



# SREEKRISHNAPURAM V.T. BHATTATHIRIPAD COLLEGE

Aided and Affiliated to University of Calicut, NAAC Accredited with B+ Grade

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## CRITERION – III RESEARCH, INNOVATIONS AND EXTENSION

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## Declaration by the Principal

This is to Certify that 28 Research Papers have been Published by the Faculty in the Journals notified on the UGC Care List during 2019-24.

### Summary Report

Year	2023-24	2022-23	2021-22	2020-21	2019-20	Total
No. of Publications	10	8	3	3	4	28



  
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## List of Research Papers Published in the Journals notified on UGC Care List during 2019-24

Sl. No	Title of the Paper	Name of the Teacher	Title of the Journal	Year	ISSN	Page. No
1	A Study of Influencer Marketing; As an Emerging Marketing Tool Among Youth in Ottapalam	Dr. Vinitha A S	International Journal of Creative Research Thoughts	2023-24	2320-2882	7
2	Relationship Between Rational and Irrational Investment	K N Rathi	International Journal of Economics and Financial	2023-24	2146-4138	15
3	Exploring the Interplay of Privacy Concerns, Mobile Cybersecurity Awareness	Dr. Gopu Vijayan	International Journal of Religion	2023-24	2633-3538	23
4	A Study on the Relationship Between Job Stress and Job Satisfaction Among Public Sector Bank Employees in Palakkad District	Bindu T	International Journal for Innovative Research In Multidisciplinary Field	2023-24	2455-0620	31
5	Role of Demography on Entrepreneurial Intention Among Nascent Entrepreneurs: An Empirical Study	Dr. Remya S	Madhya Pradesh Journal of Social Sciences	2023-24	0973-855X	37
6	Rights and status of Women in Indian Society	Dr. K Geetha	Journal of Indian School of Political Economy	2023-24	2321-788X	45
7	Relationship Between Digitalization Technologies and Human Resource Management Practices in Information Technology Industry	Dr. Vivek S A	Madhya Pradesh Journal of Social Sciences	2023-24	0973-855X	51


8	Influence Of Personality Traits and Behavioral Biases on Irrational Investment Decision Making of Public Officials	Rathi K N	The Review of Finance and Banking	2023-24	2067-3825	60
9	Socially Responsible Investment (Sri) In Relation to Personality Traits	Rathi K N	International Journal of Professional Business Review.	2023-24	2525-3654	75
10	Promoting sustainable tourism in Kerala through social media: A review	Dr. Vivek S A	Journal of The Asiatic Society of Mumbai	2023-24	0972-0766	87
11	Investigation Of the Changes on Reaction Time and Anaerobic Power of Football Players Due to Low and High Frequency Aerobic Interval Training	Dr. Sadeep K	Journal of Xi'an Shiyou University, Natural Science Edition	2022-23	1673-064X	99
12	An investigation into organizational Performance and Knowledge Management in the context of E-Knowledge	Dr.Vivek S A	Kicma Reach	2022-23	2395-0293	105
13	Bhavadipikaritya Nyayalaksanavicharah	Dr. Sruthi P A	Pratyabhijna, SSUS Kalady	2022-23	2349-5588	112
14	Investment Pattern of Government Employees in Kerala	Rathi K N	International Journal of Scientific Research in Engineering and Management (IJSREM)	2022-23	2582-3930	115
15	Multiple Intelligence and Personality Traits Of College Teachers on Their Biases in Financial Decisions	Rathi K N	The Seybold report	2022-23	1533-9211	122
16	Investment Decision-Making of Govt. Employees in Kerala	Rathi K N	Journal of The Asiatic Society of Mumbai	2022-23	0972-0766,	140



17	A Study on Customer Switching Behavior in Telecommunication Industry with Special Reference to Malappuram District	Sinu M	Journal of Emerging Technologies and Innovative Research (JETIR)	2022-23	2349-5162	147
18	“Let Us Inquire, to What End Is Nature?": An Ecological Reading of Nathaniel Hawthorne's The House of the Seven Gables and The Marble Faun	Girija Sankara Aravind	The International Journal off Critical Cultural Studies	2022-23	2327-0055 (Print) 2327-2376 (Online)	156
19	Impact of covid-19 pandemic on homestay tourism stakeholders in fort Kochi- An Empirical Analysis	Dr. Vivek S A	Indian Journal of Tourism and Hospital management	2021-22	2229-404X	172
20	Resilience and OCB among employees of Information Technology sector in Kerala: An Empirical Study	Dr. Vivek S A	Srushti Management Review	2021-22	0974-4274	186
21	A Study on the Customer Satisfaction towards Customer Relationship Management (Crm) Practices Adopted by Supermarkets/Hypermarkets in Palakkad District	Bindu T	International Journal of All Research Education and Scientific Methods (IJARESM)	2021-22	2455-6211	193
22	Opportunities of Blue Economy in Indian Ocean: A Conceptual Approach	Dr. Vivek S A	Management Innovator	2020-21	0974-6749	198
23	Effect of endurance training on body composition blood glucose and insulin among college boys	Sadeep K	International Journal of Physiology, Nutrition and Physical Education	2020-21	2456-0057	208
24	Effect of Endurance Training Program on BMI and Lipid Profiles among College Boys	Sadeep K	Indian Journal of Natural Sciences	2020-21	0976-0997	218

25	Balapriyaritya Anupalabdeh Pramanantvanirasah	Dr. Sruthy P A	Mahasvini	2019-20	2231-0452	224
26	Training at Rural Self Employment Training Institute (Rseti) and Its Influence on the Financial Literacy and Entrepreneurial Intention of Women	Rathi K N	Quest Journals Journal of Research in Business and Management	2019-20	2347-3002	228
27	The Effectiveness of Training at Rural Self Employment Training Institute (Rseti) In The Entrepreneurial Personality Development of Rural Women	Rathi K N	Indian Journal of Research	2019-20	2250-1991	232
28	Looking into the Binary Interactome of Enterobacteriaceae Family of Bacteria	Dr. Saritha Namboodiri	International Journal of Applied Research in Bioinformatics	2019-20	2640-0324	235



  
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# INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

## A STUDY ON INFLUENCER MARKETING; AS AN EMERGING MARKETING TOOL AMONG YOUTH IN OTTAPALAM TALUK

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### ABSTRACT

¶ Social media influencers are winning over the internet with their outstanding presence and work. Their opinions have a powerful impact on people especially on young generation. There are several social media platforms like Instagram, Twitter, Facebook, LinkedIn, YouTube where influencer marketing takes place which gains momentum among youth. This study aims to understand the awareness of influencer marketing among youth and also to understand the preference of social media platforms by youth for influencer marketing.

Key words: Marketing tools, influencer marketing, social media

### 1. INTRODUCTION

Marketing refers to activities a company undertakes to promote the buying or selling of a product or service. Nowadays marketing techniques are changing according to the technological innovations happening in the environment. Social media have great influence on dealing with customers and on purchase decisions of customers. In the changing era majority of people are having an active membership on the internet and they all are part of the virtual world. Social Medias are those virtual platforms where customers find their space and get aware about the different products and services. Youngsters are those who create more space for them and explore on internet and actively participating on the social Medias. An influencer is someone who can influence others and influencer marketing, a form of social marketing which have more followers nowadays. Influencer marketing involves brands collaborating with online influencers to market products or services. Some influencer marketing collaborations are less tangible than that brands simply works with influencers to improve brand recognition. The important thing here is that the online collaborations are

genuinely influential. They have to influence the type of people with whom a brand wishes to establish a touch point. Influencer marketing is much more than finding someone with an audience and offering them money or exposure to say good things about you. There are micro influencers, mid-tier influencers, macro influencers and mega influencers mainly. Instagram, you tube, Facebook, tik tok are the main platforms for these marketers. In every sector they can influence the customers. It may be beauty, travel, fashions, sports, animals etc. Influencing marketing campaigns can be of many types some of them are sponsored content, reviews, competitions and giveaways, product and content collaborations, long term ambassadors and take overs on your platforms. Influencer marketing is a form of marketing that enables business to collaborate with individuals who have a following for increased brand exposure. Companies may ask a person with a large following to publish social media content that promotes their products or services. People often follow individuals they trust on social media, so if they see someone, they follow advertising your business.

Influencer marketing has been a recent strategy employed by firms in INDIA to connect with INDIAN consumers. This has undoubtedly been a successful marketing and advertising technique that has resulted in hundreds of profitable campaigns. Influencer marketing has been extremely successful in the country due to the increase of social media users in INDIA.

## **2. STATEMENT OF THE PROBLEM**

Marketing techniques are changing now days and it is very important to know how the new techniques and tools are effective in the current era. In this period social medias are having more influence on the life style of people and influencer marketing is that kind of marketing which is having more importance in today's market. It is important to know how young customers purchase decisions have influenced with the introduction of influencer marketing.

## **3. SIGNIFICANCE OF THE STUDY**

Technology has changed the way businesses market products. The medium allows for plenty of room to share product details, reviews, photos and videos that engage potential customers. Influencer marketing as a new marketing tool has importance in the purchase decisions of customers especially among youngsters who are more active in the virtual world.

## **4. SCOPE OF THE STUDY**

The data was collected from the respondents across the age group of 18-25 of varied educational qualifications, gender, and different family backgrounds. The study involves understanding the awareness of youth regarding influencer marketing and identifying the factors differentiating influencer marketing from other marketing tools by youth in Ottappalam Taluk.



## 5. OBJECTIVES OF THE STUDY

- To understand the awareness of influencer marketing among youth
- To understand the preference of social media platform by youth for influencer marketing.

### Hypothesis:

H0: There is no significant difference in the awareness among different age group

H1: There is significant difference in the awareness among different age group

H0: There is no significant association between preference level and gender of youth

H1: There is significant association between preference level and gender of youth.

## 6. RESEARCH METHODOLOGY

### 1. RESEARCH DESIGN

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. What the study is, why the study for, source of information to be collected, limitations of the study and all other relevant things related with the study is involved in a research design. This study is descriptive in nature. Study mainly depends on both primary and secondary data to collect information required for the study.

### 2. SOURCES OF DATA

#### a) Primary data

Primary data for the study is collected by using questionnaire.

#### b) Secondary data

Secondary data is collected from various websites, journals and such other publications.

### 3. SAMPLE DESIGN

Sample design is the plan of sample and it is the framework which describes how the sampling is being performed in the study. It deals with the process of deciding sample size, sampling unit, sampling frame.

#### a) Sampling method

Sampling method used for this study is convenience sampling method.

#### b) Sample size for this study is 120.

#### c) Sample unit for the study is Ottappalam taluk.

## 7. TOOLS AND TECHNIQUES OF ANALYSIS

The data analysis for this study employed is descriptive and analytical methods. Appropriate statistical procedures for descriptions such as percentages, means, ANOVA, chi-square test were used. Results were adequately presented in tables and charts.

## 8. LIMITATIONS OF THE STUDY

- a. The study does not discuss about other emerging marketing tools
- b. The study only focuses on youth
- c. Study does not evaluate the effectiveness of influencer marketing

## 9. REVIEW OF LITERATURE

- a. “Instafamous and social media influencer marketing”-SV JIN, A MUQUADDAM, E RYU – (2019), Marketing intelligence and planning 37(5),567-569, The purpose of this paper is to test the effects of two types of celebrities on source trust worthiness, brand attitude, envy and social presence. The result indicate that customers exposed to Instagram celebrities brand posts perceive the source to be more trust who worthy, show more positive attitude towards endorsed brand, feel stronger social presence.
- b. “Online influencer marketing”- FINE F LEUNG, FLORA F GU, ROBERT W PALMATIER (2022), - journal of the academy of marketing science, 1-26, This article outlines key strategies for effectively managing OIM. OIM has become an integral component of brands marketing strategies however marketers lack an adequate understanding of its scope, effectiveness, and potential threats. Drawing insights from practitioner and consumer interviews, and in line with the social capital theory, the authors propose that OIM can be understood as leveraging influencer resources to enhance a firms marketing communication effectiveness.
- c. “Behind influencer marketing: key marketing decisions and their effects on followers’ responses”- FRANCISCO J MARTINEZ-LOPEZ, RAHEEL ANAYA-SANCHEZ, MARISEL FERNADEZ GOIRDANO AND DAVID LOPEZ-LOPEZ-(2020)- journal of marketing management, 1376-1472, Influencer marketing actions are mostly carried out on social platforms, e.g.; Facebook, Instagram, and twitter. However, despite its increasing four essential factors related to an influencer marketing program analysed in two separate experimental studies for theoretical reasons and methodological operability; brand control over the shared message and its commercial orientation; and the celebrity level of the influencer and his/her congruence with the product or service they comment on in the post.
- d. KENDRA FOWLER, VERONICA L THOMAS (2023), “Influencer marketing: A scoping review and a look ahead”, journal of marketing management,1-32, The interdisciplinary nature and rapidly expanding literature stream devoted to influencer marketing makes it difficult to stay abreast of the current research while simultaneously moving the field of knowledge forward. The goal of this article, then is to



take a look back, reviewing the disparate literature, in order to look ahead, guiding future research towards fruitful under explored avenues of discovery. Using a framework-based scoping review, a retrospective examination of 150 articles is provided with emphasis on identifying publication trends, theories, contexts, concepts, methodological approaches. These findings allow for a thorough discussion of gaps in extant knowledge, emerging themes and trends, and directions for future research.

e. SERIGO BARTA, DANIEL BELANCHE, ANA FERNANDEZ, MARTA FLAVIAN (2023), “Influencer marketing on tik tok: the effectiveness of humour and followers hedonic experience”, journal of retailing and consumer services 70, 103149, This work examines the determinants of the success of influencer marketing on the youth focused Tik Tok, the fastest growing social network. It analyses the influencers account characteristics on their followers’ hedonic experience and perceived opinion leadership, and how these impact on their intentions to follow influencers account and advice. A survey of followers of a popular Spanish Tik Tok influencer showed that originality and opinion leadership play important roles.

f. RON BERMAN, ANIKO OREY, XUDONG ZHENG (2023), “Influence or advertise: the role of social learning in influencer marketing”, SSRN 4324888, The study compares influencer marketing to targeted advertising from information aggregation and product awareness perspectives. The study then points out different types of influencers and their influence among the target group. The type of product and appropriate influencer their influence levels are further detailed in this study. Why influencer campaigns either “go viral” or “go bust”, and how for niche products, micro influencers with consistent content quality can be a valuable marketing tool are described through this study.

## 10. ANALYSIS AND INTERPRETATION

**Table 1. One-way ANOVA on awareness among different age groups**

H0: There is no significant difference in the awareness among different age group H1: There is significant difference in the awareness among different age group

**Table 1**

**One-way ANOVA on awareness among different age groups**

Age group	N	Mean	Std. Deviation	F value	P value
18-20	3	1.6667	.57735	2.299	.81
20-22	25	2.1200	.78102		
22-24	76	1.9868	.82451		

24-26	16	1.5000	.63246		
Total	120	1.9417	.80226		

Source: primary data

The above given table gives the result on one-way ANOVA conducted among age of respondents and awareness of respondents. The resulted P value at 5% level of significance proves that there is no significant difference in the awareness among different age groups of youth. Hence, we accept the null hypothesis and reject the alternative hypothesis. From the result it is clear that youngsters in different age group have an equally likely awareness regarding influencer marketing.

### Hypothesis:

H0: There is no significant association between preference level and gender of youth

H1: There is significant association between preference level and gender of youth

**Table 2.**  
**Chi-square test on preference of social media platform among male and female**

		Preference of social media platform for influencer marketing					Total
		YouTube	Facebook	Twitter	Instagram	LinkedIn	
Gender of respondents	Female	5	9	9	8	8	39
	Male	12	19	15	21	14	81
Total		17	28	24	29	22	120
Pearson chi -square							.818
P value							.936

Source: primary data

The 'p' value is greater than 0.05 hence it can be concluded that there is no significant association between preference level and gender of youth. Here the null hypothesis is getting accepted at 5% level of significance and 95% confidence level.

It can be concluded that preference of social media platform for influencer marketing among male and female are not associated together.

## 11. FINDINGS

- a. From the result it is clear that youngsters in different age group have an equally likely awareness regarding influencer marketing.
- b. There is no significant association between preference of social media for influencer marketing among male and female.

## 12. SUGGESTIONS

- a. More diversification to be introduced in influencer marketing.
- b. It is to be ensured that information is available to the customer in the best manner.
- c. More campaigns should be arranged for spreading awareness of influencer marketing.

## CONCLUSION

To conclude, influencer marketing is a form of social media marketing. It includes affirmation and product/service advertisements by influencers, individuals, and organizations that have a perceived degree of awareness or social impact in the field. Engaged audience typically follows these content creators. Advertising to them across different social media platforms enables the company to extend the scope, improve brand awareness and generate new leads for their sales funnel through buyer personas. Since influencers often create a clean shiny and fun version of their lives, it can create a sense of comparison for young followers. Whether we like it or not social media influencers are now part of life, both for adults and young people. Since these influencers can positively and negatively impact impressionable teens, it's important to understand their awareness and how they differentiate influencer marketing from other marketing tools.

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## **Relationship between Rational and Irrational Investment Decisions and Multiple Intelligence of Investors**

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Received: 01 February 2024

Accepted: 24 June 2024

DOI: <https://doi.org/10.32479/ijefi.16118>

### **ABSTRACT**

This study focuses on investors' investment decision-making and examines the influence of multiple intelligences in investment decision-making, both rational and irrational. Multiple intelligences are a group of Intelligence with its entity and domain. Gardner suggests that the human being has different individual units of intellectual functioning. He labels these units as intelligence, each with identifiable and quantifiable aptitudes. The nine intelligence types differently influence an individual's behaviour and decisions. The multiple intelligence Inventory and a questionnaire on investment decision-making were used for data collection from a hundred investors. Analysis was done with the help of Pearson's correlation, multiple regression Chi-square test, and correspondence analysis. Rational decision-making is intellectual, as per the review, and it is proved here that intelligence influences rational decision-making significantly while the other is not influenced. The observed results help to get new visions of investment behaviour, including a new proof of the root causes of investment decisions.

**Keywords:** Multiple Intelligence, Investment Decision-making, Rational Decisions, Irrational Decisions

**JEL Classifications:** D90, G91, C00, E70, E71

## **1. INTRODUCTION**

Investment is the process of setting aside a portion of finance to get a return as dividends or interest and capital appreciation. Different investment avenues are available for investors, like real assets and financial assets. Both have different classifications; each has a different rate of return and risk associated (Sprecher, 1975). Investment decision-making is a complex process of analysing the investment avenues, objectives, return, investment policies and investment environment. This process needs high cognitive involvement and rational thinking. Investment decision-making involves five stages: investment policy, investment analysis, valuation, portfolio construction, and portfolio evaluation (Babu, 2007).

Thinking is the base of any decision-making, which may or may not be rational. Rational and irrational thinking are part of human thinking and associated behaviour (Simon, 1993). Non-rational thinking is an extension of rational thinking, as a reflex

of mixing thinking in to "n" pattern recurring to logic and extra logic structures to reach an objective. Emotions, imaginations, intuitions, and other skills are the components of non-rational thinking. (Burciu and Hapenciuc, 2010). Rational thinking is based on proven evidence and hypotheses that measure experiences and interactions to determine rational actions and decisions. Irrational thinking is usually based on emotions, often mixed with those emotions and limited or selective evidence. Rational thinking creates motivation because there is structure and clear evidence, while irrational thoughts cause anxiety (Brain, 2022).

The next section of the article presents the review of literature on rational and irrational decision making.

## **2. LITERATURE REVIEW**

Investment decision-making may be rational and irrational in characteristics. Rational decisions are based on fundamental



analysis, technical analysis and expert opinion. According to Fama, an active market includes many informed and intelligent investors. Thus, the securities will be appropriately priced and reflect all the available information as per his Efficient Market Hypothesis (Chinas, 2019). Investor rationality based on principles underlying expected utility maximisation as the optimal role (Von Neumann and Morgenstern, 1947). Investors are presumed to use all available information to form rational expectations. Investment decisions can be derived from different financial models from the technical side. The rational theory is only a useful positive tool when the conditions are favourable, even though economists have been trying to prove that the rational theory is universally applicable (Binmore, 2008). Investors lean towards to trust on previous information from companies that show that representativeness heuristic and the availability heuristic consequence investor decision making then lead investors to make irrational decisions by listening to rumours and guidance from brokers, friends, and family (Dietrich, 2010 and Khan and Waqas, 2024).

Decisions also consider incidental factors, which consider the location and psychology of the market, in other words. The temperament and psychology of the investor are other crucial considerations in making an investment decision by the investors (Bindu, 2017). It invites investors to learn about the various biases that may appear in them and then take steps to avoid them, thus increasing their performance (Shunmugathangam, 2017). Moods and emotions can play helpful and disruptive roles in decision-making. Emotions can be trusted to lead to good or bad decisions (Shiv et al., 2004). Investors' psychological tendencies have a significant impact on the purchase of securities. The investor's psychological biases and subsequent investment-related behaviour are persistent and systematic (Pandit and Yeoh, 2014).

### 2.1. Factors in Decision Making

Rational decisions may be objective or subjective; if it is the correct behaviour to maximise the values given in a specific situation, it is termed as objectively rational, and if a decision maximises success relative to the subject's actual knowledge, it is called subjectively rational (Mahoney, 2012). Rational investors must consider all aspects and growth prospects of investment avenues while making investment decisions. This can be acquired through digital or advice-seeking searches in general and will influence the performance of investment (Baker and Nofsinger, 2002; Loibl and Hira, 2009). Professional investors and non-specialist investors do not differ statistically in irrational decision-making. Both experts and amateurs (professional and non-specialist) might be unconscious of the influence these biases have on their investment decisions (Stephan, 1998; Rzeszutek et al., 2015). The rational decision-making model emphasises investigating and logical assessment before selecting the best alternatives. This model is grounded on the hypothesis that cumulative social behaviour results from the behaviour of individual investors, which is just the opposite of the intuitive decision model (Uzonwanne, 2016). Cognitive Biases influence on investors' decision making, market reactions and earnings forecasts made by analysts (Karki et al., 2024). Awareness of investment opportunities and innovative financial instruments significantly affect investment decisions along with purchasing power, and internet usage (Chauhan and Patel, 2024).

The reviews of related literature evidenced the impact of Multiple Intelligence on many aspects of life like education, leadership, and social adjustment. Nevertheless, there are very few studies concerning investment behaviour or decision-making.

## 3. VARIABLES AND SAMPLE

The reputation of the firm, the firm's status in the industry, expected corporate earnings, profit and condition of the statement, past performance of firms' stock, price per share, feeling on the economy are the factors affecting investors' decision making. (Jagongo and Mutswenje, 2014).

