige. For instance, Kamble says the humiliation a newlywed girl should pass through if she happens to fails the custom of bowing before the masters or failed to chant the lines of submission before them. She says "Sometimes there would be a young, newlywed girl in the group and she would fail to join the chant out of sheer ignorance or awkwardness. All hell would break loose then. The master would simply explode in rage. He would march straight to the Mahar chawdi, summon all the Mahars there and kick up a big fuss. 'Who, just tell me, who the hell is that new girl? Doesn't she know that she has to bow down to the master? Shameless bitch! How dare she pass me without showing due respect? ". Young Mahar women were brutally punished in their in-law's house. "In those days, at

least one woman in a hundred would have her nose chopped off. You may well ask why. It's because of the sasus, who would poison her son's mind [26-28]. These sasus ruined the lives of innocent women forever. Every day the Maharwada would resound with the cries of hapless women in some house or the other. Husbands, flogging their wives as if they were beasts, would do so until the sticks broke with the effort. The heads of these women would break open, their backbones would be crushed, and some would collapse unconscious. But there was nobody to care for them. They had no food to eat, no proper clothing to cover their bodies; their hair would remain uncombed and tangled, dry from lack of oil. Women-led the most miserable existence" [29, 35].

In those days, it was considered manly for a husband to beat his wife and even his whole family and community would render support for such actions. "You are a man. You must behave like one! You must be proud and firm. You must walk tall. Twirl your mustache and show us that you are a man...Never mind if you have to go to prison for six months! You must chop off your wife's nose and present it to her brother and father. They mustn't have any respect left to sit with the members of the panch."(100-01)Kamble thus speaks through a Dalit feminist's voice by clearly analyzing how poor Dalit women despite the chain of agonies they face from poverty, hunger, epidemics and so are crushed to the floor by the so-called two institutions in society called caste and patriarchy which are purely man-made creations to bring unwanted divisions and stratification in the society. Women of lower caste are and always the victims of dual oppression from such systems. Kamble through her book emerges as an important advocate of Dalit feminist notions seeking to bring some attention to doubly suppressed womenfolk and suitable reformation to raise them from the wheels of suppression [11].

10. CONCLUSION:

As a Dalit writer Baby Tai Kamble remains faithful to her people by turning her works as efficient tools against the dominant Hindu society acting against the whims and fancies of her community. She gives an unbiased account of the atrocities done against Dalits and thus drives the reader to strongly oppose the infected ideologies of caste and patriarchy [11].

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| S. No | Title | Page No. |
|-------|--|----------|
| 16 | Internal and External Debt Management in India - A comparative study <i>Dr. R. Jayachandran and Dr. R. Rajah</i> | 87 |
| 17 | GST in Indian Economy - A bird's-eye view <i>S. Anusha</i> | 92 |
| 18 | New Trends for small businesses <i>D. Melbha</i> | 97 |
| 19 | Study of Micro, Small and Medium Enterprises (MSME) and its current framework and Governmental Policies <i>C. Muthulakshmi and Dr. E. Raja Justus</i> | 101 |
| 20 | Analysis of Socio-economic conditions of Fisherfolk in Kanyakumari District <i>D. Mary Prema and Dr. R. Sivanesan</i> | 107 |
| 21 | Role of mental accounting in shareholders wealth maximization and management <i>G. Gopish</i> | 115 |
| 22 | Rural Development is the key to Economic Development: A study related with Co-operative Banks <i>R. Resmi</i> | 120 |
| 23 | Multidimensional Poverty Index (MPI) - An Overview <i>S. Paramasivan and Dr. G. Monikanda Prasad</i> | 125 |
| 24 | A study on economic condition influence the modern business market in India <i>P. Supriya and Dr. R. Muthulakshmi</i> | 131 |
| 25 | A study on current scenario and economic condition regarding the issues of GST in India <i>G. Meena</i> | 136 |
| 26 | Influence of Financial Literacy in Capital Market participation - A study among Bank Employees <i>S.G. Sruthi and V. Irshad</i> | 144 |
| 27 | A study on causes and effect of poverty in India <i>Dr. M. Kotteshwari</i> | 150 |
| 28 | The Role of Modern medical Tourism on Tourism Development in Kerala State: An Evaluation <i>B. Naja</i> | 153 |
| 29 | Work life balance of women Agriculture Workers in Tirunelveli District <i>D. Sangeetha and Dr. N. Sankaragomathi</i> | 158 |
| 30 | A Study on Consumer Awareness about Handloom Products with Special Reference to Sawyerpuram <i>S. Dayana Sweetlin and Dr. R.S. Thangeswari</i> | 163 |