There are a number of factors in investment decisions like the past performance of the company's stock, company stability, firm's goodwill, firm's reputation in the industry, dividend paid, expected corporate earnings and expected dividend (Kengatharan, 2019).

The identified factors of rational investment decisions of Indian stock market investors are general information, company management, prospectus details and financial parameters (Sreenivas et al., 2020). Rational and psychological decision-making models are concentrated on different points of view of decisions; the former depends on the mental process of information based on principles, values and beliefs. The latter establishes a weighing mechanism between alternatives and monetary values and leads to outcome optimisation (Oliveira, 2007). Investment decision-making depends on the degree of information dissemination, information content, information impact, specific inside issues and general outside issues on investors dominant in the given situations. This led to the investor's reaction, decision and unresolved reversals, and overreaction (Gowri and Ram, 2019). The factors in rational decision-making are return, risk, economic and social considerations, information, evaluation, influence from the persons in a narrow social circle and sustainability.

Figure 1 shows factors affecting rational decision making. I included the most prominent eight factors like Return, Economic consideration, influencing persons, Information dependence, Social consideration, Risk associated, Evaluation and Sustainability. While making decisions, investors are vulnerable to so-called behavioural biases, which interrupt the rationality of making investment decisions and contribute to inefficient market responses to information and, as a result, to asset mispricing (Camerer and Loewenstein, 2003). Individual psychological biases and differences have a solid influential role in the investment outcome. psychological biases can have an impact on risk-return optimisation and asset allocation in investment portfolios. The sources of investor biases that lead to investor investment faults can be put into the data for developing products and services that may save investors from interrupting their financial standing and future predictions (Mitroi, 2014). The economic expectations and overconfidence bias have a significant positive relationship with investment decision-making when the information searches are taken as mediating variables (Gill et al., 2018). Individual investors have a high level of involvement and overconfidence; at the same time, they are not much optimistic about the market's future outlook, and they have an aversion to risk (Kavitha, 2013).

Figure 2. shows factors affecting irrational decision making. Behavioural biases like Representativeness, Availability bias, Anchoring bias, Herd effect, Mental accounting, Gamblers' fallacy, Overconfidence and Regret aversion are the apparent biases in investment. (Kahneman and Tversky, 1979); (Benartzi and Thaler, 1995; Prelec and Loewenstein, 1998 and Thaler, 1999).

### 3.1. Intelligence

Investors' psychological, sociological and demographic factors are significant predictors of their investment. Financial service providers can use the regression equation to predict the portfolio choice of individual investors (Mak, and Ip, 2017). Psychological factors like Intelligence and personality are significant in investment behaviour. "Intelligence is the mental abilities necessary for adaptation to, as well as shaping and selection of, any environmental context" (Sternberg, 1997). Intelligence is a combination of numerous elements, one being a minute ability. Thus there are a number of specific Intelligence along with general factors (Thorndike, as cited by Garret, 1946). A single g-factor represents an individual's general Intelligence across multiple abilities. A second factor, s, refers to an individual's specific ability in one particular area (Spearman, as cited in Thomson, 1947). Thurstone's model's seven primary mental abilities are verbal comprehension, fluency, number facility, spatial visualisation, perceptual speed, memory, and inductive

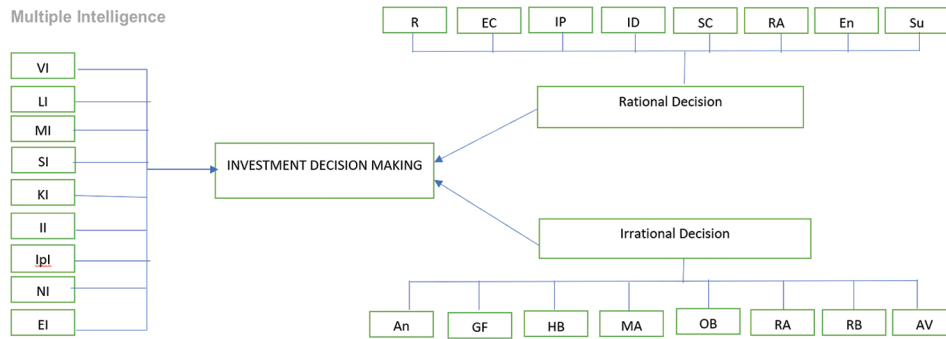
reasoning (Thurstone, as cited in Sternberg, 2003). Multiple intelligence theory is introduced with Seven types of intelligences like linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal (Gardner, 1983). Naturalistic Intelligence is added to the multiple intelligences later (Gardner, 1987). In recent years, Gardner has introduced the ninth and perhaps most significant form of "intelligence," which he calls "existential" Intelligence. Others refer to it as "cosmic" or "spiritual" Intelligence. As I speculated the existential Intelligence, now Existential Intelligence got more acceptance and inquiries about this type of Intelligence. In COVID-19 hit the world, it is proved that human beings can adapt to the environment and change their behaviour when life is threatened (Gardener, 2020).

Gardener initially introduced Multiple Intelligence in the light of the biological origins of each skill in his book "Frames of Mind" in 1983. He updated his theory in the book "Intelligence Reframed" in 2000. As per this theory, an individual has more than one Intelligence, and each of them must have an identifiable core operation or set of operations. Multiple Intelligences, as per the theory, are:

Gardener and his followers treated all these intelligences are separate entities and related to the behaviour, attitude, personality, career preferences and success in different professions.

No.	Dimension	Concept	Attributes of persons	References
1	Verbal Intelligence (VI)	The cognitive ability to learn languages, interpret words and signs and use words that lead towards specific goals.	<ul style="list-style-type: none"> <li>Understand and use complex phrases or learn more than one language</li> <li>Highly developed auditory skills</li> <li>Marvel at the use of language.</li> </ul>	Gardener (1983)
2	Logical Intelligence (LI)	It helps to analyse information or problems logically and investigate issues scientifically.	<ul style="list-style-type: none"> <li>Think conceptually in logical and numerical patterns</li> <li>Making a connection between the bits of data</li> <li>Curious about the universe. Interested in experiments and posing questions.</li> </ul>	Gardener (1983)
3	Musical Intelligence (MI)	The ability to identify different sounds and distinguish between specific pitches, tones and rhythms.	<ul style="list-style-type: none"> <li>Immediate response to the sounds they hear.</li> <li>Sensitive listeners</li> <li>Reflect or reproduce music quite accurately.</li> </ul>	Gardener (1983)
4	Spatial Intelligence (SI)	The capacity to visualise, recognise and manipulate patterns of vast space. This ability includes manipulating images, graphic skills and spatial reasoning.	<ul style="list-style-type: none"> <li>Think in pictures and need to develop visions for processing and retaining information.</li> </ul>	Gardener (1983)
5	Kinesthetic Intelligence (KI)	The ability to manipulate both body and object with a keen sense of timing. This is the ability to control body movements and handle things skillfully through eye-hand coordination.	<ul style="list-style-type: none"> <li>Success as dancers, magicians, athletes, sportspeople and builders.</li> </ul>	Gardener (1983)
6	Intra-personal Intelligence (II)	The capacity to be aware of his or her own emotions, needs, interests, confidence, feelings, motivation, attitude and personality.	<ul style="list-style-type: none"> <li>Understand the basis of their feelings, motivation and attitude.</li> <li>Daydreamers, enjoy self-reflection and analysis and are able to assess themselves.</li> </ul>	Gardener (1983)
7	Interpersonal Intelligence (Ipl)	The ability to communicate effectively with others verbally and non-verbally and accurately understand others' emotions and mental states.	<ul style="list-style-type: none"> <li>Observe things from others' points of view to know how they think and feel.</li> </ul>	Gardener (1983)
8	Naturalistic Intelligence (NI)	The ability to sensitise with the environment and distinguish and expertise in recognising and classifying species in the environment.	<ul style="list-style-type: none"> <li>Aware of even subtle changes in the environment</li> <li>Interested in natural science</li> </ul>	(Gardner, 1987)
9	Existential Intelligence (EI)	The ability to think about the meaning of life and human beings' existence and survival during unfavourable situations	<ul style="list-style-type: none"> <li>Futuristic and sensitive to rational decisions in difficult situations.</li> </ul>	(Gardner, 2006)

The conceptual framework for the study



They have developed practical interpretation through Multiple intelligence theory, market segmentation and the interpretative Recreation Opportunity Spectrum (ROS). ROS has been used as the basis for creating a management tool concerned with visitors’ social function using Rouse Hill Regional Park (Edinburgh and Wearing, 2011). The psychological concept of Multiple intelligences can enhance the public participation model in the Multiple Intelligence theory (Hollander, 2011). After trying to answer some questions related to Intelligence, like what it studies and identified the main areas of work within contemporary intelligence studies in terms of historical, methodological organisational and policy perspectives (Gill and Phythian, 2016). Evaluated Multiple Intelligences theory and its application to gifted education and found that It is more helpful to developing gifted learners than traditional intelligence theories (Adetula, 2016). An empirical study from Haryana evidenced the gender difference among rural adolescence in their Multiple Intelligence. Male and female adolescents differ significantly in their Multiple intelligences (Kaur and Chikkara, 2008).

In the present study, the investigator aimed to study the role of multiple intelligences in investment. Here the researchers want to know the relationship between Multiple Intelligence and investment decision-making. The targeted population is salaried persons from Kerala.

The study was conducted in Kerala, and the data collected were duly analysed with the help of statistical techniques like multiple regression analysis, Pearson’s correlation analysis, and the chi-square test. A structured questionnaire with two parts, like an investment decision-making questionnaire and a Multiple Intelligence inventory, is used for collecting data.

**3.2. Research Questions**

Is multiple Intelligence have any impact on rational investment decisions?

Here the investigator wants to know the role of investor intelligence in rational decision-making. Rational decision-making includes the decisions on investment related to the information available, return and risk of the particular investment avenue. Each investment avenue has its own risk and return; the rational investor might check the return, risk and other relevant matters before investing. The availability of information and market efficiency

**Table 1: Reliability test of the questionnaire**

Dimensions	Cronbach’s α	Number of items
Investment decision making	0.756	47
Investor intelligence	0.895	36

also helps portfolio construction, analysis and rational decisions on individual portfolios. A few studies related to rational decisions and Intelligence and Emotional Intelligence. On the other hand, this study focuses on multiple Intelligence and rational decision-making on investment.

Is multiple Intelligence have any impact on irrational investment decisions?

Irrational decisions are mostly behavioural decisions and may not be intellectual in nature, so the investigators also want to know the role of investor intelligence in irrational decisions. Mainly the different dimensions of Multiple Intelligence

**3.2.1. Objectives**

To study the impact of multiple Intelligence in investment decision making – Rational and irrational decisions.

**3.2.2. Hypothesis**

There is no significant relationship between Multiple Intelligence and investment decision-making – Rational and irrational.

**4. RESULTS, FINDINGS AND DISCUSSION**

Content validity and construct validity test of the questionnaire is done. Construct validity test using the internal correlation between the items in each dimension. All the dimensions included four items, and the correlation between these four statements is calculated, and the items which are not significant are to be deleted. All the items are found significant and included in the final questionnaire. A reliability test was conducted using Cronbach’s alpha.

Table 1 evidenced the Cronbach’s alpha of both the variables are above the acceptance level and thus the items are finalized.

Table 2 shows the difference in investors’ investment decisions by age, region and savings percentage by the initial ANOVA.

**Table 2: Investment decisions related to demographic factors**

Factors	Age		Locale		Savings percentage	
	Between groups	Within groups	Between groups	Within groups	Between groups	Within groups
Sum of squares	771.713	3919.277	376.31	4314.68	521.801	4169.189
F	6.301**		4.23*		2.972*	

\*Significant at the 0.05 level (two-tailed), \*\*Significant at the 0.01 level (two-tailed)

**Table 3: Multiple comparisons**

(I) age	(J) age	Mean difference (I-J)	SE
20-30	30-40	-3.4947	3.03966
	40-50	-7.8439	3.02670
	50-60	-9.6625*	3.27365
30-40	20-30	3.49474	3.03966
	40-50	-4.3491*	1.43879
	50-60	-6.1677*	1.90420
40-50	20-30	7.84390	3.02670
	30-40	4.34917*	1.43879
	50-60	-1.8186	1.88344
50-60	20-30	9.66250*	3.27365
	30-40	6.16776*	1.90420
	40-50	1.81860	1.88344
(I) locale	(J) locale	Mean difference (I-J)	SE
Rural	Semi-urban	2.16121	1.62661
	Urban	-2.47831	1.7230
Semi-urban	Rural	-2.16121	1.62661
	Urban	-4.63952*	1.5959
Urban	Rural	2.47831	1.7230
	Semi-urban	4.63952*	1.5959

\*Significant at the 0.05 level (two-tailed). SE: Standard error

**Table 4: Multiple regression – multiple intelligence and rational and irrational decision making**

Multiple regression (multiple intelligence)	Rational decisions	Irrational decisions		
R <sup>2</sup>	0.287	0.178		
F	4.026*	4.026*		
Adjusted R <sup>2</sup>	0.216	0.096		
Model	Coefficient B	t	Coefficient B	t
Constant	76.472	15.844	32.693	13.203
VI	-0.757	-0.874	-0.508	-1.143
LI	2.132*	2.562	0.178	0.416
SI	1.977*	2.031	-0.596	-1.193
KI	0.514	0.514	1.522*	2.963
MI	1.684*	2.317	-0.322	-0.863
II	-0.416	-0.423	0.538	1.068
IPI	-1.787	-1.719	-0.275	-0.515
NI	-0.416	-0.582	-0.345	-0.942
HI	-0.769	-0.912	-0.973*	-2.251

\*Significant at the 0.05 level (two-tailed). VI: Verbal intelligence, LI: Logical intelligence, MI: Musical intelligence, SI: Spatial intelligence, KI: Kinesthetic intelligence, II: Intra-personal intelligence, IPI: Interpersonal intelligence, NI: Naturalistic intelligence, EI: Existential intelligence

Table 3 shows after the *post hoc* test, it has been clear that the age group 30-40 years has a difference in investment decisions as compared to the 40 above group and the age group 20-30 has shown a different investment decision as compared to the 50-60 age group. Semi-urban and urban people show different investment decisions.

**Table 5: Relationship between Rational and Irrational decision making**

Correlations	
Rational decisions	Irrational decision
Pearson correlation	0.417**
Significance (two-tailed)	0.000
n	100

\*\*Correlation is significant at the 0.01 level (two-tailed)

Multiple regression showed in Table 4 evidenced that multiple intelligence influences rational and irrational decision-making because the F values are significant at the 0.00 level. The coefficient of multiple determination is 0.216 for Rational decisions and 0.096 for Irrational decisions. Therefore above 21.6% of rational decisions and 9.6% of irrational decisions are explained by Multiple Intelligence.

**4.1. Rational Decision-making and Multiple Intelligence**

Rational investment decisions are significantly influenced by multiple Intelligence.

$F(9,90) = 4.026, P < 0.05, R^2 = 0.287$ . Among the nine variables, three added significantly to the prediction. The equation is Investment Decision Score =  $76.472 + (2.132 \times LI) + (1.977 \times SI) + (1.684 \times MI)$ .

**4.2. Irrational Decision-making and Multiple Intelligence**

Investor Intelligence significantly influences irrational decisions.

$F(9,90) = 2.164, P < 0.05, R^2 = 0.178$ . Among the nine variables, two added significantly to the prediction.

The equation is Investment Decision Score =  $32.693 - (1.522 \times KI) - (0.973 \times EI)$ .

Thus the hypothesis; there is no significant relationship between Multiple Intelligence and investment decision-making is rejected.

Table 5 showed Correlation between Rational and irrational decision-making is established with an R-value of 0.417, which is significant at 0.001. According to the analysis, rational and irrational decision-making have a moderate positive relationship.

The partial correlation technique applied nine times for Rational and Irrational decisions are the main variables and controlling for each dimension of Multiple Intelligence. The Table 6 evidenced that all the analysis shows a significant relationship. Rational and irrational decision-making have a positive correlation that has



**Table 6: Relationship between rational and irrational decision making - controlling each intelligence**

Variable	R
VI	0.424**
LI	0.420**
SI	0.444**
KI	0.390**
MI	0.441**
II	0.418**
Ipl	0.406**
NI	0.420**
HI	0.414**

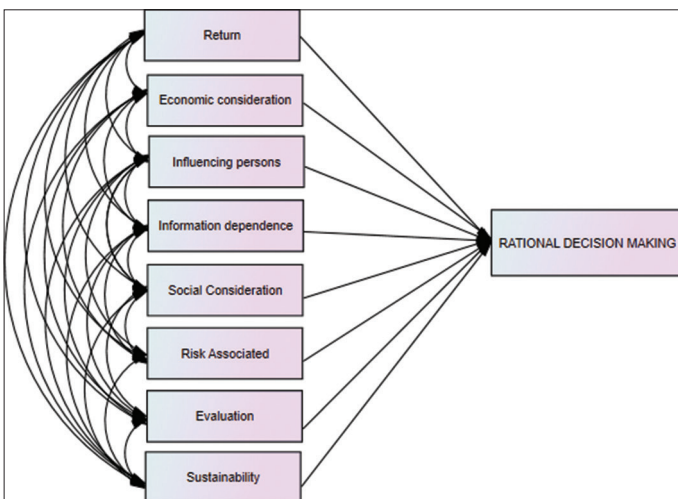
\*\*Correlation is significant at the 0.01 level (two-tailed). VI: Verbal intelligence, LI: Logical intelligence, MI: Musical intelligence, SI: Spatial intelligence, KI: Kinesthetic intelligence, II: Intra-personal intelligence, Ipl: Interpersonal intelligence, NI: Naturalistic intelligence, EI: Existential intelligence

**Table 7: Association between different decision-making criteria with each intelligence**

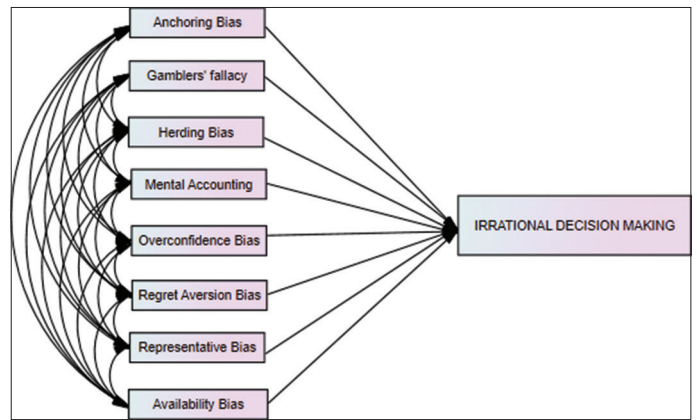
Intelligence	Variables	Chi-square
VI	Investment depends on Information	36.889*
LI	Risk-taking behaviour in investment	29.349*
	Always taking calculated decisions	26.907*
	Increase investment where an increase in the stable income	31.183*
SI	Never withdraw investment before the maturity	38.498**
MI	I cannot save the extra income	27.24*
II	Family influence investment decision	37.015*
	Investment satisfying esteem needs, i.e., acceptance in a social group	36.334*
Ipl	Agent influence investment decision	67.734**
	Sacrificing current income for future return	35.062*
NI	Environment consideration in investment	36.162*
	Preferences for sustainable investment	46.792**
HI	Preference of investment with the low capital loss	30.403*
	Sometimes borrow money for investment	50.295**

\*Significant at the 0.05 level (two-tailed). \*\*Significant at the 0.01 level (two-tailed). VI: Verbal intelligence, LI: Logical intelligence, MI: Musical intelligence, SI: Spatial intelligence, KI: Kinesthetic intelligence, II: Intra-personal intelligence, Ipl: Interpersonal intelligence, NI: Naturalistic intelligence, EI: Existential intelligence

**Figure 1: Factors affecting rational decision making**



**Figure 2: Factors affecting irrational decision making**



already been proven with simple correlation. After controlling each Intelligence, all the partial correlation coefficient values are moderate positive correlations.

Table 7 shows the result of chi square test for association between different decision-making criteria with each Intelligence.

Verbal Intelligence is associated with information dependence only, while Logical Intelligence is associated with risk-taking behaviour, calculated decisions, and investment from stable income. Never withdraw investment before maturity, and spatial Intelligence has an association. Kinesthetic Intelligence has no association with any of the above criteria for decision-making. Extra income cannot be invested by those who have more musical Intelligence. Interpersonal Intelligence is associated with family and agent influence in investment and acceptance in a social group. Sacrificing current income for future return has an association with Intrapersonal investment. Natural Intelligence is associated with environmental consideration and a preference for sustainable investment. The persons with more Existential Intelligence are aware of capital loss and are ready to borrow and invest.

### 4.3. Discussion

Multiple Intelligence is a group of psychological abilities in the cognitive structure of individuals. Multiple Intelligence is a theory developed by Howard Gardner, which conceptualises that human beings have nine types of intelligences. Investment decision-making may be rational or irrational. Here the assessment of the different dimensions of multiple Intelligence is done, and it is studied along with the investment decision-making of the individuals. The hypothesis, i.e. there is no significant relationship between Multiple Intelligence and investment decision-making, is rejected, and there is a significant relationship between these variables. All the variables have a substantial role in rational investment decision-making. Rational decision-making depends more on logical, kinaesthetic and spatial and less on verbal, musical, interpersonal, intrapersonal, mathematical and existential Intelligence. These dimensions have no significant role in irrational decision-making. There is a significant relationship between rational and irrational decision-making. Association tests were conducted for different variables, most of which were significantly associated.



## 5. CONCLUSION

Decision-making on investment is a crucial factor in the individual's financial well-being. Here the decision-making of the individuals was studied in relation to their Intelligence. The Intelligence here taken for the study is multiple Intelligence which includes nine types of Intelligence. Each Intelligence is a unique ability in character and may help in career selection, vision in life, and base of attitude and perception. The study was conducted in Kerala, the southern state of India, where the literacy rate and education are high. Investment decision-making is rational and irrational, and here both types of decisions are studied with multiple Intelligence. The nine types of intelligence and their influence on rational and irrational decision-making are rested statistically and found that there is a significant influence of multiple intelligences in the decision-making of individuals. Rational decision-making is intellectual in character, and irrational decision-making is behavioural in character. The behavioural factors affecting decisions are known as behavioural biases. Decisions are taken by cognitive analysis and intuition. After analysis, it is evidenced that rational decisions are dependent upon some types of Intelligence more than others. However, irrational decisions are also dependent on multiple intelligences. The study concludes that the multiple Intelligence of individuals has an impact on their investment decisions.

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## Exploring the Interplay of Privacy Concerns, Mobile Cybersecurity Awareness, and Protective Motivation Behavior

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### Abstract

*This study delves into the uncharted realm of privacy concerns among Indian smartphone users, exploring their nexus with mobile cybersecurity awareness and protective behaviour. Employing the Mobile User's Information Privacy Concern (MUIPC) tool and Protection Motivation Theory (PMT), it addresses gaps by scrutinizing users' concerns, data protection motivations, and cybersecurity awareness impact. Focused on the Indian smartphone user base, this research illuminates crucial insights into mobile privacy dynamics, informing privacy policies, user education, and cybersecurity strategies. Surveys gathered 364 diverse responses. Statistical analysis using chi-square tests and PLS-SEM via smartpls4 revealed a significant positive association between MUIPC and Protective Motivation Behavior (PMB). Notably, mobile cybersecurity awareness partially mediated the link between MUIPC and PMB. These findings emphasize the intricate relationship between privacy concerns, cybersecurity awareness, and protective behaviours in India's mobile landscape.*

**Keywords:** Information Security, Information Privacy Concerns, MUIPC, Protection Motivation Behavior, Mobile Cybersecurity Awareness, India

## INTRODUCTION

In contemporary times, smartphones have assumed an indispensable role in the fabric of daily life, undergoing a transformative trajectory into sophisticated instruments featuring both internet connectivity and a spectrum of mobile applications. This research, thus, directs its focus towards the attendant privacy concerns stemming from this technological metamorphosis. Mobile applications, denoting software tailored for mobile devices, have engendered a paradigm shift in various life domains by facilitating seamless access to diverse services. Nevertheless, the escalating reliance on mobile technology introduces palpable apprehensions concerning the privacy of personal information. The mobile milieu is particularly vulnerable to data privacy challenges, owing to intrinsic factors such as sensor-rich devices, perpetual internet connectivity, deficient security protocols, and constraints affecting users' adept management of privacy configurations. The persistence of non-revocable app permissions further exacerbates these privacy concerns.

This empirical study seeks to probe into information privacy concerns among Indian mobile phone users, given the nation's standing as the second-largest global user base. Against the backdrop of India's rapid digital metamorphosis, comprehending the repercussions of digital privacy concerns on the assimilation of digital services assumes paramount significance. India's classification as a high-risk locus for data breaches underscores the exigency of identifying potential privacy risks. Methodologically, this research employs the Mobile User's Information Privacy Concern instrument, incorporating it within the theoretical framework of the Protection Motivation Theory, thereby elucidating the interplay between users' privacy concerns and their motivation to safeguard their privacy within the mobile milieu. The investigation also scrutinizes the impact of individuals' awareness of cybersecurity on their proclivity to protect privacy while utilizing mobile devices. To address these research objectives, a structured national-level empirical inquiry involving Indian smartphone users was undertaken through the online dissemination of a meticulously constructed questionnaire.

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## **THEORETICAL BACKGROUND**

The surge in technology usage has intensified cyber threats, necessitating an in-depth exploration of information privacy and data security across diverse domains. Numerous studies spanning workplace, personal computing, cloud computing, smart home devices, social media, e-commerce, banking sectors, and mobile computing meticulously examine the nuances of information privacy. Mobile devices' expanded functionalities heighten privacy concerns, making them susceptible to exploitation by malicious entities, leading to identity theft and fraudulent activities. Users, crucially responsible for safeguarding sensitive data, must navigate privacy challenges in the evolving mobile environment.

### **Mobile User's Information Privacy Concern (MUIPC)**

Privacy involves resisting external intrusions, safeguarding sensitive life details, actions, and associations. It is defined as individuals' desire to control data about themselves, encompassing diverse information [1]. Information privacy oversees personal data gathering, utilization, and sharing. Mobile computing faces heightened privacy threats due to portability, third-party apps, GPS tracking, vast cloud storage, open Wi-Fi use, and mobile payments. Mobile device vulnerability results from user negligence and unawareness of data collection consequences. User mindfulness is crucial for privacy responsibility despite security measures.

### **Mobile Applications and Information Privacy**

Mobile apps play a crucial role in society, transforming communication, work, and information access. As technological advances integrate these apps further into daily life, processing significant data, privacy concerns emerge. Apps often request unnecessary data access, potentially collecting and selling it without explicit consent. Managing mobile devices during download, installation, and utilization significantly impacts information privacy. Users often accept app terms and permissions for benefits, despite heightened sensitivity to permissions amplifying privacy concerns. The decision to download involves weighing app benefits against privacy risks, revealing intricate dynamics in mobile users' privacy considerations.

### **Mobile User's Information Privacy Concern Scale**

Various research tools explore attitudes and behaviors toward privacy in diverse contexts, like online interactions and healthcare. The Mobile User's Information Privacy Concern (MUIPC) instrument, crafted by [16], assesses privacy perceptions on mobile devices. Rooted in Communication Privacy Management (CPM) Theory, MUIPC, influenced by [15] Concern for Information Privacy Scale and [8] work on Internet Users Information Privacy Concerns (IUIPC), measures concern in three dimensions: perceived surveillance, intrusion, and secondary utilization of information. MUIPC is pivotal in understanding mobile users' evolving privacy apprehensions across various studies (e.g., [11]; [12]; [13]; [4]).

### **Protection Motivation Theory**

The Protection Motivation Theory (PMT), introduced by [10], illuminates cognitive processes driving secure behaviors. It examines threat appraisal—perceived vulnerability, severity, and rewards—and coping appraisal, evaluating response efficacy, self-efficacy, and cost. PMT is widely applied in information security research, showing a positive correlation with adherence to information security policies. In mobile contexts, PMT is extensively used, yet a gap persists in understanding the correlation between Protection Motivation Behaviors (PMB) and mobile users' privacy concerns, necessitating further research on PMT factors in mobile computing.

### **Mobile Cybersecurity Awareness (MCA)**

Mobile Cybersecurity Awareness (MCA) is crucial in recognizing and mitigating risks in mobile settings. Defined by [14] as understanding information security importance and implementing protective measures, MCA involves knowledge, attitudes, and skills for specific attacks [2]. This includes identifying vulnerabilities like malware, phishing, and unauthorized access, with best practices such as strong passwords and secure Wi-Fi. Despite awareness, individuals often hesitate in the mobile environment, underestimating risks. Recognizing mobile devices' susceptibility to cyber hazards, proactive steps must be implemented for safeguarding both devices and sensitive data to maintain security.

## Research Model and Hypotheses Formulation

The conceptual framework (Figure 1) integrates Protection Motivation Theory (PMT) and Mobile Users' Information Privacy Concerns (MUIPC) to explore the association between users' privacy concerns on mobile devices and motivation for secure online practices on smartphones. The model additionally examines the mediating role of mobile cybersecurity awareness (MCA) in the relationship between individuals' information privacy concerns and their inclination to protect themselves in the mobile ecosystem. This holistic approach seeks to comprehensively understand the intricate dynamics among privacy concerns, MCA, and protective behavior (PMB) in the mobile context.

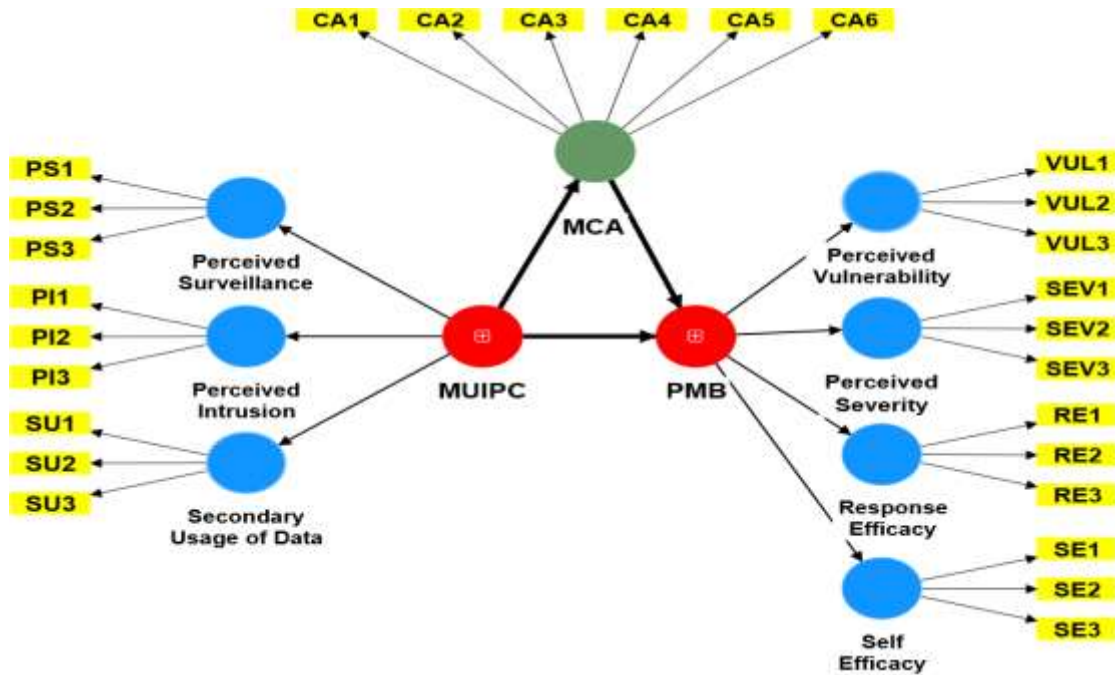


Figure 1. Proposed Research Model

This research aims to assess information privacy concerns among mobile phone users in India through the MUIPC scale. It is crucial for understanding challenges and opportunities arising from widespread smartphone adoption in India, impacting user protection, policy development, business strategies, and academic knowledge. The study hypothesizes:

H<sub>1</sub>: Indian mobile phone users have the same level of MUIPC

H<sub>2</sub>: MUIPC exerts a notable influence on an individual's PMB.

H<sub>3</sub>: MUIPC has a significant relation with mobile cybersecurity awareness of the individual.

H<sub>4</sub>: Mobile Cybersecurity awareness of an individual significantly correlates with an individual's PMB in the mobile environment.

H<sub>5</sub>: Mobile Cybersecurity awareness significantly mediates the relationship between MUIPC and their protection motivation in the mobile environment.

## RESEARCH METHODOLOGY

### Measurement Scale

Following our theoretical framework, we employed a structured questionnaire for data collection. To assess mobile users' information privacy concerns, we utilized [16] Mobile Users' Information Privacy Concern (MUIPC) questionnaire, incorporating variables such as perceived surveillance, intrusion, and secondary data



usage. Protection motivation assessment used a modified scale from [9], while cybersecurity awareness measurement adapted [7] instrument to align with our study's objectives. Employing a five-point Likert scale ensured detailed responses, ranging from 'strongly disagree' (1) to 'strongly agree' (5), fostering a comprehensive exploration of our research questions.

## Data Collection Process

The study focused on smartphone users in India, employing online questionnaires for data collection. A total of 364 participants voluntarily provided insights, ensuring a diverse and geographically widespread representation. This dataset formed the basis for comprehensively analyzing the interconnections among the variables under study.

## Results

### Measuring MUIPC

The primary objective of this research paper is to assess the extent of concerns regarding information privacy among users of mobile phones. This evaluation is accomplished by employing the MUIPC scale. To facilitate this assessment, an index variable called MUIPC was constructed. MUIPC encompasses the aggregated scores of three distinct subscales, specifically, Perceived Severity (PS), Perceived Intrusion (PI), and Secondary Usage (SU) of data. The expected range for the MUIPC score lies between 9 and 45, as each of the nine scale elements is evaluated on a scale from "Strongly Disagree" (with a value of 1) to "Strongly Agree" (with a value of 5). Hence, the lowest achievable score is 9 (resulting from 3 items per subscale, each rated as 1), while the highest attainable score is 45 (stemming from 3 items per subscale, each rated as 5). A higher MUIPC score signifies an elevated level of information privacy concern among mobile device users, while a lower score suggests a diminished level of such concern. The scores have been divided into three specific levels: a score ranging from 9 to 20.9 indicates a low level of privacy concern, scores falling between 21 and 33 suggest a moderate level of privacy concern, and scores surpassing 33 up to 45 signify a high degree of privacy concern among users of mobile devices in India.

A statistical examination using chi-square was performed to assess the goodness of fit.

**Table 2. Chi-square for testing goodness of fit**

Low		Medium		High		Chi-square	p	Hypothesis
Frequency	%	Frequency	%	Frequency	%			
24	6.5	128	33.06	213	58.35	147.293	<0.001*	H <sub>1</sub> not supported

\* Significant at 1% level

Table 2 illustrates diverse levels of information privacy concerns among respondents in the mobile environment, with 58.35% expressing high concern, 33.06% indicating a moderate level, and 6.5% demonstrating low concern. The chi-square test confirms statistical significance ( $\chi^2 = 147.293$ ,  $p < 0.05$ ), rejecting the hypothesis of uniform Mobile User Information Privacy Concern (MUIPC) among Indian mobile phone users and highlighting varying levels of concern in their mobile interactions.

### Partial Least Square Structural Equation Modelling (PLS-SEM)

The study utilized PLS-SEM, a robust method for predictive modeling and theory development, through Smart-PLS4 software. This involved two steps: assessing the measurement model and analyzing the structural model.

### Measurement Model Assessment

Table 3 exhibits Cronbach's alpha, Composite Reliability (CR), item loadings, and Average Variance Extracted (AVE) values. All constructs surpass the 0.7 threshold for internal consistency, meeting established standards [6]. Item loadings and AVE values further confirm the robust convergent validity of the measurement model.

**Table 3. Loadings, Validity, and Reliability**

Construct	Variable	Items	AVE	CR	Cronbach's Alpha				
<b>MUIPC</b>	Perceived Surveillance	PS1	0.684	0.707	0.877	0.786			
		PS2	0.903						
		PS3	0.914						
	Perceived Intrusion	PI1	0.892						
		PI2	0.909						
		PI3	0.841						
Secondary usage of data	SU1	0.903	0.854	0.946	0.914				
	SU2	0.943							
	SU3	0.926							
<b>PMB</b>	Perceived Vulnerability	VUL1	0.889	0.802	0.924	0.877			
		VUL2	0.913						
		VUL3	0.884						
	Perceived Severity	SEV1	0.926				0.817	0.931	0.888
		SEV2	0.921						
		SEV3	0.864						
	Response- efficacy	RE1	0.921				0.860	0.949	0.919
		RE2	0.943						
		RE3	0.918						
Self- efficacy	SE1	0.944	0.861	0.949	0.919				
	SE2	0.938							
	SE3	0.901							
<b>MCA</b>		CA1	0.512	0.462	0.770	0.649			
		CA2	0.719						
		CA3	0.657						
		CA4	0.612						
		CA5	0.573						
		CA6	0.506						

Table 4 confirms discriminant validity using the Fornell-Larcker criterion. The square root of Average Variance Extracted (AVE) for each construct exceeds inter-construct correlation values, indicating distinct representation of model aspects with minimal correlation.

**Table 4. Discriminant Validity- Fornell Larcker Criterion**

Construct	MCA	MUIPC	PMB
<b>MCA</b>	0.602		
<b>MUIPC</b>	0.254	0.87	
<b>PMB</b>	0.357	0.553	0.644

Note: Bold values represent the square root of AVE, while non-bolded values indicate inter-construct correlation.

### Structural Model Assessment

After evaluating the measurement model, the next step is analyzing the structural model to determine path coefficients and their significance. Following [5] guidelines, the first step involves checking for collinearity using Variance Inflation Factor (VIF). The analysis showed no multicollinearity issues, with all VIF values below the recommended threshold of 3 (refer to appendix B for details).

The study assessed hypotheses by examining path coefficients, t-statistics, and p-values (Table 5). Hypothesis 2 confirmed a significant influence of Mobile Users' Information Privacy Concerns (MUIPC) on Protection Motivation Behavior (PMB) ( $\beta = 0.494$ ,  $t = 9.466$ ,  $p < 0.001$ ). Similarly, Hypothesis 3 validated the impact of MUIPC on Mobile Cybersecurity Awareness (MCA) ( $\beta = 0.254$ ,  $t = 4.558$ ,  $p < 0.001$ ). Hypothesis 4 established a noteworthy correlation between Mobile Cybersecurity Awareness (MCA) and Protection Motivation Behavior (PMB) ( $\beta = 0.232$ ,  $t = 3.313$ ,  $p = 0.001$ ). The detailed results are presented in Table 5.

Table 5. Effect on the endogenous variable

Hypothesis	$\beta$	Standard error	t-statistics	p-value	Decision	Effect size ( $f^2$ )	R <sup>2</sup> value	Q <sup>2</sup> value
H <sub>2</sub> MUIPC → PMB	0.494	0.052	9.466	<0.001*	Supported	0.355	0.356	0.300
H <sub>3</sub> MUIPC → MCA	0.254	0.056	4.558	<0.001*	Supported	0.069	0.065	0.052
H <sub>4</sub> MCA → PMB	0.232	0.070	3.313	0.001*	Supported	0.078		

\* Significant at 1% level

Furthermore, the model's explanatory and predictive capacity was evaluated through the examination of the coefficient of determination (R<sup>2</sup>), effect size (f<sup>2</sup>), and predictive relevance (Q<sup>2</sup>). R<sup>2</sup> signifies the proportion of variance in the endogenous variable explained by the exogenous variable (MUIPC), with acceptable values contingent upon the research context, where 0.10 is considered satisfactory [5]. The effect size (f<sup>2</sup>) determines the exogenous variable's influence on the endogenous variable, with values exceeding 0.35 indicating substantial impact, 0.15 indicating moderate impact, and 0.02 suggesting a small impact as per [3] recommendations. Q<sup>2</sup> evaluates predictive relevance, where values above 0, 0.25, and 0.50 indicate small, medium, and large predictive relevance, respectively, following [5].

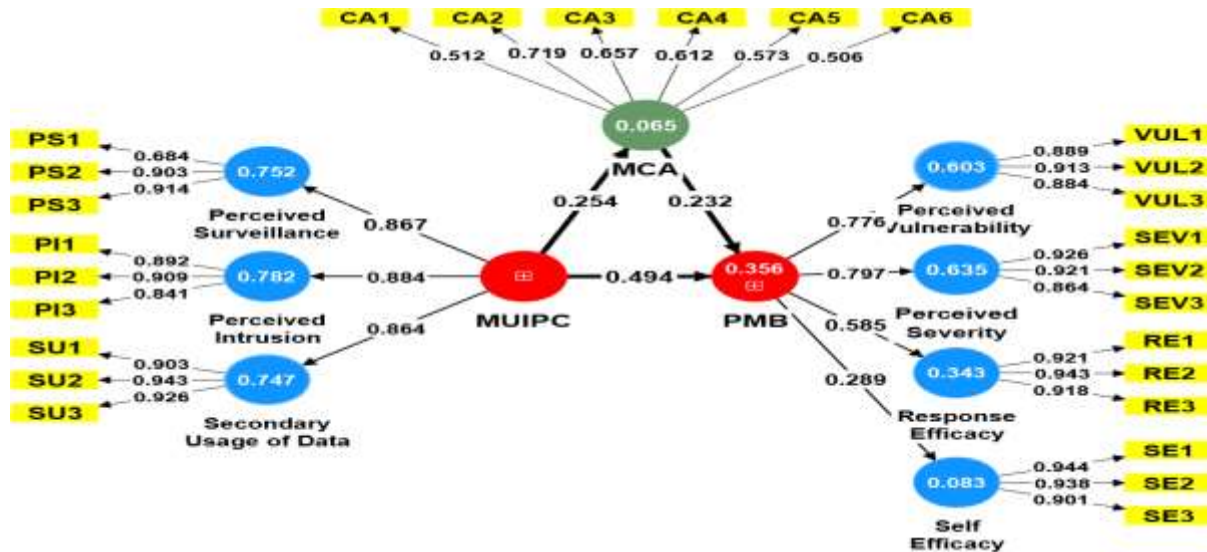


Figure 2. Structural model

### Mediation Assessment

A mediation analysis investigated Mobile Cybersecurity Awareness (MCA) as a mediator between Mobile Users' Information Privacy Concerns (MUIPC) and their protection motivation in the mobile environment (H5). Results, detailed in table 6, showed a significant indirect effect of MUIPC on Protection Motivation Behavior (PMB) ( $\beta = 0.059$ ,  $t = 0.062$ ,  $p = 0.018$ ). The total effect of MUIPC on PMB was also significant ( $\beta = 0.553$ ,  $t = 0.557$ ,  $p < 0.001$ ). Despite the inclusion of the mediator (MCA), the effect of MUIPC on PMB remained substantial ( $\beta = 0.494$ ,  $t = 0.495$ ,  $p < 0.001$ ), indicating a partial mediating role of mobile cybersecurity awareness in the relationship between mobile users' information privacy concerns and their protection motivation behavior.

### DISCUSSIONS

Cybersecurity is a major contemporary challenge, posing a pervasive threat globally, especially through mobile phones and their applications. These devices often serve as vulnerable points, leading to identity theft and the compromise of sensitive information. This research focuses on information privacy concerns among Indian mobile users, revealing varied levels influenced by awareness of mobile ecosystem vulnerabilities. The study highlights the significant impact of privacy concerns on motivating users to protect their data and establishes a

positive association between Mobile Users' Information Privacy Concerns (MUIPC) and Mobile Cybersecurity Awareness (MCA). The research underscores the pivotal role of MCA in influencing Protection Motivation Behavior (PMB), revealing its mediating role between MUIPC and PMB in shaping users' motivation to safeguard information privacy within the mobile environment.

### **Practical Implications**

These findings have crucial implications for stakeholders. Mobile service providers and developers should recognize varied information privacy concerns, necessitating customized privacy features and enhanced user education. Raising awareness about mobile cybersecurity threats can potentially alleviate concerns and enhance the security of the mobile environment. For policymakers and regulators, the study underscores the need for robust data privacy regulations that consider diverse user concerns and awareness levels. Strengthening regulations can instill confidence in information security and bolster overall trust in mobile platforms. The study also emphasizes the importance of user awareness in combating mobile cybersecurity threats. Increasing awareness about potential risks and taking proactive measures can empower individuals to better protect their information privacy during mobile transactions.

### **Limitations Of the Study**

The study's limitations encompass several facets that warrant consideration for future research. Firstly, the examination concentrated on Indian mobile users, yet the sample size and demographics might inadequately encapsulate the multifaceted population and behaviors prevalent in the country. Secondly, potential response biases or inaccuracies might have arisen due to the reliance on self-reported measures, potentially impacting the reliability of the collected data. Furthermore, the study primarily centered on information privacy concerns, cybersecurity awareness, and protection motivation behavior without delving deeply into other influential variables such as socio-economic status, cultural nuances, and technological literacy. Exploring these additional factors may contribute to a more holistic comprehension of the intricate dynamics that shape individuals' conduct in the mobile setting.