NEW TRENDS FOR SMALL BUSINESSES

D. Melbha ¹

Abstract

The customer base in India is going through a big change with an increased access to the Internet and digital channels. Small businesses need to stay ahead of the emerging trends in order to be competitive in the market. There has been tremendous growth in the small and medium business industry over the last few years. SMBs play a very important role for the Indian economy and contribute in a big way when it comes to innovation and employment. With changing customer preferences, an increasing base of customers and more initiatives, small businesses have seen great growth in 2017. This is also changing the customer demographics, with 72% of Internet users below the age of 35 years. The next wave of growth in the Internet users is expected to come from rural areas in India. There are going to be an estimated 280m users from rural areas in 2018, up from 163m users on 2017. This study attempted trends for small business in India.

Introduction

The consumption patterns of content are changing as well. 90% of new Internet users coming online in India are non-English users, according to a report by KPMG. However, there is very little content available for local language users on the Internet, and this is a great opportunity for India small businesses. Customer relationship management has seen innovation in the last year. Artificial intelligence, chat bots and self-service platforms are allowing small businesses to meet customer expectations at scale. SMBs have more access to powerful business platforms and technology, which is not limited to large enterprises anymore. SaaS companies have empowered SMBs with critical business infrastructure at affordable costs. With demonetization and the Digital India initiatives last year, SMBs have adopted digital and mobile payment systems in a big way. As customer demographics change, mobile payment applications will see increase usage by small businesses as the preferred options of payment. Indian SMBs have a lot to look forward to in the coming year.

Objectives of the study:

1. To analyse present condition of the Small business.
2. To analysis impact of economic conditions to improves small business.
3. To suggestions for improving business.

There are ten trends that we can expect to impact Indian small businesses in 2018.

1. **Growth in Tier II and Tier III** Small business growth is not restricted to Tier-I cities anymore. Tier-II and Tier-III centres are starting to become

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PROBLEMS FACED BY IRON SCRAP TRADERS IN KERALA STATE - A STUDY

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ABSTRACT

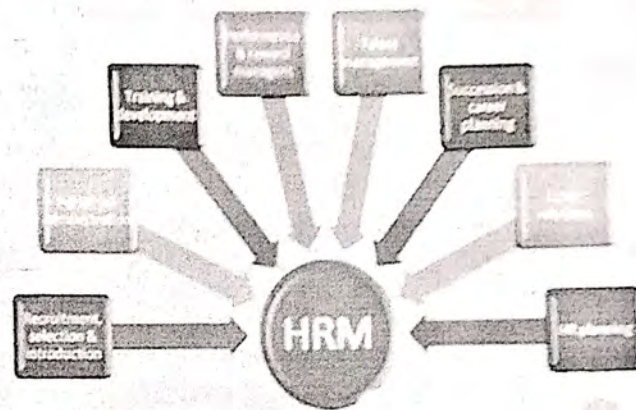
Gathering, selling and utilizing various kinds of scrap is now one of the most important industries in the country, in many respects, and for its relative financial turnover it probably has more people engaged in its ramifications than any other. Probably every man whoever was a real man has been engaged at some time and in some degree in assisting this industry by gathering scrap against the visit of the "rags and old iron" collector who traverses city road side and streets. The scrap items thus collected and brought and do bring only a tithe of the price for which it is sold to its consumer; but the successive steps of handling or marketing add to its price steadily. The man gathering it from out-of-the-way places and offering a small hoard to the peddler performs his task without knowing that no one else can do it so well because to him the value of time does not exist. This is a primitive end of the business, but it is valuable in that it starts a great stream of scattered bits sweeping toward the great consuming centres. There it is swallowed up as a valuable commodity and comes through the mill or the foundry rejuvenated and in a new dress, serving mankind again as well as before it became scrap. This research study is mainly concerned to bring out the marketing problems of Iron Scrap Traders. The problems of Iron Scrap Traders are unknown by the society and the significant contributions made by the scrap traders are undermined. They get many problems. The study also aims to supporting the recent efforts of Non-Government Organizations as well as socially committed individuals and institutions to address the issues of Iron Scrap Traders and expose their contributions to economy. The research findings will provide useful information to work with, for a better development conditions. The study has a relevance to the day to day life and it aims that the findings in the report will be the first step on changing the scrap trading policy, deciding the strategy for the welfare of the scrap traders and introduces welfare measures and promotional schemes for them.

Introduction

Gathering, selling and utilizing various kinds of scrap is now one of the most important industries in the country, in many respects and for its relative financial turnover it probably has, more people engaged in its ramifications than any other. Probably every man whoever was a real man has been engaged at some time and in some degree in assisting this industry by gathering scrap against the visit of the "rags and old iron" collector who traverses city road side and streets. The scrap items thus collected and brought and do bring only a tithe of the price for which it is sold to its consumer; but the successive steps of handling or marketing add to its price steadily.

HUMAN RESOURCE MANAGEMENT PRACTICES - AN INVENTIVE APPROACH

Dr. M. P. Asha Kumari
Dr. H. Sabeena Farveen



AND. 27

CONTENTS

| No. | Name of the Paper | Page No |
|-----|---|---------|
| 1 | <i>A study on job satisfaction of employees at Kerala State Financial Enterprises Limited</i> Santhi.V.R | 1 |
| 2 | <i>A study on Stress Management among female Doctors</i> Soumya. S and Dr.M.P. Asha Kumari | 10 |
| 3 | <i>Stress management practices adopted by small scale Manufacturing units</i> A. Ajish, A. Peer Mohamed and A. Arif Mohamed | 18 |
| 4 | <i>A study on work stress among employees in IT Sector with special reference to Techno Park</i> Archana UK and Dr. A. Safia | 25 |
| 5 | <i>A study on Artificial Intelligence in Indian Banking Sector</i> Dr. K.Vijayakumar and Rajesh .P G | 33 |
| 6 | <i>An Investigation on Effectiveness of Performance Appraisal System</i> D.Satish and Dr.M.P. Asha Kumari | 43 |
| 7 | <i>Performance Appraisal of Employees</i> Dr. Y.Hemalatha | 52 |
| 8 | <i>Challenges faced by HR Managers in the Contemporary Business Atmosphere</i> Dr.D.Muthu Krishnan, Y.Ebisha Ancy, R.Adlin Reshma and M.Fathima Rafeena | 59 |
| 9 | <i>A Study on the Work Life Balance of Working Women with special reference to College Lecturers</i> Tracy George Bertle and Dr. M.P. Asha Kumari | 65 |
| 10 | <i>Recruitment, Reward And Retention</i> Aanand. S.M | |



A STUDY ON STRESS MANAGEMENT AMONG FEMALE DOCTORS

Soumya S and Dr. M.P. Asha Kumari***

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Abstract

Stress may be considered as a physical, chemical, emotional factor that causes bodily or mental unrest. Managing this stress is a critical problem in our society. The study is conducted on stress management among female doctors, because female doctors, in between the age of 25 and 35 mainly facing critical stress problems in their life. Therefore it is the starting age of their career, also the starting age of their family life. They have to control a balance between their family life and professional life. Atmosphere in hospitals are serious issues they have to handle. Also there family life will create problem just like handling their children, parents etc. Here arise the need for stress management among female doctors. And important goal for stress is the management of life stresses. Eliminations of stress is unrealistic, since stress is a part of normal life. It is impossible to completely eliminate stress, and it would not be advisable to do so in the doctor profession, because the doctor profession completely include stress. We can learn relaxation techniques and other methods to manage stress so that we have control over our stress and its effect in our physical and mental health.

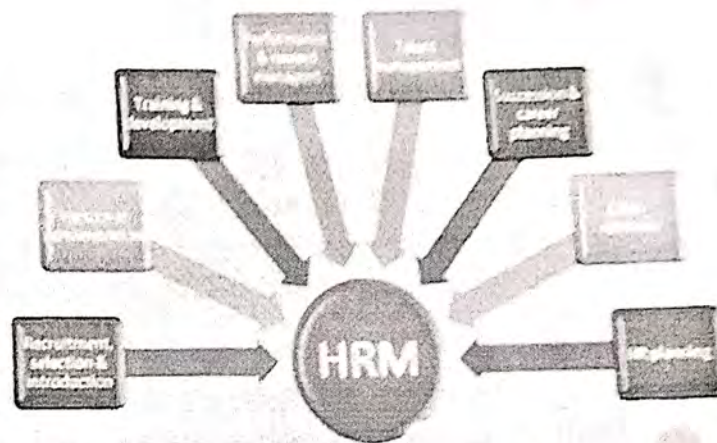
Key words : *Stress Management, Relaxation Techniques, Meditation, Yoga*