### **Future Direction for Research**

In future research, exploring the multifaceted nature influencing users' behaviors in safeguarding privacy within mobile environments, as evidenced by the partial mediation role of mobile cybersecurity awareness, stands as a crucial avenue. Investigating the diverse factors contributing to the varying levels of Mobile Users' Information Privacy Concerns (MUIPC) among individuals presents a promising direction. Understanding the specific factors shaping these varying levels could elucidate the nuanced dynamics involved in privacy concerns. Additionally, future studies could delve deeper into the role of individuals' awareness levels in shaping MUIPC. Taking into account how awareness shapes the degree of concerns regarding information privacy could offer valuable perspectives into the elements that steer users' views and actions within mobile environments. These directions hold the potential for comprehensive elucidation of the complexities underpinning privacy concerns in mobile environments.

### **Acknowledgement**

The research was supported by the University Grants Commission (UGC), Government of India, through a Junior Research Fellowship (JRF) (Grant Ref No: 190510138646), providing crucial financial assistance. The data can be shared upon request, and there are no competing interests to declare.

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# A study on the relationship between job stress and job satisfaction among public sector bank employees in Palakkad district

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**Abstract:** The banking sector in Kerala is a vital component in the economic infrastructure. Kerala state has a diverse and dynamic economy; the banking industry plays a crucial role in supporting the economic activities and also to contribute overall development of the state. The main object of the study is to investigate the relationship between job stress and job satisfaction among public sector bank employees in Palakkad District. The study aims to provide insights into the challenges faced by bank employees and their impact on overall job satisfaction. A sample size of 78 public sector bank employees was selected by stratified sampling method. The finding of the study reveals that there is a significant relationship between job stressors and job satisfaction levels among bank employees. The study also identifies the coping mechanism adopted by employees to mitigate stress and enhance job satisfaction. The insights gained from this study may inform management strategies to improve the working conditions, create positive organisational culture and also to enhance the job satisfaction among bank employees in Palakkad District.

**Key Words:** banking, economic activity, public sector banks, job satisfaction, job stress.

## 1. INTRODUCTION :

The banking sector, as a crucial component of the financial infrastructure, plays a vital role in the economic development of the state. Public sector banks are financial institutions that are owned and operated by government of a country. The efficiency of bank employees in their roles is the key factors that influence the overall performance of different sectors. In the dynamic environment of the banking sector, job satisfaction of employees plays a crucial role in organisational success. Public sector banks, being pivotal institutions, face challenges that can significantly influence their satisfaction and performance. Public sector banks being a financial institution provides financial services and maintaining economic stability. However, the demanding nature of the banking industry often places considerable stress on employees. Job stress can lead to various negative consequences includes decreased job satisfaction, reduced productivity and even long term health issues. Public sector banks have a broader aim just beyond profit making. They were also entrusted with fulfilling social and developmental objectives such as financial inclusion, rural development and support economic development. Examples of public sector banks include State Bank of India, Punjab National Bank etc.

Job Satisfaction is a positive feeling of mind towards job. In the works of Newsstrom (2007), "Job Satisfaction is a set of favourable or unfavourable feelings and emotions with which employees' view their work". Employees' performance may vary with regard to satisfaction or dissatisfaction. For example, some employees may feel a strong sense of accomplishment in their jobs while others may not. Job satisfaction refers to the extent to which employees find emotions in their work. It is subjective in nature and it is a multifaceted concept. Job satisfaction is influenced by different factors and it can have a significant impact on the overall performance of employees. The physical and social aspects of the workplace including the office atmosphere, relationships with co workers and supervisors play an important role in job satisfaction. If employees have high levels of job satisfaction, it leads to increased motivation,



commitment to the organisation and overall productivity. Low job satisfaction can lead to labour turn over, absenteeism and decreased performance.

Stress is a general response of the body on any psychological or environmental emotion. The twenty first century is commonly called the century of stress because there will not be a single person without stress. All walks of life peoples face stress in one or other way. Several factors are responsible to create stress in an individual. The ability to keep balance with the stress depends upon the capacity of individuals to adjust with the situation. Job stress refers to the physical and emotional strain that arises from pressure and the challenges related with one's job and work environment. There are different factors that lead to job stress. Some of them are excessive workloads, job insecurity, interpersonal conflicts etc. Job stress has adverse effects on both physical and mental health leading to conditions such as anxiety, depression, and health issues. Job stress can also impact on job performance, job satisfaction, and also contribute to increased absenteeism and labour turn over.

## **2. LITERATURE REVIEW:**

Ling et al. (2014) in their study, "A study on role stress and job satisfaction among bank employees in Kota Kinabalu, Sabah", examine association between role stress and job satisfaction and moderating effect of gender and position level on their association. The research study indicated that role stress and job satisfaction shares a negative relation and 80% variation in job satisfaction arise due to role stress. It also showed that role stress among female staff effects job satisfaction in significant manner than male staff and association between these two is not effected by position level.

Mittal and Bhakar (2018) in their study, 'Examining the Impact of Role Overload on Job Stress, Job Satisfaction and Job Performance-A study among Married Working Women in Banking Sector', evaluated job performance, job stress, role overload, job satisfaction and also identify relationship among these variables by taking role overload as independent variable and other three as dependent variables. The results show that job stress and job performance are positively influenced by role overload whereas job satisfaction is negatively influenced. The study also found that with the increase in role overload, a person's performance increases to a little extent since an assured amount of stress improves performance but also expansion in dissatisfaction.

Garg & Sidhu (2019) in their study, 'Job Stress and its Impact on Employees' Job satisfaction- An Investigation of Banking Sector in Haryana', examine the level of job stress and its effect on job satisfaction of employees working in different banks in Haryana. The Occupational Stress Index and job satisfaction scale were used as tools for the study. They arrived at the conclusion that employees working in different banks are in stress but to an extent they were satisfied with their jobs. The study also reveals that there was significant negative correlation between job stress and job satisfaction.

## **3. MATERIALS:**

### **Scope of the study**

The study limited to public sector bank employees from Palakkad district. From different public sector banks, Only SBI considered for this study. The insights gained from this study may inform management strategies to improve the working conditions, create positive organisational culture and also to enhance the job satisfaction among bank employees in Palakkad District.

### **Objectives of the Study**

1. To study the relationship between Job Stress and Job Satisfaction among Public Sector Bank Employees in Palakkad District
2. To analyze the dimensions of occupational stress and job satisfaction among employees on the basis of demographic variables.

### **Hypotheses of the study**

- H1: There is significant relation between job stress and job satisfaction among public sector bank employees in Palakkad district.
- H2: There is significant difference in the Job stress of Public Sector Bank Employees based on Gender
- H3: There is significant difference in the Job Satisfaction level of Public Sector Bank Employees based on Gender
- H4: There is significant association between Job Satisfaction and category of employment of public sector bank Employees in Palakkad District



H5: There is significant association between job stress and category of employment of public sector bank Employees in Palakkad District

**4. Research Methodology:**

The study is based on both primary and secondary data. Primary data were collected from public sector bank employees through a structured questionnaire with sections on demographics, job stress factors, and job satisfaction factors. The population of the study consists of different categories of employees of public sector banks includes managers, clerks, and officers. The sample size of the study was 78 employees of public sector banks. Stratified sampling method was used to collect the primary data. The data collected for the purpose of research is hence analysed using SPSS.

**Data Analysis and Interpretation**

	N	Minimum	Maximum	Mean	Std. Deviation
Gender of respondents	78	1	2	1.58	.497
Marital Status of respondents	78	1	2	1.24	.432
Age of Respondents	78	1	4	2.41	.673
Category of Employment	78	1	4	2.35	.699
Monthly income of respondents	78	1	4	2.49	.734
Valid N (list wise)	78				

Source: Primary Data

Table 1 shows the descriptive statistics related to demographic variables of the respondents.

	N	Minimum	Maximum	Mean	Std. Deviation
workload is light	78	1	3	1.49	.552
suffer from physical ailments due my job	78	2	4	3.47	.768
social Habits changed due to my job	78	2	5	3.95	.318
unable to concentrate on things properly	78	3	5	3.82	.619
lost my weight since joining this job	78	1	5	3.17	.918
working environment of my organisation is irritative and suffocative	78	2	5	3.85	.854
get enough time to relax at my job	78	1	4	2.15	.884
social life is affected my present job	78	1	5	3.00	1.044
working environment is stressful	78	1	5	3.83	.828
Valid N (list wise)	78				

Source: Primary Data

Table 2 Shows the descriptive statistics related to Job Stress of employees among public sector banks.

	N	Minimum	Maximum	Mean	Std. Deviation
job is repetitive and boring	78	1	5	3.35	.880
have a positive attitude towards my job	78	1	5	2.87	1.109
satisfied with the policies of the organisation	78	1	4	1.82	.752
provided the opportunity to make decisions	78	1	3	1.77	.643



Intend to leave the organisation as soon as possible	78	1	3	1.63	.561
satisfied with the power and prestige in the job	78	1	4	1.88	.853
satisfied with my fellow workers	78	2	4	3.12	.738
satisfied with the training on technological changes	78	2	5	3.45	.816
Valid N (list wise)	78				

Source: Primary Data

Table 3 shows the descriptive statistics related to Job Satisfaction of employees among public sector banks.

H1: There is significant relation between job stress and job satisfaction among public Sector bank employees in Palakkad district

		Job Stress	Job Satisfaction
Job Stress	Pearson Correlation	1	-.232*
	Sig. (2-tailed)		.041
	N	78	78
Job Satisfaction	Pearson Correlation	-.232*	1
	Sig. (2-tailed)	.041	
	N	78	78

**\*. Correlation is significant at the 0.05 level (2-tailed).**

Source: Primary Data

Table 4 shows the result of correlation between Job Stress and Job satisfaction of public sector bank employees in Palakkad district. Correlation is significant and negatively correlated. That means there is a negative correlation between job stress and job satisfaction among public sector bank employees in Palakkad district.

H2: There is significant difference in the Job Satisfaction level of Public Sector Bank Employees based on Gender

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Job Stress	Equal variances assumed	.054	.818	-2.645	76	.010	-1.45051	.54838	-2.54270	-.35831
	Equal variances not assumed			-2.625	67.080	.011	-1.45051	.55266	-2.55360	-.34741

Source: Primary Data

Table 5 shows the result of independence sample test. The F value was not support and the null hypothesis accepted, that means there is no significant difference in the stress level of Public Sector Bank Employees based on Gender.

H3: There is significant difference in the Job Satisfaction level of Public Sector Bank Employees based on Gender



**Table 6: Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Job satisfaction	Equal variances assumed	1.231	.271	1.438	76	.154	.87273	.60675	-.33572	2.08118
	Equal variances not assumed			1.423	66.353	.159	.87273	.61312	-.35129	2.09675

Source: Primary Data

Table 6 shows the result of independence sample test. The F value was not support and the null hypothesis was accepted, that means there is no significant difference in the Job Satisfaction level of Public Sector Bank Employees based on Gender.

H4: There is significant association between job stress and category of employment of Public sector bank employees in Palakkad District

**Table 7: Test Statistics**

	Category of Employment	Job Stress
Chi-Square	44.974 <sup>a</sup>	20.436 <sup>b</sup>
df	3	10
Asymp. Sig.	.000	.025
a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 19.5.		
b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 7.1.		

Source: Primary Data

Table 7 shows the test result based on Chi-Square method. The p - value is less than 0.05 and support the alternative hypothesis. This means that there is association between job stress and category of employment. That means the stress level is different at different category of employment like manager, officer, clerk etc.

H5: There is significant association between job stress and category of employment of Public sector bank employees in Palakkad District

**Table 8: Test Statistics**

	Category of Employment	Job satisfaction
Chi-Square	44.974 <sup>a</sup>	27.231 <sup>b</sup>
df	3	11
Asymp. Sig.	.000	.004
a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 19.5.		
b. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 6.5.		

Source: Primary Data

Table 8 shows the test result based on Chi-Square method. The p - value is less than 0.05 and support the alternative hypothesis. This means that there is association between job satisfaction and category of employment. That means the job satisfaction level is different at different category of employment like manager, officer, clerk etc.



**5. Findings of the study :**

- There is a negative significant correlation between job stress and job satisfaction among public sector bank employees in Palakkad district.
- There is no significant difference in the stress level of Public Sector Bank Employees based on Gender.
- There is no significant difference in the Job Satisfaction level of Public Sector Bank Employees based on Gender.
- There is association between job stress and category of employment. That means the stress level is different at different category of employment like manager, officer, clerk etc.
- There is association between job satisfaction and category of employment. That means the job satisfaction level is different at different category of employment like manager, officer, clerk etc.

**6. CONCLUSION :**

The findings of the study may highlight the need for organisations to address the stressors within the workplace. The negative relationship between job stress and job satisfaction means that if the job stress increases, job satisfaction tends to decrease, and vice versa. The association between job stress and category of employment highlights that the stress levels vary across different job roles in public sector banks. Likewise the satisfaction levels also vary for different jobs. By promoting a healthy job environment with addressing to specific needs, organisations can contribute to the well being and job satisfaction and reduce the job stress of employees.

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## ROLE OF DEMOGRAPHY ON ENTREPRENEURIAL INTENTION AMONG NASCENT ENTREPRENEURS: AN EMPIRICAL STUDY

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### Abstract

Industrialization is generally regarded as a power tool towards economic freedom. But for a sustainable inclusive economic development, mere industrialization may not be sufficient. This demands enterprises which drive country towards ecologically sustainable economic development without marginalizing the economy. Coir industry is one among these industries which ensure rural development, without disturbing the nature. Even though ample opportunities are there in this sector, industry couldn't utilize its full potential as the number of coir related establishments are less. Thus, the establishment of new diversified coir units is imperative. The possible solution for this may be to identify the factors contributing to a sustainable entrepreneurship in coir sector and enhance these factors. This paper tries to unveil the demographic factors which influence the Entrepreneurial Intention (EI) and Entrepreneurial Self Efficacy (ESE) of Nascent Entrepreneurs (NE) in the coir sector. Data is collected from 402 NE through survey method. A simple random sampling was adopted to select the respondents. Statistical Analysis of the data reveals that educational background, marital status, employment status of the spouse, work experience and role model influence the EI whereas educational background, work experience and role model influence the ESE. The study results can be well incorporated for policy framing and curriculum development for Entrepreneurship Development Programmes in coir sector.

**Keywords:** Coir industry, Demographic factors, Entrepreneurial Intention (EI), Entrepreneurial Self Efficacy (ESE).

### 1 Introduction

Coir Industry has got a significant position among the agro-based traditional cottage industries in the country. Historically it originated in the state of Kerala where coconut production is high, and the presence of backwaters, lagoons etc provide a natural environment needed for retting coconut husk. It then flourished in other parts of the country such as Karnataka, Andhra Pradesh, Tamil Nadu, Maharashtra, Orissa, West Bengal, Assam and Tripura. (MSME Annual Report 14-15)

India is one among the major producers of coir in the world accountable for the supply of 55% of world's white coir fibre, where majority of this is produced in the coastal areas of Kerala. Apart from being the major coir fibre producer in the world, India is also engaged in the production and exporting of other coir products such as, Coir Yarn Handloom Mats, Power loom mats, Coir Geo-textile, Coir Rugs & Carpet, Coir Rugs and Carpet, Rubberized Coir etc. Coir industry in India is also a labour-intensive industry providing employment to more than 7 lakh (Annual Report MSME 2016-17) of whom a majority belongs to rural and economically backward sections of the society. In addition to pave way for a sustainable economy, this golden fibre has a role in providing sustainable environment too.

As the Coir industry is labour intensive, it has the potential to provide employment to rural people and can aid in alleviating poverty. But the industry couldn't utilize these opportunities as the number of coir related establishments are less. To motivate the prospective entrepreneurs to start own venture in the coir industry, we need to first identify the factors influencing the Entrepreneurial Self efficacy and entrepreneurial intention of the prospective entrepreneurs which can contribute to a sustainable



entrepreneurship in this sector.

In an emerging economy like India a major part of the labour population is engaged in unorganized sector. This is true in the case of coir industry where most of the workers work in household coir units. Entrepreneurship leads the way to organize this workforce and provide them better working environment and skills development.

Petrin (1992) found that in order to hasten economic growth in rural areas, it is crucial to build up cluster of budding potential first generation entrepreneurs. UN ICD Task Force, 2002 identifies a strong correlation among entrepreneurship, economic growth and poverty reduction. (UN ICD Task Force 2002). So, in order to foster entrepreneurship, it is reasonable to first identify the factors, directly or indirectly, which affect the Entrepreneurial Intention.

In this regard, the present study tries to unveil the role of demography in determining the EI and ESE

The study objectives can thus be summarized as follows

1 To analyze how demography determine the Entrepreneurial Intention of nascent entrepreneurs in coir sector

2 To analyze how demography determine the Entrepreneurial Self Efficacy of nascent entrepreneurs in coir sector

## **2 Review of Literature**

The influence of demographic factors on a person's entrepreneurial decisions is widely seen in entrepreneurial literatures. The demographic factors such as age, gender, role model, annual income, education and work experience are considered to influence the EI.

The positive effect of role model on EI is confirmed by Nowiński and Haddoud (2017). The authors confirmed that the combined effect of 'Role model influence' with other antecedents of EI is more prominent in explaining the EI of an individual. Kar et al. (2017) investigated the role of efficacy and contextual factors on EI. The empirical study was conducted among 213 Micro Small and Medium entrepreneurs in Orissa. The authors found that gender influences the motivation level towards starting up new venture and women consider Entrepreneurship as only a second income. The study also revealed that knowledge on business functions and efficacy positively influences the EI whereas prior work experience, social support and wealth of the individual has found not influencing the EI. Nowiński et al (2017) also supports that women show less ESE as compared to men.

Brunel et.al. (2017) tested how the 'role model influence' and prior entrepreneurial experience together contribute to the EI of an individual. The study results reveal that role model influence is significant to those who aren't have any experience in Entrepreneurship. Role model influences a person to choose entrepreneurship as career option by enhancing the self-confidence.

Caro-González et al (2017) found that social norms influence the EI significantly in women whereas in case of men there exist only an indirect relationship. Men are found more inclined to entrepreneurship as they don't require much approval from the environment to engage in such an activity whereas more environmental support is needed to reinforce the attractiveness of entrepreneurship career in women.

Entrialgo and Iglesias (2017) argued that parental role models are also found to influence the EI in both the genders. But in the effect of family role model on the attitude formation varies from men to women. A role model in the family is found to influence the attitude towards setting up new venture in women but it can't contribute to a favourable attitude formation in men.

Moa-Liberty et al (2016) identified the demographic characteristics such as gender, age, ethnicity

and self-efficacy exert significant influence on the EI. Males are prone to entrepreneurship compared to females. Pfeifer et al (2014) argue that students whose family wealth is above average have high probability of starting a new venture as compared to students whose family income is low. Rokhman and Ahamed (2015) studied how social as well as psychological factors influence the EI among the college students. The authors added that Family background, Education and social status influence the EI. M.J. Malebana and Swanepoel (2015) also support the research finding that. Prior employment experience and role model influence EI positively. Entrepreneurial role model influence is a key factor in defining the EI in females (Austin and Nauta 2015). Boys tends to have higher entrepreneurial intention as compared to girls (doPaço et al. 2015). Sahut et al. (2015) Conducted research using the theory of planned behaviour and found EI as negatively correlated with Age. The study results of Hatak et. al (2014) also concluded that age is associated with a lesser EI. The authors reveal that gender, prior entrepreneurial experience and education also found to influence the intention to pursue entrepreneurship. The presence of entrepreneurial parents does not significantly influence the EI. But Pouratashi (2015) found that gender has no influence in determining the EI.

The following hypothesis have been generated based on literature.

- H1a1:** There exists a significant difference in the EI based on gender
- H1a2:** There exists a significant difference in the ESE based on gender
- H1b1:** There exists a significant difference in the EI based on age groups
- H1b2:** There is a significant difference in the ESE based on age groups
- H1c1:** Educational background has an influence on EI
- H1c2:** Educational background has an influence on ESE
- H1d1:** There exists a significant difference in the EI of married people as compared to the unmarried ones
- H1d2:** There exists a significant difference in the ESE of married people as compared to the unmarried ones
- H1e1:** Employment status of the spouse/Parent has an influence on EI
- H1e2:** Employment status of the spouse/Parent has an influence on ESE
- H1f1:** There exists a significant difference in the EI based on work experience in the relevant industry
- H1f2:** There exists a significant difference in the ESE based on work experience in the relevant industry
- H1g1:** The Role model has an influence on EI
- H1g2:** The Role model has an influence on ESE
- H1h1:** The annual income has an influence on EI
- H1h2:** The annual income has an influence on ESE.

### **3 Research Methodology**

#### **3.1 Collection of Data**

Nascent Entrepreneurs were identified from the participants of various training programmes (Sequeira et al. 2007). For this study the nascent entrepreneurs were identified from the people who attended the Entrepreneurship Development programme conducted by Coir Board India. Data has been collected from 402 attendees of the training programmes using survey method.

#### **3.2 Data Analysis and Results**

Initially the data collected have been segregated and tabulated to get a general view of the demography



of the Nascent entrepreneurs. Percentage and graphs are used to get a better picture of the data. The tabulation of data reveals that Out of the 402 respondents surveyed, 86% are women and the remaining 14% are men. Half of the respondents (50%) are of the age group of 26 to 35 years. Only 6% fall under the category of the age group greater than 45. Remaining 44% of the respondents are of the age group 36 to 45 years. There are no respondents below 26 years of age.

Most of the respondents (72%) studied only upto 10<sup>th</sup> standard. 6% of the total respondents are graduates or diploma holders. The rest 6% completed their higher secondary education. Education is believed to influence one's self confidence and there by the intention level of the Entrepreneur.

The studies dealing with influence of spouse's or parent's employment status on the career choice of the individual is not new. The career choice of an individual can be influenced by the nature of his spouse or parent's occupation. Among the respondents surveyed most of their spouse/parent are employed (324) followed by self-employed (47) and unemployed (31).

Among the respondents surveyed, 42% reported that they haven't any experience in the coir sector. 49% had 1-2 years of experience and 9% had more than 2 years of experience. There were no respondents who had more than 5 years of experience in the coir sector.