INTRODUCTION

Focuses on women doctors at a critical life stage, 25-35 years, during career establishment and early 30s transition. Examines drivers behind career choices of female doctors and identifies stressors

HUMAN RESOURCE MANAGEMENT PRACTICES - AN INVENTIVE APPROACH

Dr. M. P. Asha Kumari
Dr. H. Sabeena Farveen



AND- 97

| | | |
|----|--|-----|
| 21 | <i>A Study on Stress among School Teachers in Nagercoil Educational District</i> Dr T.Uma and Mrs. C. Senthil Kumari | 164 |
| 22 | <i>A Study On Factors Affecting Organizational Commitment</i> K. Anitha Shalini and Dr. M.P. Asha Kumari | 170 |
| 23 | <i>A Study on Organisational Commitment of Kerala Automobiles in Aralumoodu</i> Vidhya V.J and Dr.D.Muthu Krishnan | 177 |
| 24 | <i>Work Life Balance of Employees</i> Zuhra Qureishi.N and Karthika.M.V | 183 |
| 25 | <i>Human Resource Management Practices – A study in Private Hospitals in Kanyakumari District</i> R.Asha and Dr.S.Ramola Ponmalar | 189 |
| 26 | <i>A Study on Human Resource Management Practices in Hospitals</i> M.Uma Maheswari Pinky and Dr. M.P. Asha Kumari | 200 |
| 27 | <i>Effectiveness of Employee Retention Strategies</i> Binu Padman and Dr. R Mabel Sulochana | 209 |
| 28 | <i>The Influence of HR Practices on Innovation in Developing Countries</i> Vincy Johnson, Merin Susan Mathew and Dr.M.Ashitha Salomie Aberenie | 215 |
| 29 | <i>Job Satisfaction of Employees with special reference to Kerala Automobiles Ltd – Aralumoodu</i> Anu.M and Dr. A. Safia | 222 |
| 30 | <i>A Study on the Relavance of Social Recruiting in Present Scenario</i> Krishna Kumar R and Dr. M.P. Asha Kumari | 228 |



JOB SATISFACTION OF EMPLOYEES WITH SPECIAL REFERENCE TO KERALA AUTOMOBILES LTD - ARALUMOODU

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Abstract

Employees are the backbone of the organisation .Production can be only increased when workers are satisfied with their job .An increased job satisfaction produces increase performance in job. It is a positive feeling about once job resulting from an evaluation of its characteristics .It is the result of employees perception of how well their job provides those things that are viewed as important .A person with high level of satisfaction hold positive attitude about the job .The study was aimed to determine the level of satisfaction of employees in KAL .Since commencement of production in 1984, The company has manufactured and marketed more than one lakh three wheelers .The company also exported a number of three wheelers and getting all kind of support from the Government of Kerala. It is the unflinching faith of our customers, which has powered KAL into the path of progress and looking forward for continued patronage at a higher rank

Keywords: *Job satisfaction, Job performance, Employees perception, Kerala Automobiles Limited*

INTRODUCTION

Job satisfaction is the extent to which people likes or dislikes their jobs. It is a workers sense of achievements and success on the job . Job satisfaction contributes to the efficiency and effectiveness of business firms .Positive and favourable attitude to words the job