Role model is said to be a significant factor in moulding a person's career choices. In the case of entrepreneurship also the presence of role model is evident. Among the 402 NEs surveyed, 221(71%) agreed that they have a role model either in their family or in the immediate friend's circle who motivated them in their decision to start a venture

In order to test the proposed Hypothesis various statistical test such as ANOVA and T-Test were carried out. The statistical tests carried out to test each Hypothesis and the result of the tests are indicated using Table 1.1

**Table:1.1 Result of Hypothesis Testing**

Hypothesis	Test carried out	Significant value	Whether the hypothesis is accepted or rejected
H1a <sub>1</sub>	T-Test	.317	Rejected
H1a <sub>2</sub>	T-Test	.564	Rejected
H1b <sub>1</sub>	ANOVA	0.243	Rejected
H1b <sub>2</sub>	ANOVA	.970	Rejected
H1c <sub>1</sub>	ANOVA	0.00	Accepted
H1c <sub>2</sub>	ANOVA	0.00	Accepted
H1d <sub>1</sub>	T-Test	0.026	Accepted
H1d <sub>2</sub>	T-Test	.370	Rejected
H1e <sub>1</sub>	ANOVA	0.014	Accepted
H1e <sub>2</sub>	ANOVA	.385	Rejected
H1f <sub>1</sub>	ANOVA	0.00	Accepted
H1f <sub>2</sub>	ANOVA	0.00	Accepted
H1g <sub>1</sub>	T-Test	0.00	Accepted
H1g <sub>1</sub>	T-Test	0.00	Accepted
H1h <sub>1</sub>	T-Test	.350	Rejected
H1h <sub>2</sub>	T-Test	.521	Rejected



*Source: survey Data*

The statistical analysis indicates a clear relationship of demographic factors such as educational background, marital status, Employment status of the spouse, work experience, role Model influences the EI and educational background, work experience and Role model influences the ESE with the intention to venture out

#### **4 Discussion and conclusion**

Many researchers found gender to be a significant factor in deciding the entrepreneurial intention of a person. To mention a few (PiotrTomski.2014.) conducted research on management students and its result reveals that EI is more in men as compared to their women counterparts. Wilson et.al (2009) discovered that gender had a solid impact in moulding entrepreneurial self-efficacy and entrepreneurial intention. Males were found to exhibit higher self-efficacy and entrepreneurial intention than their female counterparts.

Susan Coleman. and DafnaKariv (2013) also found that as compared to men women lack self confidence in overcoming their perceptions on institutional barriers to access finance to develop their firms.

Even though most of the research results reveals that males are more inclined to start a venture, the analysis of the present study reveals that there exists no significant difference in the ESE and EI of NEs based on their gender. One of the interpretations for this study results can be the nature of the sample. More than 90 percentage of our respondents are women. In fact, coir industry is assumed to be a women centric industry. Almost 80 percent of the workers engaged in spinning and fibre extraction are women (Senthilkumar 2015). As it is a traditional industry, the 'environmental factor influence' may not exerts substantial influence to make any difference in the intention level between the gender.

In entrepreneurial literature there exist studies which show positive influence on gender on EI. Usually, entrepreneurship is said to be associated with younger generation. The study results of the present study reveal that there is no significant difference in the entrepreneurial Intention among different age group. The reason may be due to the fact that as it is a household business, most of the family members are involved directly or indirectly in the business irrespective of their age. So, at a particular stage they may think about starting their own venture

The analysis of the data implies that the EI and ESE level of the NEs vary with their levels of education. This study results are in congruence with the findings of Van Der Sluis et al (2008) where the authors state that formal schooling has an influence on the decision to take up entrepreneurship.

The study results revealed that there exists no significant difference in the EI of married respondents as compared to the unmarried NEs. The study conducted by Pfeifer et.al (2014) on university students reveals that marital status is not related to the self -efficacy perceptions of the student. In the case of coir industry also we could not find any influence of marital status on either the ESE or EI of the respondents. The characteristic of the sampling population may be the interpretation of this result. In fact, out of the 402 respondents surveyed 390 were married. The research study reveals that Spouse/ Parent's Employment Status has an influence on the EI of the entrepreneur but not on the ESE.

Bandura (1997.) states that personal experience is the most powerful source of self-efficacy. Krekar and Coric.(2013) also concluded that the new experiences can change a person's ESE based on the study results of the research conducted over students at two different times.

This study results also in congruence with these studies. In the case of NEs in coir industry there exists a significant difference in the ESE based on their work experience in the industry. The work experience in the coir sector may help them to understand more on the technical as well as the management side of

the coir business. This knowledge might have increased their perception on doing the business.

The study results of the present study reveal that there exists a significant difference in the EI levels of NEs who have a role model as compared to the ones who don't. In many of the research studies, this relationship is evident. Sastre-Castillo (2015) suggest that the presence of father or another close relative as an entrepreneur contributes positively to one's EI. Even though there are variations in the way and the extent to which a successful role model influences a person the influence is prominent. (Saeid Karimi et al 2014) suggest that the role models indirectly influence the EI.

By analyzing the annual income of the respondents, it can be understood that most of the respondents are from middle income or lower income group. The study result of the present study does not reveal any significant relationship between the ESE and annual income. Annual income of the family is not found to influence either the EI or ESE of the entrepreneur.

### 5 Implications

The Entrepreneurial Development programmes are an inevitable part of the governments intervention to attract more prospective entrepreneurs to this sector. Better understanding on the specific demographic factors which enhances the ESE and EI of the prospective entrepreneurs of the coir Sector would help in customizing the curriculum for these programmes. The same would be useful to frame policies to attract many potential entrepreneurs to the coir sector.

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# **Journal of Indian School of Political Economy**

Volume: 35, No: 02,  
July – December : 2023



**A Journal  
devoted to  
the Study of  
Indian  
Economy,  
Polity and  
Society**



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### ABSTRACT

The present study is related to status women and their rights in Indian Society from early period to present day also. It gives importance on the position of women in various fields like family life, social life and work situation. It highlights on female foeticide, low literacy life of women, women's low nutritional status their position as per Indian tradition etc. This paper also gives emphasis on their rights in our society lastly in concludes on importance of women and role of society for the emancipation of women from male dominated society and their oppression and suppression.

### Keywords:

Status of women, Rights, Acts, Society

### INTRODUCTION

India referred to as a mother country and Indian tradition, treating mother is Goddess still prevails. But yet women harassment by the Indian society is on the increase through many ways such as molestation, cruelty kidnapping, eve teasing, rape, dowry-deaths, sexual slavery, forced prostitution, forced pregnancy etc., Particularly social status of women in India is a typical example of the gap between position and role accorded to them by constitution and the restrictions imposed on them by social traditions.

#### Women Status in early period

Women are considered as a holy symbol in our scriptures. Yet they are discriminated against and mistreated unequally society.

In vedic period women had a considerable respect treated as an equal partner of man, given considerable freedom and equal religious rights etc. It deteriorated towards the post - vedic era where the status of women went down.

Women during the post vedic times were considered to be only child bearing machines and had no right to possess property. Manu Dharma Sashtra clearly stated that women had no independent status of their own.

During this period widow remarriage was discouraged, practice of Sati was encouraged, polygamy recognized, women had limited access to education, early age (child) marriages gained popularity and girls were sold as commodities for marriages. Abuse and violence against women are present in every society for a long time. When trying to get through the boundaries of culture, class, age, and education. The present era sees the thriving contributions of women in democratic and electoral practices and various other sectors to improve the country's overall development.

From seventeenth century to early 20<sup>th</sup> century women rights were emphasized through social arousal demanding equal rights for women. The main contributories to their opinion were Mahatma Gandhi, Dayananda Saraswathi, Dr. Anne Besent.

Their efforts did not go a waste and important legislations emerged for women from the noise they raised in the early 20<sup>th</sup> century. The government of India has taken various steps such as...

- Child Marriage Restraint Act 1929
- Hindu Marriage Act 1955
- Special Marriage Act 1954
- Hindu Women's Right to property Act 1939
- Hindu Succession Act 1956
- Dowry Prohibition Act 1961



- Domestic Violence Act 2006 were formed

### **Women rights and status**

Overall, the rights and status of women have improved considerably in the last century, however gender equality has been threatened within the last two decades. Blatantly sexist law and practices are slowly being eliminated. While social perceptions of 'women roles' continue to stagnate and even degrade back to traditional ideals. It is these social perceptions that challenge the evaluation of women as equal on all levels. But subtle and blatant sexism continues to exist throughout educational, professional, and legal arenas.

Women's rights and status are include the right to live free from violence and mental health: to be educated to own property: to vote: and to earn an equal wage. But across the universally many women and girls still face discrimination on the basis of sex and gender.

The status of women major issues is gender discrimination, violence against women, and unequal pay continue to be major issues.

### **Women's Constitutional Rights**

The constitution of India guarantees to all Indian women equally (Article 14), no discrimination by the state (Article), equality of opportunity (Article 16) equal pay for equal work (Article 39) (d) and Article 42.

Equal rights and status provided to women under the Indian Constitution. Which is evident from the following provisions included in the constitution of India.

- The state shall not deny to any person equal protection of law within the territories of India – A. 14
  - No citizen shall be includible for or discriminated against in respect of employment as office under the state grounds only of religion race, caste, sex, descent, place of birth or residence – A 16(1).
- Article 39 of directive principle of state policy provides towards recurring
- Adequate means of livelihood, for men and women equality.
  - For both men and women equal pay for equal work.
  - The health and strength of workers, men and women and the tender age of children are not abused.

### **Women right and other Acts**

In order to protect women rights at national level there are provisions framed under the Dowry prohibition Act 1961. Dowry prohibition 1961 was passed with an intention to entirely abolish the Dowry System in the country. Such act also includes provisions towards preventing rights of women.

Similarly equal remuneration Act clearly establishes the principle legally "Equal pay for equal work". The Act emphasizes that there should not be any wage discrimination between men and women employees and by the dictum of "Equal pay for equal work" there is a contribution by this Act towards promoting and protecting women rights.

### **Support for women rights in universal**

United Nations Charter claims the formation of UNO among many purposes, is to achieve international co-operation in protecting and promoting human rights and fundamental freedoms for the people without showing any difference for race, gender, religious, language or age. This indicates at international level women's rights must be recognized. Thus commission on the status of women was established to deal with women's issues. Further the general assembly of UN adopted a Declaration on November 7, 1967. On the Elimination and Discrimination against women, and for its implementation, a convention was adopted by the general assembly on December 18, 1979. This was called the International Bill of Rights for women and it came into force in 1981. By June 16, 2001, the convention had the support of 183 countries. The convention lays down number of fields where



sufficient measures are to be taken to eliminate discrimination against women which are as under. The field of (CEDAW)

- Education
- Employment
- Healthcare
- Economic and social life
- Women in rural area
- Equally before law
- Marriage and family relations

**Women conference:** United Nations held three conferences during the United Nations sponsored international women's decade (1976-1985) at Mexico City 1975, Copenhagen 1980, Nairobi 1985 and 4<sup>th</sup> world conference on women held in Beijing in 1995. These conferences have greatly increased the international awareness and provided the spadework for linking international community with national women's movements.

**The impact of CEDAW in India:** In July 9<sup>th</sup> 1993 India ratified the convention on the elimination of all forms of Discrimination against women (1979) (CEDAW). Indian court accepted CEDAW is an integral scheme of fundamental rights and directive principles.

### Feminism

Let us co-related with women rights and feminism so we have an idea about Indian Feminism.

Indian feminism is concerned let us divided it as two types of societies.

- (a) Patriarchal society
- (b) Matriarchal society

**Under the patriarchal society:** Patriarchy literally means rule by the father in a male dominated family. It is a social and ideological construct which considers men (who are the patriarchys) as superior to women.

**Whereas, under the matriarchal society:** Which is distinguished from all other types of societies by the absence of power structures and institutionalized hierarchies. Matriarchy is a term in which is applied to gynocentric form of society, in which the leading role is with the female and especially with the mother of a community, primarily matriarchy is a family rule by women. The main aspect of matriarchy is economical and communal property of the family. Power is given to a female because of her motherhood and her maternal status in community. Women is the owner of the property and rules over the family.

Whatever it is which slowly and gradually replaced into patriarchal society.

In India feminist activities started by Gents. Some of the activities were :

- (a) Abolition of Sati in 1829
- (b) Encouraged the widow remarriage
- (c) Women education
- (d) Abolition of child marriage

Major feminist in India are Savithri Pule (started High School for adolescent girl child), Assima Chatterji, Anandi Bai Joshi, Reetha Farria, Sakunthala Vasishta, Usha Metha, Kamala Devi Chandapadaya, Chandra Mukhi Basu, Metha Padkar, Amrutha Preetham, Vadana Siva etc.

Now Indian Govt. has taken several steps for women upliftment in India. Some of them are:

- (1) Formation of women commission



It formed in India 1992 January 31<sup>st</sup>, as a statutory body. It consists chairman and other members. First Chairman Jayanthi Patnaik, and the present Chairman Rekha Sharma.

On these bases all states have formed its own women commission. Which is known as state women commission.

In Kerala: It formed in 1996 during the period of A.K. Antony (Chief Minister of Kerala)

**(2) Introduced Gender budgeting:** That is mean by women development Oriented budget, in which more fund earns marked their developments and introduced different yojanas and schemes. Through gender budgeting Govt. of India try to reduce the gap between men and women. Gender budgeting in India started since 2005.

**(3) RTE Act (Right to Education Act)**

It introduced in 2009 in Indian Parliament and came extent in 1<sup>st</sup> April 2010, through which Education became free and compulsory.

Universalisation of elementary education, for all children to 6 to 14. It annexed in Article 21(A) of Indian constitution.

One of the main aim is increase education for Girl child and abolision of child labour.

Likewise, 25% of total seats should be reserved for economically weaker section and society disadvantage children including girl child.

**(4) Women Reservation Bill**

Women Reservation Bill introduced ion Indian Parliament through 108<sup>th</sup> amendment of Indian constitution. It proposes the reservation 1/3 of all seat in Loka Sabha and all state legislative assemblies is reserved for women. The Rajyasabha passed the Bill but Lick Sabha has not yet passed. Rajya Sabha passed women reservation Bill on March 9<sup>th</sup> 2010, during the period of Manmohan Sing. But Loka Sabha has not yet passed. Due to severe opposition from the leaders of Mulayang Sing Yadav, Lalu Prasad Yadav, Mamatha Banerji, Sarath Yadav etc.

But at the same time Govt. of India reserved 33% of total seats for women in Local Self Govt. in India, through 73<sup>rd</sup> and 74<sup>th</sup> amendment of Indian constitution. During the period of former Prime Minister P.B. Narasimharao. On the basis of this bill Kerala reserved 50% of total seats for the women in Local Self Government.

UNO had directed to reservation of women in India parliament but in case of women reservation India share only 149<sup>th</sup> position in the world out of 193 member countries in UN.

**Equal Remuneration Act:** It implement in 1976, which is says that equal pay for equal work for men and women. That is under MGNREGA (Mahathma Gandhi National Rural Employment Govt. Act) 'equal pay for equal work'.

**Special Education Facility for Girl Child**

In India and all states, a lot of education schemes for the development of girl child are introduced. Example, Beti Bachaavo Beti Padhavo, Sukanya Samridhi Scheme.

In Tamilnadu Periyar EVR Nagammai free education scheme has been implemented in this state from 1989 onwards.

**Formation of Ministry and Child development:**

It formed under MHRD, it gives special attention for welfare of women and children.

**Poverty Alivation Programme**

Since Vth Fiver year plan (1974-79) Government of India given to special attention for poverty alivation programme because the main aim of Government was Poverty and unemployment to abolished. All these scheme women get much more attention.

**CONCLUSION**



Even if the above programme such as schemes and policies started in India, condition of women is pathetic, especially in North India like Bengal, UP, Gujarat, etc. at the earliest, we have to motivate women in India Education for them and we try to increase the welfare of them.

But whatever legislations passed and how much ever commission and committees set forth for protection of women rights and women equality. Presently women continue to suffer from inequalities on a large scale. Working women harassment in working places has not reduced. Sexual comments and non-violent sexual contacts to violent sexual contacts violent sexual abuses still prevail. Exploitation in various forms, torture, and harassment both physical and mental continue to take place. With all these disparities, the country and the world are still striving hard to eliminate discrimination among men and women.

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## RELATIONSHIP BETWEEN DIGITALIZATION TECHNOLOGIES AND HUMAN RESOURCE MANAGEMENT PRACTICES IN INFORMATION TECHNOLOGY INDUSTRY

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### Abstract

The advancement of digital technologies such as electronic devices, information systems, mobile or internet technologies, etc., which is presently known as the fourth industrial revolution, generates real opportunities for organizations to focus their activities on core competencies and achievable goals. It was inevitable for human resource management (HRM) to adopt such an advancement that drastically influenced businesses' work and management. Digital technology has caused improvement of the procedures and systems concerning different capacities throughout businesses, and the HRM is not an exception. Therefore, this study aims to investigate the impact of digitalization technologies on HRM practices in Information Technology (IT) industry of Kerala, India. Recruitment and selection, training and development, and performance appraisal and compensation are the main HRM practices identified as independent variables. A total of 203 respondents were selected for an online survey through snow ball sampling among employees in the IT companies in and around Technopark, Thiruvananthapuram, Kerala. The results revealed a significant relationship between digitalization technologies and all HRM practices.

**Keywords:** Recruitment and Selection, Training and Development, Performance Appraisal, Compensation, Digitalization Technologies.

### Introduction

Emerging technologies can pose a risk to the job security of many individuals, especially more seasoned employees, but can also provide much needed opportunities for older working adults to exploit their ample knowledge and experience and defeat age-related constraints stemming from

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reduced working memory capacity, physical fitness, visual sharpness, and versatility (Biankina, 2017). In that sense, technology has the potential to lessen age discrimination and improve training, social help, and networking opportunities. However, given that younger people are more likely than older individuals to embrace new technology, lack of digital skills can emerge as a new barrier to employment (Makridakis, 2017). Therefore, it is essential to offer training to all employees to ensure that they fully benefit from new tools and processes (Blome, Borell, Hakansson, & Nilsson, 2018).

The rapid technological evolution and digitalization that has taken place in recent decades has affected not only our everyday lives but also HRM practices (Kluemper, Mitra, & Wang, 2016). In the workplace, digitalization has disrupted the conventional structures and processes, necessitating changes in individual attitudes as well as organizational culture. For example, employees need to develop new competencies in order to effectively utilize new technology (Colbert, Yee, & George, 2016), while organizations ought to overhaul their structures, procedures, and processes to facilitate adoption of new systems and tools (Bissola & Imperatori, 2019). Although these issues are discussed in great detail in the



HRM literature, little is known about the potential role of digitalization in promoting innovation within organizations (Bondarouk & Brewster, 2016). Therefore, further research into the way digitalization can be integrated into HRM practices is needed, as having clear guidelines for work processes would result in greater benefits from digitalization (Noe, Hollenbeck, Gerhart, & Wright, 2018).

## **Literature Review and Hypothesis Development**

### **A. Human Capital Theory**

Human capital theory was developed by Smith (1776) to describe workers' skills and personal attributes beneficial to the production process. This theory was subsequently revised by Schultz (1961) who placed emphasis on individual development. This view is still adopted in most companies, as human resources are recognized as an important source of competitive advantage (Kew & Stredwick, 2016)

### **B. The Relationship between Recruitment and Selection and Digitalization**

Owing to the widespread adoption of technology, traditional recruitment and selection practices and tools have largely been supplanted by electronic equivalents that increasingly rely on social networking sites and other web-based platforms, such as LinkedIn and Facebook (Bissola & Imperatori, 2014; L'ecuyer & Pelletier, 2019). At the same time, Mochi, Bissola, and Imperatori (2017) affirmed in their research that online networking permits simple access to a wide pool of potential people with various abilities and skills, speed and proficiency of the recruitment process, and adequacy in recruiting passive candidates particularly for the individuals who might not be searching for a new job. They also allow job seekers to be progressively educated about the organizations and their vacant employment posts. The objectives of social media are to reach however many people as would be prudent and make companies identifiable. These objectives are fundamental for recruitment, selection, and employer branding (Melanthiou, Pavlou, & Constantinou, 2015). Furthermore, social media platforms appear to be especially suitable to recruit millennials that are viewed as digital natives and represent a significant part of the present workforce (Jayabalan, Zafir, Jenny, Nor, & Muhammad, 2019). Stone, Deadrick, Lukaszewski, and Johnson (2015) claimed that the utilization of digital technology is increasing for e-recruitment and selection. It is a positive contribution to upgrading the organization's work and help in building a valuable human resource at the beginning and throughout the connection between candidates and the organization.

### **C. The Relationship Between Training and Development and Digitalization**

Over the last few decades, digital technologies have profoundly affected the way people work (Fabbri, Scapolan, Bertolotti, & Canali, 2019). Aboramadan, Albashiti, Alharazin, and Dahleez (2020), stated that training makes a significant contribution to upgrading worker fulfillment, commitment, and general performance. Training is an organized undertaking involving data and abilities and an attitude that leads to upgrading employee performances in specific circumstances. It is a significant HRM activity for companies because it guarantees the accomplishment of the objectives of any organization (Kadiresan, Arumugam, Jayabalan, Hazrita, & Ramendran, 2019). Shafiq and Hamza (2017) revealed that digital technology, such as e-learning, has positively impacted training and development. It helps employees by increasing their transferable aptitudes, which are valuable for current and future work settings, group working abilities, online coordinated effort, and relational abilities. E-learning facilitates the planning of learning tools and practices based on a single worker's needs and teamwork (Jooss & Burbach, 2017). Samson and Rathee (2018) claimed that digital technology has a significant positive effect on training



and development, whereby e-learning technology furnishes organizations with an assortment of alternatives. In one option, a technology-based learning (TBL) procedure such as weband video streaming can be used to deal with the tracking and reporting of training in organizations. In this way, by allowing organizations and employees to manage their abilities, expertise profiles, pursue courses, and register course participation, TBL can reduce training costs. The use of digital technology in training and development activities has brought about numerous advantages including diminished desk work, regulatory costs, and timeframes, whereby time saved can be used for an organizations' other core activities (Khashman, & Alryalat, 2015).

#### **D. Relationship between Performance Appraisal and Digitalization**

The impact of digitalization technology on performance appraisal has been studied by numerous authors. According to Naz and Khan (2018), performance appraisal of employees has had a significant association with digital technology through digitization, and the HR and IT departments have cooperated well to use such technology. Performance appraisals were improved when the human resource department worked in paperless synergy with the assistance of data innovation (Jayabalan, et al, 2020). Naz and Khan's assertion was reinforced by Heuvel and Bondarouk's (2017) similar result; stating that digital technology positively influences performance appraisals because technology can make assessment forms increasingly straightforward, objective, and powerful. Study by Bissola and Imperatori (2019), claimed that the adoption of digitalization technology will have a significant influence on general human resource practices because sharing performance appraisal procedures and rules across organizational boundaries can permit straightforwardness and an impression of reasonable outcomes, which affects the decision making of the respective parties involved. Furthermore, it diminishes the impression of biased evaluation practices because all learning activities that occur are transparent (Klett, 2018).

#### **E. Relationship between Compensation and Digitalization**

Technology underpins human resource functions that follow the needs of organizations across web technology-based channels that allow supervisors, employees, and human resource professionals to watch, view, concentrate on, or modify data, which is vital for dealing with an organization's HRM (Khashman, & Alryalat, 2015). Rao and Vaidya (2018) research to measure the impact of digitalization on HRM practices showed that updating to an electronic payroll helped an organization to simplify how it remunerated its employees. Payroll digitalization has helped organizations move toward innovative and simplified HR practices that involve reduced time, maintenance, and staffing costs (Johnson, & Gueutal, 2011). In addition, it has helped track employees' productivity, which has effectively contributed to providing employees with rewards and recognition and motivated employees to perform better (Onuorah, Okeke, & Ikechukwu, 2019). Using these technologies with secure access, compensation or payroll information is effectively accessible by senior managers, human resource personnel, and employees in general. In this case, there is nothing contradictory about both variables because e-compensation systems can prompt positive effects in remuneration packages and straightforwardness in organizational contributions (Hartwell, 2018)

Published research on key HRM practices (i.e. recruitment and selection, training and development, performance appraisal, and compensation) and their respective relationships with digitalization technology seems to lack empirical relationships between these constructs and focus on how they are



affected by digitalization technology. This is true of research on the IT industry. The current research aimed to narrow the knowledge gap in this field by testing the following hypotheses in order to contribute new knowledge to the existing body of knowledge:

H1: There exists significant relationship between recruitment and selection and digitalization technologies.

H2: There exists significant relationship between training and development and digitalization technologies.

H3: There exists significant relationship between performance appraisal and digitalization technologies.

H4: There exists significant relationship between compensation and digitalization technologies.

### Methodology

This study employed the quantitative research method and engaged a positivist assumption research philosophy that focused on testing hypotheses and deriving outcomes and conclusions. This study aims to investigate the impact of digitalization technologies on HRM practices in IT industry of Kerala, India. Recruitment and selection, training and development, and performance appraisal and compensation are the main HRM practices identified as independent variables. A total of 203 respondents were selected for an online survey through snow ball sampling among employees in the IT companies in and around Technopark, Thiruvananthapuram, Kerala. A standardized questionnaire was used to collect the data. IBM SPSS (Version 27) statistical software was used to analyze the data collected. The reliability test uses Cronbach's alpha value for this study of 0.952, indicating that the data is reliable. All the variables individually were above the 0.7 threshold, and thus, they were accepted for analysis (Hair, Black, Babin, Anderson, & Tatham, 2006). Table 1 describes Cronbach's alpha of the variables under study.

**Table 1**  
**Cronbach's Alpha with Study Variables**

Variables	Cronbach's Alpha	Number of Items
Digitalization Technologies	.826	6
Recruitment and Selection	.857	6
Training and Development	.871	6
Performance Appraisal	.895	6
Compensation	.907	6

The normality test was carried out, and the data were normally distributed and can be used for further analysis (Mishra, et al, 2019). Table 2 explains the normality test.

**Table 2**  
**Normality Test**

Particulars	Kolmogorov Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Digitalization Technologies	0.167	203	.000	0.866	203	.000

a. Lilliefors Significance Correction

### Findings

Correlation analysis is an objective measure that shows the degree to which at least two variables change together. A positive connection demonstrates the degree to which those factors increase or decrease in parallel. Hence, for this study, Karl Pearson's correlation analysis was conducted to determine the



relationship between the variables.

Table 3 revealed a significant and positive correlation between each independent variable studied (recruitment and selection, training and development, performance appraisal, and compensation) and the dependent variable (digitalization technologies).

**Table 3**  
**Correlation Analysis within Independent Variables and Dependent Variable**

Particulars		1	2	3	4	5
1	Pearson Correlation	1	.506**	.515**	.547**	.460**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	203	203	203	203	203
2	Pearson Correlation	.506**	1	.562**	.604**	.617**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	203	203	203	203	203
3	Pearson Correlation	.515**	.562**	1	.709**	.677**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	203	203	203	203	203
4	Pearson Correlation	.547**	.604**	.709**	1	.820**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	203	203	203	203	203
5	Pearson Correlation	.460**	.617**	.677**	.820**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	203	203	203	203	203

\*\* Correlation is significant at 0.01 level (2 - tailed)

1- Digitalization Technologies, 2 - Recruitment & Selection, 3 - Training & Development, 4 - Performance Appraisal, 5 - Compensation

The correlation analysis presented in Table 3 revealed that the Pearson correlation coefficient's value between recruitment and selection, and digitalization technologies is 0.506. This infers a significant relationship between the variables at p-value 0.000. This also indicates that HRM has to look out about their recruitment process to bargain potential candidates with fit skills for the career, using recruitment tools like cloud-based hiring tools (Joyce, Guszca, Fisher, & Hogan, 2018). Table 3 also reveals that there is a significant relationship between training and development, and digitalization technologies ( $r = 0.515$ ), at p-value 0.000. The result indicates that digitalization technologies influence the way employees approach their work because training and development are essential for workers to permit their personal development by using the technologies (Fedorova, Koropets & Gatti, 2019). Furthermore, Table 3 revealed that correlation value of performance appraisal and digitalization technologies is 0.547, where the p-value is significant at 0.000. In short, the digitalization technologies of performance appraisal provide more detailed data and positively impact human resource practices, making the evaluation process straightforward and leading to unbiased results (Adhikari, 2018). As displayed in Table 3, the correlation coefficient value is 0.460 at p-value 0.000. In other words, the correlation between these two variables is positive. This is because the compensation through digitalization also empowers the management to outlook and generates reports for managing the workers (Tripathi & Singh, 2017). The analysis of the study affirms that all hypotheses are accepted.



### **Study Implications**

This study has been carried out to examine the relationship between digitalization technologies and HRM practices in IT industry. The usage of e-recruitment tools gives several advantages to organizations. The e-HRM system, such as e-recruitment, can diminish administrative workloads by computerizing employment forms, scanning of job resumes, and authoritative responses to candidates (Dulebohn & Johnson, 2013). E-recruitment normally consents candidates to finish making an application online or transfer a resume to the virtual platform. These practices allow companies to target candidates, including foreign job seekers. This method can intensely increase the number of candidates for each vacancy and attract more qualified candidates (Chapman & Godollei, 2017).

E-learning and development tools provide significant benefits to organizations, such as heightened training velocity and enhanced training adaptability. In the same way, e-learning becomes progressively more virtual and mobile. This mobile learning is contended to provide the workers with more work-significant interactive media meetings that can be arranged on demand. Mobile learning is expected to enhance a person's enthusiasm to train. Organizations can use it to provide more adaptable training and heighten the training velocity, significantly reducing the costs (Johnson, & Brown, 2017).

E-performance appraisal tools and measures can objectively evaluate how well employees can be valued and compensated accordingly. With the help of digitalization technologies, the performance appraisal helps make appraisal processes transparent and reach divisional and organizational goals. The data from the related digitalization technologies enables the human resource administration to see every employee's performance and compare their respective performance with that of the co-workers within the organization's context (Njeje, Chepkilot, & Ochieng, 2018).

As in other areas of HRM, technology assists in the form of compensation software. E-compensation or payrolls also provide organizations with the ability to better coordinate both external and internal data from compensation surveys and current pay sources. This allows them to distinguish any imbalance in compensation structures. Without this information, it is uncertain whether an organization can build up a genuinely successful remuneration system. The improved accuracy related to e-compensation allows managers to create compensation methodologies that improve both internal and external value. More complete, opportune, and accurate data can assist managers in settling on better compensation judgments and choices for their workers (Kavanagh, & Johnson, 2018).

### **Conclusion, Limitations, and Recommendations**

The current research work is planned at giving a review of the main literature contributions associated with the impact of digitalization technologies on HRM practices, such as recruitment and selection, training and development, performance appraisals, and compensation. This issue has been pulling in a developing enthusiasm, specifically on account of the nervousness created by the idea that digital technologies could reduce countless occupations. For this reason, it is critical to review the findings of this enormous observational literature, as presently, the digitalization technology revolution influences the ways organizations can make their employees work. Conventional work may diminish as new jobs emerge with the development of more digitalization technologies to balance both current and future job offerings. Furthermore, digitalization technologies can be associated with overall performance management and HRM practices from the beginning to the end of the process, to sustain growth while



benefitting business environment and meeting community standards (Opatha, & Arulrajah, 2014).

This research has met the aims and objectives that were outlined for this study. Nonetheless, there are limitations worth putting forward to assist future researchers in acquiring new information. Among others are online surveys conducted that does not permit methods like physical meetings to collect data. The sample size could be expanded as time and constraints of IT sector have somehow affected the participation of the targeted samples. The samples could also be extended to other regions and industries to obtain a clearer picture of the impact of digitalization technologies on HRM practices. Further studies on the impact of digitalization technologies on other departmental practices can be conducted to obtain a holistic understanding of the topic.

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## INFLUENCE OF PERSONALITY TRAITS AND BEHAVIORAL BIASES ON IRRATIONAL INVESTMENT DECISION MAKING OF PUBLIC OFFICIALS

RATHI N. AND D. GEETHA

**ABSTRACT.** This study examines the behavioural and personality factors in the investment of public officials. Investment Decision Making (IDM) of the individual investors may be rational or irrational and here the study focused on the irrational IDM. The influence of eight types of behavioural biases and Big five personality traits (BFPT) on irrational IDM are studied along with mediation effect. Significant findings of the study are that BFPT and Behavioural biases pointedly influence public officials' Irrational IDM. Personality traits have a mediating role in behavioural bias and irrational decisions. The results suggest that personality traits and Behavioural biases are key in investment decisions and the investor education and awareness programmes are vital in overcoming the biases and lead to rational decisions.

### 1. INTRODUCTION

Individual investors' behaviour in decision-making has a vital role in economic development of the country. Like all other decisions, investment decisions are made after several calculations and thinking by the person. Decision-making is selecting one course of action among different courses of action available in front of a person. Any decision-making process requires appropriate mental and financial resources to acquire and process information. It is intellectual and emotional and may be determined by the individual's Personality. The process of decision-making is affected by commitment, beliefs, age and individual differences, past experience, cognitive biases, and the impact of the past decision also affect the new decision as fear of loss or passion for success (Dietrich, C., 2010).

Thinking is the base of any type of decision-making which may or may not be rational. Rational and irrational thinking are part of human thinking and associated behaviour (Simon, 1993). Irrational thinking is an addition of rational thinking, as an impulse of blending thinking in to 'n' pattern repeated to logic and extra logic assemblies to reach an objective. Emotions, imaginations, intuitions, and other skills are the components of non-rational thinking. (Burciu, A & Hapenciuc, C. V., 2010). Rational thinking is based on proven evidence and hypotheses that measure experiences and interactions to determine rational actions and decisions. Irrational thinking is usually based on emotions, often mixed with those emotions and biased or selective evidence. Rational thinking creates motivation because there is structure and unmistakable evidence, while irrational thoughts cause anxiety (Brain, P., 2022). The steps in intelligent decision-making are identifying the current opportunity, defining the markets that need to be

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Received by the editors January 12, 2023. Accepted by the editors May 15, 2023.

*Keywords:* Behavioural biases; Irrational decisions, Personality traits, investment decision-making (IDM), Public officials, Kerala.

*JEL Classification:* G11, G41, D14, D83, D90, D91, E22.

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This paper is in final form and no version of it will be submitted for publication elsewhere.



fulfilled, calculating the prices to be paid and the profits that can be added. The decisions termed as rational if it made based on the intellectual understanding of human thinking or behaviour and bearing in mind the human features and limitations that limit human action. In an effort to make a rapid and easy decision, persons tend to depart from rationality, or what is essential for a standard decision-making process when he or she is rational. Intuition is an all-inclusive form of information processing that differs from investigation and can be higher in some cases. (Julmi, C., 2019). In economic theory, the ultimate end of rational behaviour is to exploit company profits and take full advantage of benefits in the case of people in general (Katona, 1963). The basic postulation of rational IDM is the concept of exploiting usefulness or return. The limitation of a rational model is that it does not consider aspects that cannot be measured, such as personal feelings, ethics, or altruism. Prospect theory (Kahneman, & Tversky, A., 2013) and bounded rationality theory (Simon, H. A., 1957) are the basis of the thoughts related to non-rationality in economic decision-making. In financial circumstances, decision-makers only sometimes have all the information available at any given moment to be cautious or follow the steps economists suggest for rational decision making. They claim that rationality is bounded and that the perfect conditions leading to full rationality are not really in question (Lacatus, M. L., 2018). In the present study, the investigators concentrate on the irrational IDM rather than the rational.

The other variable taken for the study is investor personality. Personality is the sum of all the factors relating to an individual, which includes the physical, psychological and emotional adjustment of an individual to his/her environment. Personality traits are the stable features that describe an individual's behaviour. Psychologists have identified several traits and dimensions that differentiate individuals. Some trait theories explain different traits and dimensions of Personality, like the sixteen-factor theory of Raymond Cattell and the five-factor theory of Robert McCrae and Paul Costa. Lewis Goldberg named the five-factor theory the Big Five personality traits (BFPT). BFPT are Openness (O), Conscientiousness (C), Extroversion (E), Agreeableness (A), and Neuroticism (N), otherwise known as OCEAN. 'O' is the response to the environmental and social background and changes; otherwise, it is the response to experience and its link with intellectual activity. It is the ability to think out of the box and creative and artistic value and interest in learning new things. Sub-dimensions identified under this trait are Curiosity, Aesthetic, Ideas, and Action. 'C' is the ability to control impulses, lead a disciplined life and fulfil goals within limitations. The person with this trait will be thoughtful and careful and have a deep sense of duty and orderliness. Sub-dimensions identified under this trait are Competence, Deliberation, Order, and Self-discipline. 'E' is a person's intensity or level of interaction with society and environment and a tendency to seek stimulation and company; make good relationships with society. It is the base of sociability, assertiveness, and emotional expression. Sub-dimensions identified under this trait are Excitement seeking, Assertiveness, Gregariousness, and Warmth. 'A' is the tendency to keep the relationship and interactions with others. It is the willingness to accept others and cooperate with fellow mates. Sub-dimensions identified under this trait are Modesty, Altruism, Straightforwardness, and Trust. 'N' is the opposite of a stable personality and describes emotional stability and the ability to experience negativity. It is the tendency to experience and expect unpleasant emotions. Sub-dimensions identified under this trait are Vulnerability, Self-consciousness, Depression, and Anxiety (McCrae & Costa, 2008). Like any other decision, the investor's Personality may be a determining factor in IDM.

Irrational decisions are sometimes based on behavioural biases. Biases are classified as Emotional bias and Cognitive bias. The heuristic bias includes representativeness, availability bias, anchoring bias and gambler's fallacy. While in cognitive bias includes overconfidence bias, mental accounting bias, herd effect, and regret aversion. Behavioural biases are outcomes of non-rational thinking, and they are the factors that may depend on the performance of individual investment. The role of behavioural biases in the IDM of public officials is tried to study here.

Investor personality and behavioural biases are the variables taken for the study because the variables affect the investment performance of the investors and collectively influence the investment environment and economy. Public officials are the stable income group in the country and the influencing group in society. Here the investigators studied the dependence of the irrational IDM of public officials on their behavioural biases and personality traits. The study is original and novel idea on the influence of personality and biases on irrational investment. This study must pave way to the researches in the field of behavioural finance and behavioural economics.

## 2. LITERATURE REVIEW

The researchers come to different conclusions from the previous research on personality traits and investment. There is a relationship between Personality and portfolio selection, and it may be helpful for stock brokers to develop portfolios according to the personality of the clients (Rizvi & Fatima, 2014). After examining different psychological backgrounds for both short and long-term investment goals with BFPT, it can be concluded that extroverts are interested in short-term financing, and neurotic people are interested in avoiding this activity. (Mayfield, Perdue, & Wooten, 2008). Some studies differentiated the investment preferences with different types of personalities, while others analyzed the different avenues in relation to BFPT. Individual investors' personality type does not influence traditional investment avenues' preference but modern investment avenues (Showndhariya & Kavitha, 2018).

The review found that that the personality traits are studied along with investment pattern and behaviour and decision making. There is a research gap that the personality traits are not studied in relation to rational and irrational IDM separately.

Investment decisions can be derived from different financial models from the technical side. Decisions also consider incidental factors, which consider the location and psychology of the market, in other words. It invites investors to learn about the various biases that may appear in them and then take steps to avoid them, thus increasing their performance (Shunmugathangam, 2017). Moods and emotions can play helpful and disruptive roles in decision-making. Feelings can be consistent to lead to good or bad decisions (Shiv et al., 2004). Investors' psychological tendencies have a significant impact on the purchase of securities. The investor's psychological biases and subsequent investment-related behaviour are persistent and systematic (Pandit & Yeoh, (2014). The investor will select the portfolio which will maximize his utility. The temperament and psychology of the investor are other crucial considerations in making an investment decision by the investors. (Bindu, 2017). Behavioural biases like Representativeness, Availability bias, Anchoring bias, Herd effect, Mental accounting, Gamblers' fallacy, Overconfidence and Regret aversion are the apparent biases in investment. (Kahneman & Tversky, 1979); (Benartzi & Thaler (1995); Prelec & Loewenstein (1998); Thaler (1999)). ). According to the researchers, IDM may be affected by cognitive and emotional bias.

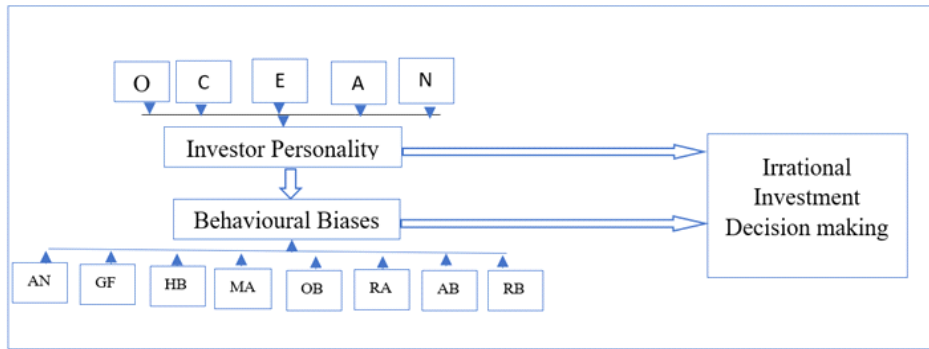
Availability bias may be the selection of more familiar and available avenues to the investor, and the person should refrain from trying to experiment with other avenues (Kahneman & Tversky, 1972). When making an investment decision, the individual may depend on the first information as the prime factor. All other information may not be provided with due consideration and may call as Anchoring bias. In the Herd effect, the investor tends to follow the majority in society without analyzing the investment opportunities (Tversky, & Kahneman, 1974). Investors sometimes make false assumptions about the avenues, time of investment, volume of investment, and expected return and risk; it is termed Mental accounting (Richard Thaler, 1999). In the Gamblers' fallacy, the individual may depend more on experience while selecting an investment, assuming that past occurrences may repeat. Representativeness is the bias of the investors getting confused with similar types of investment, and it may lead to a biased decision. An investor may be biased as Overconfidence when he or she believes his knowledge, skill, and mental power is much better than others, and he or she may not make any error in decision-making (Chen; Kim; Nofsinger, & Rui, 2007). Some individuals always

think about the harmful consequences; thus, they avoid the regret that may arise in the future, which is considered the Regret aversion bias (Kahneman & Tversky, 1979).

Heuristic factors and Prospect theory both influence individual investors in India (Chandra & Kumar, 2012). Loss-averse behaviour is the most common when making an investment decision (Muhammad N. M. N., 2009). Herding behaviour is higher in emerging markets with more significant information asymmetry (Poshakwale & Mandal, 2014). Daniel, Hirshleifer, Subrahmanyam, et al. (1998) proposed a securities market under and overreactions theory.

It suggests that investors react more to private information and less on public information signals. The reviews pointed out several biases, and the investigators have identified eight behavioural biases prominent in the Indian market per the review like Anchoring (AN), Gamblers fallacy (GF), Herding Bias (HB), Mental Accounting (MA), Overconfidence Bias (OB), Regret aversion (RA), Availability Bias (AB) and Representativeness Bias (RB).

The review found that that behavioural biases are studied in behavioural finance and decision making in security market. There is a research gap that behavioural biases are not studied in relation to the personality traits and irrational IDM.



**Figure 1: The conceptual model for this research**

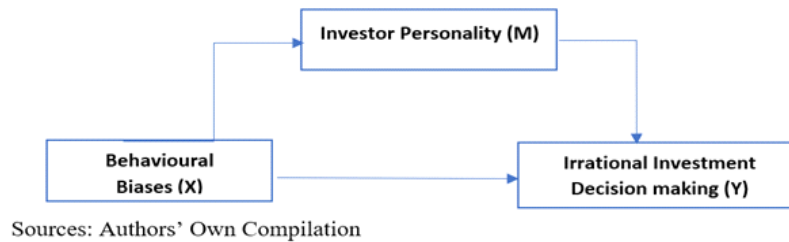
#### **Aims of the study:**

Following the recent advancement in IDM, this study aims to present trends in research, drift in main themes and offer future directions.

Thus, this review efforts to address the research questions such as:

*R.Q. 1. How the investor personality effect on Irrational IDM?*

*R.Q. 2. How the behavioural biases effect on Irrational IDM?*



**Figure 2: Behavioural biases on Irrational decision making as Personality is a mediating factor**

This conceptual model has been derived from gap analysis. Investors sometimes use mental shortcuts and they may not always behave rationally even though the traditional finance



proposes so. Behavioural finance validates the psychological impact on individuals' investment and financial activity. This research aims to know how the Personality of the investor effect the selected behavioural biases on the Irrational IDM of individual investors. The primary aim of the investigation is to empirically examine the impact of Investor personality on behavioural biases through irrational IDM.

Behavioural biases are studied by different researchers but they are not studied the mediating effect of personality traits in between biases and decision making. Here the original contribution of the article sticks on the mediation analysis of BFPT on the relation between Behavioural biases and IDM.

**Objectives of the study:**

1. To find the influence of Investor Personality on Behavioural biases and Irrational IDM
2. To find the influence of behavioural bias on irrational IDM
3. To find the mediation effect of Investor Personality between Behavioural biases and

Irrational investment decisions.