| S. No | Title | Page No. |
|-------|---|----------|
| 31 | Problems faced by the street vendors in their workplace: A study with special reference to Tirunelveli City <i>S. Maharajan and S. Sivasankaran</i> | 169 |
| 32 | Service Quality (SERVQUAL) and its effect on customer satisfaction in Banking Sector <i>P. Rajeswari and Dr. M. Murugeswari</i> | 176 |
| 33 | New rural paradigm in India <i>K. Ajitha</i> | 183 |
| 34 | Online banking and rural customers <i>T. Rajeswari and Dr. T. Jesi</i> | 188 |
| 35 | Impact of Demonetization on MSMEs <i>Dr. E.M. Sharmila</i> | 193 |
| 36 | GST benefits and impacts in Indian economy <i>P. Nandhini and Dr. A. Aruna Devi</i> | 198 |
| 37 | A study on current Business and Economic Condition of Digital Marketing in Tirunelveli city <i>S. Selvakumari and Dr. A. Aruna Devi</i> | 202 |
| 38 | A study on the role of Rubber Board to improve Economic Development in present scenario <i>S. Dileepkumar and Dr. J Vijin Shaji Kumar</i> | 207 |
| 39 | A study on current business and economic conditions in India <i>M. Maheswari and Dr. N. Kamala</i> | 211 |
| 40 | A study on Consumer Perception towards Supermarket in Tirunelveli City <i>A. Rooba and Dr. A. Aruna Devi</i> | 215 |
| 41 | Logistics Management: Challenges for Logistics effectiveness in Business <i>S. Eramiah and Dr. P. Abraham</i> | 220 |
| 42 | Hurdles and Recovery of Women Fish Vendors of Pallam Village in Kanyakumari District - An Empirical Analysis <i>M. Annish Vinotha and A. Joseph Arul Suresh</i> | 226 |
| 43 | Socio-economic status and working patterns of Street Vendors in Tirunelveli <i>S. Maharajan and S. Sivasankaran</i> | 233 |
| 44 | Schemes of LPG gas services in recent trends with special reference to INDANE and Bharat gas services <i>G. Suseela and Dr. I. Prem Rose Thayammal</i> | 241 |
| 45 | Work stress management among Women Entrepreneurs in Tirunelveli Area <i>V. Sree Mahalakshmi and Dr. N. Sankaragomathi</i> | 247 |

A STUDY ON THE ROLE OF RUBBER BOARD TO IMPROVE ECONOMIC DEVELOPMENT IN PRESENT SCENARIO

S. Dileepkumar ¹

Dr. J Vijin Shaji Kumar ²

Abstract

Natural rubber cultivation started in India in 1902. However, large expansion in area and commercial exploration of the rubber commenced five decades later. The production of natural rubber (NR) in the country during 2017-18 increased to 694000 t compared to 691000 t during 2016-17 but export and average price was reduced. Unfavourable weather conditions and change in government policy were factors that contributed to this substantial reduction in price, export and commerce of rubber industry. Rubber board has played a significant role for rubber industry and economic development of the nation in present scenario.

Keywords: Rubber Board, Rubber Production, Rubber Consumption.

Introduction

The phenomenal increase in the production and the productivity of the natural rubber in India (table 1) can be attributed the outstanding extension services and support given by the rubber board to over a million small rubber growers. Introduction of the modern planning techniques, development of new clones to suit local climate and soil conditions and introduction of new harvesting methods in the smallholding sectors spreading across 89 percentage of the rubber growing area contributed to fivefold increase in the areas under rubber plantation and 35 times increase in production but export and average price was reduced

Healthy plantation helps to achieve a higher productivity and better yield and quality of field latex. Keeping in this view the rubber board research institution of India placed emphasis on the development of appropriate area management techniques such as evolving need based fertilizers management of individual fields, strategies on cover cropping, intercropping, crop protection, water and soil conservation and other cultural operations to ensure healthy plant growth

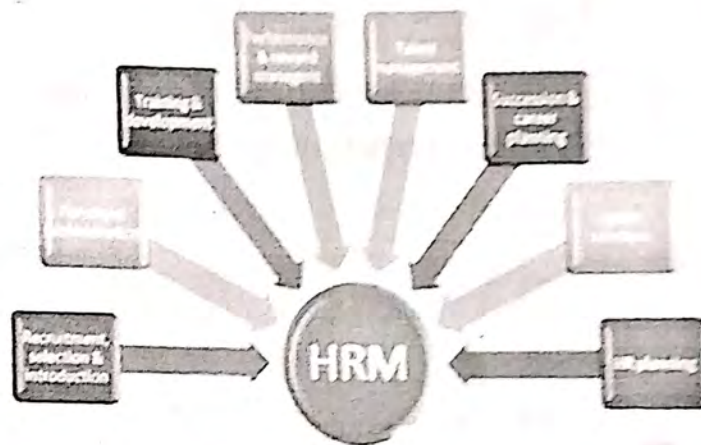


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HUMAN RESOURCE MANAGEMENT PRACTICES - AN INVENTIVE APPROACH

Dr. M. P. Asha Kumari
Dr. H. Sabeena Farveen



AND- 37

| | | |
|-----|--|-----|
| 21. | <i>A Study on Stress among School Teachers in Nagercoil Educational District</i> Dr T.Uma and Mrs. C. Senthil Kumari | 164 |
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| 23. | <i>A Study on Organisational Commitment of Kerala Automobiles in Aralumoodu</i> Vidhya V.J and Dr.D.Muthu Krishnan | 177 |
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A STUDY ON ORGANISATIONAL COMMITMENT OF KERALA AUTOMOBILES IN ARALUMGODU