**Hypotheses to be tested:**

*H01: The Personality traits of the investors are significantly related to their Behavioural biases and Irrational IDM*

*H02: Behavioural biases have a significant role in irrational IDM*

*H03: The personality traits of the investors mediate the relationship between Behavioural bias and irrational IDM*

The aims are achieved by testing the hypotheses using statistical inferential analysis.

### 3. RESEARCH DESIGN

The study was descriptive, and the data were collected from 384 public officials in Kerala using a questionnaire. The sample was selected according to the proportionate stratified random sampling method. Samples were selected proportionately from different departments.

**Table 1: Demographic Characteristics of the Respondents**

Variables	Categories	No. of respondents	Percent
Geographical area	South zone	128	33.3
	Central zone	128	33.3
	North zone	128	33.3
	Total	384	100
Age	Between 20 and 30 years	13	3.4
	Between 30 and 40 years	170	44.3
	Between 40 and 50 years	119	31
	Between 50 and 60 years	82	21.4
	Total	384	100
Gender	Male	200	52.1
	Female	184	47.9
	Total	384	100
Income level	Below 40,000	27	7
	Between 40,000 - 60,000	108	28.1
	Between 60,000 - 80,000	191	49.7
	Between 80,000 - 100,000	47	12.2
	Above 100,000	11	2.9
Total	384	100	

Primary data were collected for this research through a five-point Likert scale questionnaire. The research instrument includes the BFPT inventory, the Behaviour bias scale and the IDM questionnaire. The target population, the public officials, were asked closed-ended questions, and they were supposed to answer on the scale.

Hundred public officials responded for preliminary study for testing the validity and reliability of the tool. The scale's reliability provides consistency and accuracy that helps make the instrument error-free. Cronbach's alpha ( $\alpha$ ) was used to check the internal consistency to ensure the tool's reliability. The uniformity between each construct item needs to be checked and those above 0.7 (Table 2) for all constructs (Nunnally & Bernstein, 1967; Fornell & Larcker, 1981).

Dimensions	$\alpha$	No. of elements
Irrational Decision making	.749	8
Behavioural Biases	.881	16
Investor Personality	.774	20

Construct validity is very important in psychological tests, and here there is a psychological conducted based on the theory of BFPT. The researchers used a correlation coefficient for testing construct validity. There are five personality traits, and each one has 4 statements; the correlation between these four statements is calculated, and all the statements are significant. Content validation is a mixed method, both quantitative and qualitative process that is applicable to all elements of the research instrument (Lawshe, 1975). This technique was used for validation of the IDM scale, personality trait scale and Behavioural bias scale. CVR ratio, which depends on how accurately the concept is defined and the degree to which "experts" approve the construct, was calculated. Only statements which have a score of 0.50 or above in the CVR ratio have been included in the final research instrument.

#### 4. RESULTS

The data were examined using mean and standard deviation for descriptive, correlation, and multiple regression analysis for testing Hypotheses.

##### 4.1. Descriptive analysis.

Personality Traits	Mean	Std. Deviation
O	13.51	3.684
C	13.09	3.739
E	12.72	3.523
A	12.86	3.634
N	10.82	3.433
Investor Personality	12.60	1.934

Table 3 shows the Mean scores of the personality traits like O, C, E, A, and N are 13.51, 13.09, 12.72, 12.86, and 10.82, respectively. Standard deviations are ranging from 3.433 to 3.739 respectively. The mean total personality score is 12.60, and the standard deviation is 1.934. hence it is observed that personality traits like O, C, E, and A are more significant in their investor personality.

Behavioural biases	Mean	Std. Deviation
Anchoring	10.31	2.957
Gamblers' fallacy	10.46	3.030
Herding	10.69	2.875
Mental Accounting	10.88	2.608
Overconfidence	10.89	2.786
Regret Aversion	10.86	2.661
Availability Bias	10.84	2.753
Representative Bias	10.90	2.801

Table 4 evidenced that Representative bias, Overconfidence, mental accounting, regret aversion and availability bias show higher mean scores like 10.90, 10.89, 10.88, 10.86 and 10.84. Herding, gamblers' fallacy and anchoring show mean scores of 10.69, 10.46 and 10.31. Gamblers' fallacy and anchoring bias have high scores of standard deviations of 3.03 and 2.957. All the other biases show a variation between 2.875 to 2.661. Hence it indicates that Representative bias, Overconfidence, mental accounting, regret aversion and availability bias are the most significant factors considered in behavioural investment.

	Mean	Std. Deviation
Irrational decision making	3.578	0.489

Table 5 shows that the mean value of the Irrational decision is 3.58, and the standard deviation is 0.489.

#### 4.2. Hypotheses testing.

Variable	B	Beta	S.E.
(Constant)	18.552		4.274
O	0.651	0.204	0.18
C	0.098	0.031	0.202
E	-0.34	-0.102	0.207
A	-0.144	-0.045	0.168
N	0.035	0.01	0.179
R2	0.045		
AR2	0.032		
F-value	3.55		
(* - $p < 0.05$ )			

Table 6 reveals that the personality factors account for 4.5% of the variance in Irrational IDM. Among the personality variables, O, C, and N have a positive influence and E and A have a negative effect on Irrational IDM. The F value of is equal to 3.550 ( $p < 0.05$ ), which shows that the model is a good fit. It also indicates that adjusted  $R^2$  is equal to 0.032.

Variable	B	Beta	S.E.
(Constant)	7.069*		.412
O	0.063	.204	.017
C	0.005	.016	.019
E	-0.31	-.096	.020
A	-0.008	-.025	.016
N	0.001	.004	.017
R2	0.203		
AR2	0.041		
F-value	3.245		
(* - $p < 0.05$ )			

Table 7 reveals that the personality factors account for 20.3% of the variance in Behavioural biases. Among the personality variables, O, C, and N have a positive influence and E, and A have a negative effect on Behavioural biases. The F-ratio value is 3.245 ( $p < 0.05$ ), which shows that the model is a good fit. It also indicates that adjusted  $R^2$  is equal to 0.041.



Variable	B	Beta	Std. Error
(Constant)	0.091**		1.53
Anchoring	0.013	0.017	0.038
Gamblers' fallacy	0.018	0.005	0.046
Herding	0.038	0.021	0.047
Mental Accounting	-0.07	-0.015	0.006
Overconfidence	0.020	0.004	0.009
Regret Aversion	0.010	0.005	0.102
Representative Bias	0.091	0.019	0.110
Availability Bias	0.003	0.100	0.015
R2	0.89		
AR2	0.93		
F-value	137.98		
(** - p < 0.01)			

Table 8 reveals that behavioural biases account for 89% of the variance in Irrational IDM. Among the Bias variables, Anchoring, Gamblers' fallacy, Herding bias, Overconfidence, Regret aversion, Representativeness and Availability bias have positive influences on irrational IDM. However, Mental accounting has a negative effect on Irrational IDM. The value of the F – ratio is equal to 137.98 ( $p < 0.01$ ), which shows that the model is a good fit. It also indicates that adjusted  $R^2$  is equal to 0.93.

Behavioural biases (X) on Irrational IDM (Y) as BFPT (M) is a mediating factor

For the mediation test, researchers used linear regression analysis for direct effect testing and the Sobel test for indirect effect testing. Three linear regression analyses, Y on X, Y on M and M on X are done.

Sobel test formula

$$z = \frac{ab}{\sqrt{(b^2 SE_a^2) + (a^2 SE_b^2)}}$$

Where:

$a$  – Regression coefficient of M on X,  $b$  – Regression coefficient of M on Y  
 $SE_a$  – Std. Error of M on X,  $SE_b$  – Std. Error of M on Y

Direct effect analysis (Regression)			
		B	S.E.
Path A	M on X	0.103	0.087
Path B	Y on M	0.001	0.005
Path C	Y on X	0.405	0.008
Indirect effect analysis			
Point Effect	A * B	0.000103	
Sobel test			
Test statistic	17.156**		
(** - p < 0.01)			

In this case, the p-value is less than 0.05; therefore, it is concluded that the indirect effect among behavioural bias (X) and irrational IDM (Y) via BFPT (M) is statistically significant ( $p\text{-value} \leq 0.05$ ). So there found a mediation effect.

## 5. DISCUSSION

BFPT of investors influence the irrational IDM, and out of these, Consciousness is the more influential trait, followed by O and A. N has comparatively less influence on the investment decision, and trait E negatively influences investment decisions. (Priyadharshini, (2020). Irrational IDM has no relationship with the attributes A and C. Overconfidence fully mediates the relationship of E and N with irrational IDM and partially mediates the relationship between O and irrational IDM (Kanagasabai, B. & Vaneeta A. 2021). Here, irrational IDM is studied and O, C, and N have been found a positive influence and E and A have a negative effect on Irrational IDM.

There are many types of Biases which influence an investor's decision-making. It plays an essential role in the decision-making of a person, organization or any other financial matter of investors. (Gill, R. K. & Bajwa, R., 2018). Here the eight biases are taken for study and found to influence the biases on irrational IDM.

N, E, O and all behavioural biases are significantly associated. N greatly influences behavioural biases while E has a positive relationship with availability bias only (Baker, H. K., Kapoor, S. & Khare; T., 2022). In the present study, O, C, and N have a positive influence and E and A have a negative effect on Behavioural biases.

Investment performance have highly influenced by Overconfidence and gamblers' fallacy while herding behaviours are described to impact on investment performance positively at the lower level. In contrast, the other biases have a negative impact on investment performance. Gamblers' fallacy and herding have a low effect on investors' decisions, while mental accounting greatly impacts investment decisions. (Luong, L., & Ha, D.T., 2011). Prospect behavioural factor has been found to correlate with investment performance negatively. Herding, Market volatility and Heuristic (including Overconfidence and focus bias) are found to positively correlate with investment performance (Silwal, P.P., & Bajracharya, S. 2021). Here mental accounting only has a low negative influence on irrational IDM, and all the other biases positively influence irrational investment decisions.

As per the analysis, the study found that the investor personality has a significant mediation role on their behavioural bias and irrational decision making.

## 6. CONCLUSION

This study investigates the relationship between behavioural biases, investor personality and investment decision making. The study was successfully taken the samples from public officials representing from different geographical region and departments. This research aims to check the influence of bias on individual irrational decision making with the mediating role of investor personality that the indirect effect is 17.156 ( $p < 0.01$ ). The observed results supported that behavioural biases influence irrational investment decisions as  $R^2$  is 0.89 and  $F$  137.98 ( $p < 0.01$ ). It means 89% of the irrational decisions are made by the predictive variables. The personality traits of the investors were also found to influence irrational decision making as  $R^2$  is 0.203 and  $F$  3.245 ( $p < 0.05$ ). This means 20.3% of the irrational decisions are made by the predictive variables.

This study will throw light to the behavioural and psychological aspects of investors on their investment practices. The findings of this study boost the individual investors to understand and identify their biases or irrational thoughts. It will help generate Consciousness among investors to decide on their investment capacity after assessing all available alternatives. Investment is an active method of using cash to generate wealth, meet financial goals, save for old age and manage inflation. Smart investing of individuals and institutional investors helps improve productivity and increase the economy's competitiveness. This study proved the personality biases are key in investment behaviour and thus the study may lead to the conclusion that investor education is vital in rational investment decision of investors and development of Indian economy.

The study definitely helps the researchers in this field for further study. The present study concentrated on public officials with stable incomes compared with others like business people or professionals. There is a scope to study the institutional and individual investors other than public officials on the variables. Irrational decision making of investors can also be studied with several other aspects like risk perception, objectives of investment, and intellectual capacity of the investors.

**Acknowledgement 1.** *The authors are grateful to the respondent officials who have been reported their response to the questionnaire in a very enthusiastic manner. The co-operation and prompt responses helped us to complete the study.*

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## APPENDEIX

**Questionnaire on Investment Decision****Name:****Occupation:****Institution:****Age:** 21 – 30/ 31 – 40 / 41 – 50 / 51 – 60**Gender:** Male/ Female/ Others**Marital status:** Married / Single / Widow/ Separated**Income Level:** Below 35000/ 35000-70000/ 70000 – 105000/ Above 105000**Part I – Investment decision related questions**

<b>Factors Influencing While Selecting Investment Avenues</b>						
SI No	FACTOR	VERY HIGHLY INFLUENCED	HIGHLY INFLUENCED	MODERATELY INFLUENCED	LESS INFLUENCED	NOT INFLUENCED
1	Return					
2	Safety					
3	Liquidity					
4	Tax Saving					
5	Diversification					
6	Simplicity					
7	Affordability					
<b>Objectives of the Investment</b>						
SI No	OBJECTIVES	VERY HIGHLY INFLUENCED	HIGHLY INFLUENCED	MODERATELY INFLUENCED	LESS INFLUENCED	NOT INFLUENCED
1	Good Returns					
2	Capital Appreciation					
3	Liquidity					
4	Tax Saving					
5	Children Career					
6	Future Security					
7	Pension					
8	Other objectives					



<b>Irrational behaviour in investment (Behavioural Biases)</b>						
Sl No		SA	A	N	DA	SD
1	When thinking about selling an investment, I consider the price paid as a big factor before taking any action.					
2	Poor past financial decisions have caused me to change my carrier investing decision.					
3	I often take action on an investment right away, if it makes sense to me.					
4	I confident about my investment knowledge.					
5	I tend to categorize my investments into various accounts such as leisure, bill paying, education, funding and so on.					
6	Many investment choices I make are based upon my knowledge of how similar past investments have performed.					
7	I imitate the actions of others in making investment.					
8	If there is loss in past events I tend to hold the investment in expectation that it gains profit in future.					
9	My past investment successes were due to my specific skills and experience.					
10	I have complete knowledge about investment avenues					
11	I may decide to seek more risk after a prior gain					
12	I ignore the connection between different investment opportunities					
13	Before the investment decision I evaluate the past price movement to predict future success					
14	News about the avenue in newspaper/magazines affect my investment decision					
15	Current performance of stock is an indicator for future performance					
16	My investment decision is based on time horizon					
17	My investment decision is based on diversification					
18	I invest as savings for retirement period					
19	I study about the market fundamentals of the stock before making investment					
20	Other investors' success stories may impact on my investment decisions					
21	I want to invest in the avenues where my friends invest					
22	I can forecast the changes in stock prices in the future based on the recent stock prices					
23	I prefer to invest in the local investment avenues because of the information availability					
24	I do habit of purchasing lottery tickets					


**Part II – Personality related questions**

<b>Investor personality (Big Five Personality inventory)</b>						
Sl No	Statement	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1	I am very curious to know new things					
2	I respect the artists and value the aesthetic experience					
3	I am interested to do the work in conventional way rather than my own way					
4	I depend on other's idea to take decision					
5	I am interested to do tough job					
6	I am ready to take responsibility					
7	I often careless in my work					
8	I tend to be late in attending a meeting or function					
9	I am very adventurous in nature					
10	I am wanted to become a leader not to become a follower					
11	I enjoy loneliness than social gathering					
12	I tend to be reserved in a social setting					
13	I am ready to accept the emotions of others					
14	I am ready to forgive others' mistake					
15	I sometimes do behave others in a rude manner					
16	I am suspicious on my co workers					
17	I can keep my temper in a tensed situation					
18	I am confident enough to take financial decisions					
19	I often feel unhappy					
20	I worry a lot on my work both in career and/ or personal life					

**SOCIALLY RESPONSIBLE INVESTMENT (SRI) IN RELATION TO PERSONALITY TRAITS**

**Kuttallur Narayanan Rathi<sup>A</sup>, Duraisamy Geetha<sup>B</sup>**



ARTICLE INFO	ABSTRACT
<p><b>Article history:</b></p> <p><b>Received</b> 20 February 2023</p> <p><b>Accepted</b> 18 May 2023</p>	<p><b>Purpose:</b> The aim of this study is to examine the impact of intellectual capital (human capital, structural capital, and employed capital) on the financial performance of listed insurance companies in the Amman Stock Exchange</p>
<p><b>Keywords:</b></p> <p>Socially Responsible Investment; Personality Traits; Government Employees.</p>	<p><b>Theoretical framework:</b> Intellectual capital has become increasingly important in generating value for companies, and many researchers have linked it to corporate financial performance and strategic competitive advantage.</p>
	<p><b>Design/methodology/approach:</b> The study population consist of 21 insurance companies listed on the Amman Stock Exchange in Jordan during the period of 2011-2020. Intellectual capital was measured using the value added intellectual coefficient model (Pulic, 2000), and its impact on financial performance was analyzed using published financial statements of the insurance companies.</p>
	<p><b>Findings:</b> The results of the study found a statistically significant positive effect of human and employed capital on financial performance as measured by the rate of return on assets and return on equity. Furthermore, the study revealed a significant positive effect of intellectual capital, specifically human capital, on financial performance measured by market value (Tobin's Q).</p>
	<p><b>Research, Practical &amp; Social implications:</b> The study suggests that insurance companies should treat intellectual capital as a strategic resource and monitor and invest in it periodically for continuous development. The study suggests building a positive organizational culture that supports intellectual capital is recommended</p>
	<p><b>Originality/value:</b> This study contributes to the understanding of the relationship between intellectual capital and financial performance for the first time in the insurance industry in Amman Stock Exchange. The findings highlight the importance of managing and investing in intellectual capital as a strategic resource to enhance financial performance.</p>
	<p>Doi: <a href="https://doi.org/10.26668/businessreview/2023.v8i5.1183">https://doi.org/10.26668/businessreview/2023.v8i5.1183</a></p>

**INVESTIMENTO SOCIALMENTE RESPONSÁVEL (SRI) EM RELAÇÃO A TRAÇOS DE PERSONALIDADE**

**RESUMO**

**Objetivo:** O objetivo deste estudo é examinar o impacto do capital intelectual (capital humano, capital estrutural e capital empregado) sobre o desempenho financeiro das companhias de seguros listadas na Bolsa de Valores de Amã.

**Estrutura teórica:** O capital intelectual tem se tornado cada vez mais importante na geração de valor para as empresas, e muitos pesquisadores o associam ao desempenho financeiro corporativo e à vantagem competitiva estratégica.

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**Projeto/metodologia/abordagem:** A população do estudo consiste em 21 companhias de seguros listadas na Bolsa de Valores de Amã, na Jordânia, durante o período de 2011 a 2020. O capital intelectual foi medido com o uso do modelo de coeficiente intelectual de valor agregado (Pulic, 2000), e seu impacto sobre o desempenho financeiro foi analisado com o uso de demonstrações financeiras publicadas das seguradoras.

**Conclusões:** Os resultados do estudo revelaram um efeito positivo estatisticamente significativo do capital humano e do capital empregado sobre o desempenho financeiro, medido pela taxa de retorno sobre os ativos e pelo retorno sobre o patrimônio líquido. Além disso, o estudo revelou um efeito positivo significativo do capital intelectual, especificamente do capital humano, sobre o desempenho financeiro medido pelo valor de mercado (Q de Tobin).

**Implicações sociais, práticas e de pesquisa:** O estudo sugere que as seguradoras devem tratar o capital intelectual como um recurso estratégico e monitorá-lo e investir nele periodicamente para o desenvolvimento contínuo. O estudo sugere que é recomendável criar uma cultura organizacional positiva que apoie o capital intelectual

**Originalidade/valor:** Este estudo contribui para a compreensão da relação entre o capital intelectual e o desempenho financeiro pela primeira vez no setor de seguros da Bolsa de Valores de Amã. Os resultados destacam a importância de gerenciar e investir no capital intelectual como um recurso estratégico para melhorar o desempenho financeiro.

**Palavras-chave:** Investimento Socialmente Responsável, Traços de Personalidade, Funcionários Públicos.

## LA INVERSIÓN SOCIALMENTE RESPONSABLE (ISR) EN RELACIÓN CON LOS RASGOS DE PERSONALIDAD

### RESUMEN

**Objetivo:** El objetivo de este estudio es examinar el impacto del capital intelectual (capital humano, capital estructural y capital de los empleados) en los resultados financieros de las compañías de seguros que cotizan en la Bolsa de Ammán.

**Marco teórico:** El capital intelectual ha adquirido una importancia creciente en la generación de valor para las empresas, y muchos investigadores lo asocian a los resultados financieros de las empresas y a la ventaja competitiva estratégica.

**Diseño/metodología/enfoque:** La población del estudio está formada por 21 compañías de seguros que cotizan en la Bolsa de Ammán (Jordania) durante el periodo comprendido entre 2011 y 2020. El capital intelectual se midió utilizando el modelo de coeficiente intelectual de valor añadido (Pulic, 2000), y su impacto en el rendimiento financiero se analizó utilizando los estados financieros publicados de las compañías de seguros.

**Conclusiones:** Los resultados del estudio revelaron un efecto positivo estadísticamente significativo del capital humano y del capital empleado sobre el rendimiento financiero, medido por la tasa de rendimiento de los activos y el rendimiento de los fondos propios. Además, el estudio reveló un efecto positivo significativo del capital intelectual, concretamente del capital humano, sobre el rendimiento financiero medido por el valor de mercado (Q de Tobin).

**Implicaciones sociales, prácticas y de investigación:** El estudio sugiere que las aseguradoras deberían tratar el capital intelectual como un recurso estratégico y supervisarlos e invertir en él periódicamente para su desarrollo continuo. El estudio sugiere que es aconsejable crear una cultura organizativa positiva que apoye el capital intelectual.

**Originalidad/valor:** Este estudio contribuye a la comprensión de la relación entre el capital intelectual y los resultados financieros por primera vez en el sector asegurador de la Bolsa de Ammán. Los resultados ponen de relieve la importancia de gestionar e invertir en capital intelectual como recurso estratégico para mejorar el rendimiento financiero.

**Palabras clave:** Inversión Socialmente Responsable, Rasgos de Personalidad, Empleados Públicos.

### INTRODUCTION

The investment is focused on the return from the current setback of the fund and not based on the social or environmental commitment before one decade. Developing countries like India have now faced the exploitation of natural resources for financial benefit. The investors'

decision on SRI avenues is the need of the hour for overcoming the situation. The investment process that properly considers the Social and environmental impact of investments in the financial analysis is termed Socially Responsible Investment (SRI). "Socially Responsible Investing" is the incorporation of an investor's social or ethical criteria in the investment decision-making process (Amy Domini and Peter D Kinder, 1994). When conducting SRIs, the investor avoids investing in businesses that are not socially responsible; on the one hand, the investor's specific interests or firmly choose to invest in companies that operate socially responsible. Most socially responsible investors want to avoid investing in companies that put people at risk of unhealthy, companies that harm the Environment, and companies with a bad reputation regarding human rights or employment policies and practices. SRI is also called green investment because of the widely used criteria for environmental screening. Given the nature of the company's activities, the investment is considered socially responsible. The term SRI is not much established or known to the rural people of Kerala, but the idea behind the concept may be familiar to them. SRI is the integration of Environmental and Social orientation into the investment decision. This concept further developed the concept of Environmental, Social and Governance (ESG) investment. SRI investors should make their decisions regarding investment not only with financial performance but also with business performance. It is a way of evaluating a company's strengths, its results based on its use of ESG standards, and its potential for future growth.