Vidhya V.J and Dr.D. Muthu Krishnan***

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***Associate Professor of Commerce, Muslim Arts College, Thiruvithancode*

Abstract

Organisational Commitment is the second most frequently studied attitude in the workplace, but it has captured much less attention than job satisfaction. That can be defined as the relative strength of an individual's identification with and involvement in a particular organization. Organisational commitments describe the level of attachment a member has towards his organization. A leading model of organisational commitment is a factor of three components that interact with either. Effective commitment is the degree want to stay with the organisation continues commitment is the degree that we stay with the organisation because believe we have to stay. Normative commitment is the degree to which we believe us out to stay. Employee retention, work performance and organisational citizenship behaviour are affected by the level of facilities. The objective of this study is to investigate organisational commitment of employees in Kerala automobiles Ltd.

Keywords: *Organisational Commitment*

INTRODUCTION

Organisational commitment is most often defined as a strong desire to remain a member of a particular organization a willingness to exert high level of effort on behalf of the organization, and a definite belief in and acceptance of the values and goals of the organization. In order words this is an attitude reflecting employee's loyalty to their organisation and is an ongoing process through which organisational

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Dr. J. VIJAYAKUMAR
Principal
Emmanuel College, V
Kudappanamoodu P.O., E

26. **Equatorial upper atmosphere during geomagnetic storm- A case study** 126
S. G. Sumod

V. SPECTROSCOPY

27. **Spectroscopic characterization of Methyl n-[6-[Hydroxy (Phenyl) Methyl]-1h-Benzimidazol-2-yl] Carbamate by DFT calculations** 129
A. Beta Daniel and D. Aruldas

28. **Molecular structure, NBO, homo-lumo and NLO properties of (4-Dimethylamino-Phenyl)-Glyoxal NLO material based on DFT calculations** 136
D. Jaya Reshmi and D. Aruldas

29. **Structural analysis, MESP and 2D finger print plot analysis of 2-(4-Amino-3,5-Dichloro-6-Fluoropyridin-2-yl) Oxyacetic acid (ADF) herbicide** 143
N. Suma, D. Aruldas, I. Hubert Joe and S. Balachandran

30. **DFT calculations of molecular structure, spectroscopic characterization and NBO analysis of Propan-2-yl n-[2-(4-phenoxyphenoxy) Ethyl] Carbamate** 150
L. S. Anji and D. Aruldas

31. **Spectroscopic studies, charge transfer and hydrogen bonding interaction in (E)-3-(7-Hydroxy-1,3-Benzodioxol-5-yl)-n-(2-Methyl propyl) Prop-2-Enamide with water complexes** 154
J. Priscilla, D. Aruldas, S. Balachandran and I. Hubert Joe

32. **Pesticidal compound Pirimicarb: Molecular docking study and in vitro bioactivity** 159
P. Divya and V. Bena Jothy

33. **Vibrational studies of bioactive 2-Sulfonaphthalene: A DFT approach** 162
R. Mini, T. Joselin Beaula and V. Bena Jothy

34. **Spectroscopic investigation and Density Functional Theory of 3-[6-diamino methylidene) Cyclo Hexa 2,5-dien-Lylidene] Propane dinitrile** 165
V. K. Suma, D. Arul Dhas and I. Hubert Joe

VI. STATISTICAL ANALYSIS

35. **Prediction of cod value in engineering work industrial effluents by ANFIS modelling** 171
H. Adline Mahiba and S. Akilandeswari

36. **The open-source theoretical predictions of the pharmacological properties of eight fluoroquinolone animal-husbandry agents** 179
P. Yowan Jeba Raj



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DFT CALCULATIONS OF MOLECULAR STRUCTURE, SPECTROSCOPIC CHARACTERIZATION AND NBO ANALYSIS OF PROPAN-2-YL N-[2-(4-PHENOXYPHENOXY)ETHYL]CARBAMATE

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ABSTRACT

The DFT method employed to predict electronic properties such as electronic transitions by HOMO-LUMO energies, various global reactivity and selectivity descriptors (chemical potential, electronegativity, chemical hardness, softness and electrophilicity index). Quantum chemical calculations of energies, geometrical structure of Propan-2-yl N-[2-(4-phenoxyphenoxy)ethyl]carbamate were carried by B3LYP/6-31G(d) basis set. NBO analysis was used to find the presence of Hydrogen bonding.

Keywords: DFT, HOMO-LUMO, NBO Charge analysis

1. INTRODUCTION

Carbamates are used as pesticides. They offer certain environmental and toxicological properties which are especially important in public health use. Density functional theory (DFT) is widely used quantum chemical method for geometry optimization and calculation of molecular properties [1,2]. Most are highly toxic to humans and other mammals by all routes of exposure. When inhaled, the effects are usually respiratory and may include bloody or runny nose, coughing, chest discomfort, difficult or short breath and wheezing due to constriction or excess fluid in bronchial tubes. Spectral analysis have been carried out using computation and experimental methods. DFT with the B3LYP method using Gaussian '09 programs package is used for calculation.



Fig1: Structure of Propan-2-yl N-[2-(4-phenoxyphenoxy)ethyl]carbamate

2. COMPUTATIONAL DETAILS

The DFT computations for the Propan-2-yl N-[2-(4-phenoxyphenoxy)ethyl]carbamate was carried out in the Gaussian 09 program package using "ultrafine" integration grids [3]. The calculations were performed at the B3LYP level with the standard 6-31G(d) basis set in order to derive the optimized geometry, vibrational wave numbers and natural bond orbital analysis of the title compound.



150

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Nothing is more pleasing to all parents
on this great earth than that their children
should possess real learning.

Dr. J. V. S. KUMAR
Principal

Emmanuel College, Vazhichal,
Kudappanamoodu P.O, Pin: 695505

DENSITY FUNCTIONAL THEORY AND VIBRATIONAL SPECTROSCOPIC STUDY ON BIOACTIVE COMPOUND (6-METHYL-2-METHYLSULFANYLPYRIMIDIN-4-YL) N, N- DIMETHYLCARBAMATE

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Abstract

Density functional theory (DFT) and vibrational analysis of (6-methyl-2-methylsulfanylpurimidin-4-yl) N,N-dimethylcarbamate has been carried out. The geometry has been optimized by B3LYP level of theories using 6-31G (d) basis set using Gaussian (9) program and compared with the crystal data. NBO and structural analysis has been carried out on the compound. Theoretical methods have been used to study the proper and improper hydrogen bonds, considering the bond length and charge transfer. The atomic charges of the molecule were also computed using DFT calculations. Condensed Fukui functions for a large number of molecules, undergoing an electrophilic or a nucleophilic attack, are computed and compared with the Highest Occupied Molecular Orbital (HOMO) and Lowest Occupied Molecular Orbital (LUMO) energy densities. Information about density distribution and site of chemical reactivity of the molecule has been obtained by molecular electrostatic potential (MESP). The ionisation energy, electron affinity index, chemical hardness, softness, chemical potential and electrophilicity index also determined by the title compound.

Keywords: DFT, bioactivity; NBO, Fukui function, MESP

Introduction

Vibrational spectroscopic Investigation with the help of quantum chemical Computational method has been used as an effective tool for the structural analysis of pesticide molecules [1-4]. (6-methyl-2-methylsulfanylpurimidin-4-yl) N,N-dimethyl carbamate insecticides are used to control a broad range of sucking insect pests of various crops. Because of its insecticidal activity, structural and spectroscopic analysis has been performed using computation methods. In this work, the effects have been taken to predict a complete description of molecular

geometry, vibrational frequencies, natural bond orbital (NBO) analysis, electrostatic potential should help us to understand the structural and spectral characteristics and bioactivity of the molecule. It also includes analysis of hydrogen bonding and charge transfer.

Experimental Procedure

(6-methyl-2-methylsulfanylpurimidin-4-yl) N, N-dimethylcarbamate was purchased from Sigma Aldrich (St. Louis, MO, USA) and used without further purification. The room temperature fourier transform infrared spectra of the title compound was measured in the