Personality can be described on three levels: characteristics, traits and life stories. Psychologists study individual differences through different ages. Some trait theories explain a different number of traits and dimensions of personality, like the sixteen-factor theory of Raymond Cattell and the five-factor theory of Robert McCrae and Paul Costa. Lewis Goldberg named the five-factor theory as Big Five personality. The Big five personality traits are Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism (OCEAN).

Openness is the response to the environmental and social background and changes; otherwise, it is the response to experience and its link with intellectual activity. It is the ability to think out of the box and creative and artistic value and interest in learning new things. Conscientiousness is the ability to control impulses, lead a disciplined life and fulfil goals within the limitations. The person with this trait will be thoughtful and careful and have a deep sense of duty and orderliness. Extroversion is a person's intensity or level of interaction with society and the Environment and a tendency to seek stimulation and company; make good relationships with society. This trait is the basis of an individual's sociability, assertiveness, and

emotional expression. Agreeableness is the tendency to keep the relationship and interactions with others. It is the willingness to accept others and cooperate with fellow mates. Neuroticism is the opposite of a stable personality and describes emotional stability and the ability to experience negativity. It is the tendency to experience and expect unpleasant emotions. In the current study, investigators try to check the relationship between attitude towards SRI and the personality of government employees and study their biases in financial decisions related to these variables.

This focus is on the investors' thoughts on environmental and social orientation and their perception of investment in the avenues using sustainability measures. The covid-19 pandemic may give the human community to think about social and environmental commitment and help to think about action for sustainability. This paper presents the investors' perception of SRI in relation to the current thoughts on the Covid pandemic situation. The study was conducted in the central part of Kerala state. The study concentrates on the perception of Govt. employees' on SRI and the avenues which provide positive and negative impacts on the Environment and society. The study also concentrates on the relationship between personality traits and attitudes towards SRI. The study may help screen positive and negative investment avenues and investors' preferences on these avenues.

Objectives of the study are:

1. To know the Govt. employees' awareness and attitude towards SRI
2. To study the differences in attitude on SRI according to demographic factors
3. To study the preferences of Govt. employees on investment avenues according to SRI
4. To study if there is any significant relationship between personality traits on the attitude towards SRI of select Government employees in Kerala

## **LITERATURE REVIEW**

Al-Mahdi, M. M. A., & Faisal, M. Z. (2023) is tried to identify the most important challenges for the local investment commissions and to develop solutions and proposals to encourage local and foreign investment in local governments in Iraq. that research involved a mixed-methods approach through two stages: during the first stage, the researcher gathered quantitative data and the second stage used quantitative data. The study found a number of legal and administrative challenges.



Alzghoul, A., Al\_kasasbeh, O., Alsheikh, G., & Yamin, I. (2023) examined the relationship between savings and investment in the Jordanian economy during the period 1980-2020. The study used the data collected from the Department of statistics Jordan. The analysis used Unit root method, and bond cointegration test. The study found that saving and spending have had a long-term relationship and a significant proportion of domestic saving remains in the Jordan economy to fund domestic investment.

Hellstorm, J., Lapanam, N., and Olsson, R. (2020) researched SRI among parents and adult children and evidenced the positive correlation between the investment behaviour of parents and their children in the SRI mutual fund. It found the influence of parents' behaviour on children's behaviour and the strong influence of mothers' socially responsible behaviour on children.

George, Gert, Blomme, Kraanen, and Ppadopoluos (2018) studied pension beneficiaries' behaviour on the SRI portfolio in 2018. The purpose of this study is to examine the intent of retirees to adopt an investment portfolio that is efficient and socially responsible. They use regression and determination analysis to understand retirees' attitudes, social goals, client performance, and intent to make these choices.

Rizvi and Fatima (2014) studied the relationship between the personalities of investors with stock market investment, type, objective, factors influencing the investments, and so on, and they found that there is a relationship, and they helped their clients to develop portfolios according to their personality.

Berry, T.C., & Junkus, J. C. (2013) studied the investor perspective on SRI using the data on individual investors' equity mutual fund portfolios from 2003 to 2007. This study examines a unique group of about five thousand investors, including investors who use SRI and non-SRI criteria in their investment decisions and SR investment criteria. It covers a large circle. They found that investors want to see the SSR as a whole rather than using a subordinate format that supports more SRI funding.

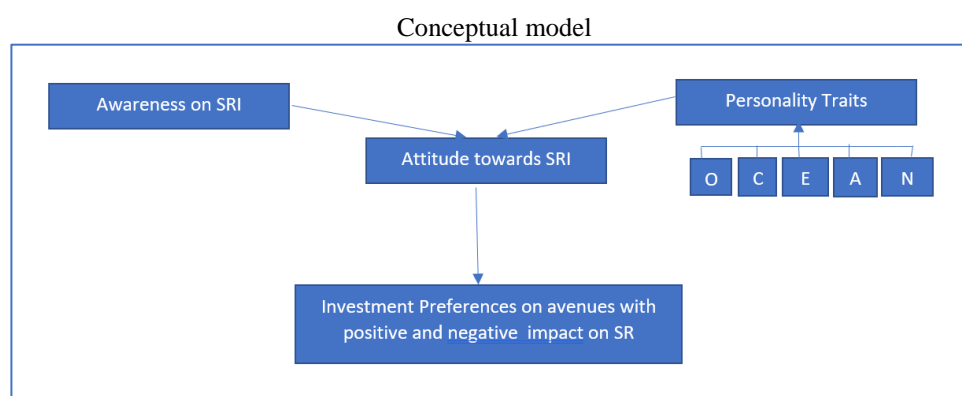
Pandian, V. A., & Thangadurai, G. (2013) studied the investor preference towards various investment avenues in Dehradun district. They found that all the investors invest their surplus money in the select avenues based on their risk-taking attitude. However, they concluded that the investors prefer bank deposits and gold investments to other avenues.

Mayfield, Perdue, and Wooten (2008) examined several psychological antecedents to both short-term and long-term investment intentions with big five personality traits, and they

concluded that extroverts are interested in short financing and neurotic people are interested in avoiding the activity.

Showndhariya and Kavitha (2018) studied the influence of personality type on the investment decision of individual investors. They found that the personality type of the individual investors has no influence on the preference of the traditional investment avenues but has an influence on modern investment avenues

Research gap found for the relationship study of personality and attitude on SRI among investors. The research was focused on the population of government employees in Kerala.



Source: Prepared by the authors (2022).

The hypotheses of the study are:

H<sub>01</sub>: The difference in the attitude of Male and Female Govt. employees towards SRI is not significant

H<sub>02</sub>: The difference in the attitude of Govt. employees with different age groups towards SRI is not significant

H<sub>03</sub>: The relationship between awareness and attitude of Govt. employees towards SRI is not significant

H<sub>04</sub>: There is no relationship between the personality traits and attitude towards SRI

H<sub>05</sub>: The attitude on SRI has no discriminant ability on the preferences of investment in the business dealing with negative practices with respect to Social responsibility.

H<sub>06</sub>: The attitude on SRI has no discriminant ability on the preferences of investment in the business dealing with positive practices with respect to Social responsibility.

## MATERIAL AND METHODOLOGY

The descriptive survey method was used to collect data from Govt. employees of Kerala. The sample for the study was selected from the Govt. employees of Kozhikkode, Palakkad and

Kottayam districts which represent the North, Central and South region of Kerala state and the sample size from districts are proportionate to the population. The total sample selected is hundred and forty, thirty-five and twenty-five from each district, respectively. The data were collected by using a questionnaire. The questionnaire has three parts; personality inventory, SRI awareness test, and SRI attitude scale.

The tools used for analysis were t-test, ANOVA, Regression, Multiple regression and Discriminant analysis.

## RESULTS AND DISCUSSIONS

Although Corporate social responsibility is mandatory as per the Company's Act 2013, Indian corporates are not much involved in ESG practices. In 2019 and 2020, there is an upward trend among investors depending on the volume of investment.

The list of companies which are included in the performance rank list are:

Table 1 Performance rank list

1	Infosys Ltd.
2	Mahindra & Mahindra Ltd.
3	Tata Chemicals Ltd.
4	ITC Ltd.
5	Vedanta Ltd.
6	Wipro Ltd.
7	Hindustan Unilever Ltd.
8	Godrej consumer products Ltd.
9	Grasim industries Ltd.
10	Bharat Petroleum Corporation Ltd.

Source: Futurescape

## ESG Funds in India

ESG funds are integrated investment portfolios which include equities and bonds for Environmental, Social and Governance factors. ESG funds include the equities or bonds of the entities with positive practices for the Environment, society and investors. These funds are the ESG integrated portfolios. In India, the ESG Funds are

Table 2 ESG Funds

1	Aditya Birla Sun Life ESG Fund
2	Axis ESG Fund
3	ICICI Prudential ESG Fund
4	Kotak ESG Opportunities Fund
5	Mirae Asset ESG Sector Leaders ETF
6	Quantum India ESG Equity Fund
7	Quant ESG Equity Fund
8	SBI Magnum Equity ESG Fund

Source: www.morningstar.in



Table 3 Descriptive analysis of Socially responsible funds

<b>Thought about responsibility towards society * Investment in Socially Responsible Funds Cross tabulation</b>				
		<b>Investment in Socially Responsible Funds</b>		<b>Total</b>
		<b>No</b>	<b>Yes</b>	
<b>Thought about responsibility towards society</b>	<b>o</b>	5	0	5
	<b>es</b>	36	59	95
<b>Total</b>		41	59	100

Source: Prepared by the authors (2022).

Table 3 shows that 95% of the respondents think about social responsibility, but only 59% invest in socially responsible avenues.

Table 4 Descriptive analysis of Environment-friendly funds

<b>Thought about your responsibility towards Environment * Investment in Environment-Friendly Stocks based Mutual Fund Cross tabulation</b>					
			<b>Investment in Environment-Friendly Stocks based Mutual Fund</b>		<b>Total</b>
			<b>No</b>	<b>Yes</b>	
<b>Thought about responsibility towards the Environment</b>	<b>o</b>		4	2	6
	<b>es</b>		84	10	94
<b>Total</b>			88	12	100

Source: Prepared by the authors (2022).

Table 4 shows that 94% of the respondents think about the responsibility toward Environment, but only 12% of them invest in mutual funds based on Environment-friendly stocks.

Table 5 Descriptive statistics of Personality traits

<b>Variables</b>	<b>M</b>	<b>S.D.</b>
Openness	3.88	0.708
Conscientiousness	3.25	0.632
Extroversion	2.80	0.711
Agreeableness	3.18	0.655
Neuroticism	3.16	0.746

Source: Prepared by the authors (2022).

All the personality traits are above average mean values, and as the weighted score is five, the trait extroversion has less, and openness has a high mean value.

Table 6 Testing the difference between male and female  
 Gender-wise analysis of Attitude towards SRI (testing of differences)

<b>Group-wise analysis</b>						
	<b>Category</b>	<b>No.</b>	<b>M</b>	<b>S.D.</b>	<b>t value</b>	<b>Significant level</b>
<b>Attitude towards SRI</b>	Male	41	3.520	0.7299	-0.743	0.461
	Female	59	3.6341	0.6009		

Source: Prepared by the authors (2022).

Table 6 shows no difference in attitudes towards SRI between men and women. The hypothesis  $H_{01}$  is therefore accepted. That is to say, the difference in the attitude of Male and Female Govt. employees towards SRI is not significant.

Table 7 Testing the difference between different age groups

<b>Age-wise analysis (ANOVA)</b>					
<b>Attitude towards SRI</b>					
	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>F value</b>	<b>Sig. (2 Tailed)</b>
<b>Below 25</b>	12	3.58	0.29344	0.334	0.855
<b>25-35</b>	51	3.58	0.67404		
<b>35-45</b>	20	3.68	0.73895		
<b>45-55</b>	12	3.44	0.50413		
<b>55-65</b>	5	3.41	0.74618		
<b>Total</b>	100	3.57	0.63254		

Source: Prepared by the authors (2022).

Table 7 shows no significant difference in attitudes towards SRI between different age groups. Thus, hypothesis  $H_{02}$  is accepted. So, to speak, the difference in the attitude of Govt. employees with different income levels towards SRI is insignificant.

Table 8 Testing the relationship between Awareness and Attitude  
 Relationship between Awareness and Attitude towards SRI

<b>Correlations</b>		
		<b>Awareness on SRI</b>
<b>Attitude towards SRI</b>	Pearson correlation	0.493
	Sig	0.000
	N	100

Source: Prepared by the authors (2022).

Table 8 shows that the Correlation coefficient is significant at 0.00 level, and so the hypothesis  $H_{03}$ , the relationship between awareness and attitude of Govt. employees towards SRI is not significant, is rejected.

Table 9 Attitude on SRI in relation to Personality traits - Regression coefficients

Variable	B	Beta	SE.
(Constant)	3.706		0.434
Openness	0.31	0.191	0.017
Conscientiousness	0.034	-	0.019
Extroversion	0.094	0.062	0.019
Agreeableness	0.124	-	0.018
Neuroticism	0.006	-	0.019
R <sup>2</sup>	0.064		
AR <sup>2</sup>	0.014		
F value	1.285*		

(\* - p < 0.05) Source: Prepared by the authors (2022).

Table 9 reveals that the personality factors account for 6.4% of the variance in attitude towards SRI. Among the personality variables, Openness and Extroversion have a positive influence and Agreeableness, Conscientiousness, and Neuroticism have a negative effect on attitude towards SRI. The result of the regression model has been tested using ANOVA. The value of the F – ratio is equal to 1.285 (p < 0.05), which shows that the model is a good fit. It also indicates that adjusted R<sup>2</sup> is equal to 0.014.

Table 10 Preference in negative practice business in relation to attitude on SRI – Discriminant Analysis  
 Wilk's lambda = (1- canonical correlation<sup>2</sup>) 1-.560<sup>2</sup> = 0.686

Function	Eigenvalue	Canonical Correlation	Wilks' Lambda	Chi-square	Degree of freedom	Significant level
1	.457	.560	.686	36.138	4	.000

Source: Prepared by the authors (2022).

Table 11 Preference in negative practice business in relation to attitude on SRI – Group statistics

Preferences in investing the business dealing with this negative practice:				Unweighted	Weighted
Preferred	Attitude towards SRI			2	2.000
Often Preferred	Attitude towards SRI			5	5.000
Sometime Preferred	Attitude towards SRI			19	19.000
No Preferred	Attitude towards SRI			35	35.000
Never Preferred	Attitude towards SRI			39	39.000
Total				100	100.000

Source: Prepared by the authors (2022).



The null hypothesis is that the canonical correlations associated with the functions equal zero.

This chi-square statistic verifies that the canonical correlation of the given function is zero. In other words, the null hypothesis is that the function has no capacity to discriminate. This hypothesis is tested using this chi-square statistic.

The table shows that the chi-square test is significant at the 0.00 level. Hypothesis H<sub>05</sub> is rejected. ie. The attitude on SRI has no discriminant ability on the preferences of investment in the business dealing with negative practices with respect to Social responsibility.

Table 12 Preference in positive practice business in relation to attitude on SRI – Discriminant Analysis

Function	Eigenvalue	Canonical Correlation	Wilks' Lambda	Chi-square	Degree of freedom	Significant level
1	.136	.346	.880	12.305	3	.006

Source: Prepared by the authors (2022).

Table 13 Discriminant Analysis

Group Statistics				
Preferences in investing in the business dealing with or supporting the positive practice:				
		Unweighted	Weighted	
No Preferred	Attitude towards SRI	10	10.000	
Sometime Preferred	Attitude towards SRI	6	6.000	
Often Preferred	Attitude towards SRI	25	25.000	
Preferred	Attitude towards SRI	59	59.000	
Total		100	100.000	

Source: Prepared by the authors (2022).

Table 12 shows that the chi-square test is significant at 0.05 level. Hypothesis H<sub>06</sub> is accepted. ie. The attitude on SRI has no discriminant ability on the preferences of investment in the business dealing with positive practices concerning Social responsibility.

## CONCLUSION

Almost all the respondents have positive thoughts on social responsibility but only half of them invest in SRI avenues. Almost all the respondents have positive thoughts on social responsibility but only a few of them investing in mutual funds based on Environment-friendly stocks. Age and gender are not the factors that affect the attitude of Govt. employees towards the SRI. There is a significant correlation between Awareness on SRI and Attitude toward SRI. Persons with different personality traits are different in their attitude towards SRI. The attitude on SRI has no discriminant ability on the preferences of investment in the business dealing with

positive practices concerning Social responsibility. However, at the same time, it has a discriminant ability on the preferences of investment in business dealing with negative practices concerning social responsibility. The gender-wise analysis of preferences of investment avenues with positive and negative practices found that the first one has differ between male and female Govt. employees, and the latter have no difference.

The study has a limitation that the sample size is hundred and the population is only the government employees. Further research can be suggested on different category of investors and the actual investment in SRI avenues.

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**Vol. 97, No. 03 (I) March 2023**

**ISSN : 0972-0766**



**JOURNAL  
OF THE  
ASIATIC SOCIETY OF MUMBAI**  
(A UGC - CARE Listed Journal)

**Editors**

**Dr. Parineeta Deshpande  
Dr. Ambarish Khare**

**Published by  
Asiatic Society of Mumbai  
Town Hall, Mumbai - 400 001.  
Maharashtra State (INDIA)**

**2023**



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## PROMOTING SUSTAINABLE TOURISM IN KERALA THROUGH SOCIAL MEDIA: A REVIEW

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### Abstract

The State of Kerala, India is the main source of attraction to many tourists worldwide, making tourism the largest sector of the State's economy. However, global challenges have become increasingly visible and Kerala is facing extreme challenges economically. With the advancement of the technology, social media marketing is regarded as a worthwhile strategic positioning tool. This review article aims to discuss global tourism industry, the practice of sustainable tourism in the Kerala, followed by social media marketing in the context of sustainable tourism promotion in Kerala. The study provides an exceptional scope for marketing practitioners of tourism industry and provides insights on building a successful social media marketing strategy that may lead to improve the green image and tourist's intention to revisit.

**Keywords:** Sustainability, Tourism, Social Media.

### Introduction

Tourism is undoubtedly one of the major industries in the world considering its immense contribution to job creation and economic development (Niñerola, Sánchez-Rebull, & Hernández-Lara, 2019). Tourism has become a key driver for socio-economic progress (World Tourism Organization, 2018). Kerala is recognised for its greenery, backwaters, hill stations and soft sandy beaches which made it one of the world's famous tourist destinations.

Over the past decade, global warming and localised human-made activities have caused an adverse effect on the environment. Hence, they are at high risk and easily affected by climate change, global warming, and the accompanying issues such as rising of sea level. The effects of climate change are putting the world's most visited destinations at risk. While the tourism industry will never be fully sustainable, there are steps that need to be taken to protect the planet in the context of tourism. Therefore, it is imperative for Kerala to focus on sustainability and environment friendliness.

Over the past decade, with the development of information and communication technology (ICT), the growing role of social media in tourism promotion especially sustainable tourism is undeniable. With this development, it has completely changed the relationship of tourist's behavioural intention towards the destination. It has proven that leveraging off social media to market the sustainable tourist destination is an excellent strategy especially when the destination is promoted with green. In this light, in order to understand the sustainable tourism industry, this review article focuses on the following: global tourism industry, tourism in Kerala and the practice of sustainable tourism in Kerala. Following to this, the literature incorporates social media marketing in the context of tourism promotion will also be discussed.





### Global Tourism Industry

Global tourism evolved from being an exclusive activity for the elites to become public tourism in the twentieth century (Triarchi & Karamanis, 2017). In comparison, 1970 recorded an estimated 165.8 million international tourists, up from 69.3 million that were recorded in 1960 (Scott & Gössling, 2015). According to the World Tourism Organization(2021), the industry experienced sustained growth, as international arrivals increased by 7 percent in 2017 and by 6 percent in 2018. In 2019, all the regions experienced an increase in tourist arrivals with the Middle East increasing by 8 percent whilst both Asia and the Pacific and Europe increased by 4 percent.

However, due to the advent of the Covid-19 pandemic, the tourism industry was hit the hardest as year 2020 saw international arrivals dropping by 74 percent(World Tourism Organization, 2021). In addition, an estimated 1.3 trillion United States Dollars (USD)in export revenues was lost during this period and between 100 and 120 million direct tourism jobs were put at risk. In particular, Asia-Pacific region saw an 84 percent decrease in international arrivals, the Middle East and Africa experienced a 75 percent, the Americas 69 percent and Europe 70 percent(World Tourism Organization, 2021). The year of 2021 maintains the same trajectory as most sectors remain shut since most countries and regions across the globe are still battling the Covid-19 pandemic in check.

### Tourism in the Kerala Context

Kerala, a state situated on the tropical Malabar Coast of southwestern India, is one of the most popular tourist destinations in the country. Kerala is named as one of the ten paradises of the world by National Geographic Traveler. Kerala is famous especially for its ecotourism initiatives and beautiful backwaters. Its unique culture and traditions, coupled with its varied demography have made Kerala one of the most popular tourist destinations in the world. The tourism industry is a major contributor to the State's economy.

Until the early 1980<sup>s</sup>, Kerala was a relatively unknown destination, with most tourism circuits concentrated around the north of the country. Aggressive marketing campaigns launched by the Kerala Tourism Development Corporation (KTDC) - the Government agency that oversees tourism prospects of the statelaid the foundation for the growth of the tourism industry. In the decades that followed, Kerala Tourism was able to transform itself into one of the niche holiday destinations in India. The tag line Kerala - God's Own Country was adopted in its tourism promotions and became a global superbrand. Kerala is regarded as one of the destinations with the highest brand recall.

Kerala is a popular destination for both domestic as well as foreign tourists. Kerala is well known for its beaches, backwaters in Alappuzha and Kollam, mountain ranges and wildlife sanctuaries. Other popular attractions in the State include the beaches at Kovalam, Muzhappilangad, Bekal and Kappad; backwater tourism and lake resorts around Ashtamudi Lake, Kollam; hill stations and resorts at Munnar, Wayanad, Nelliampathi, Vagamon and Ponmudi; and national parks and wildlife sanctuaries at Wayanad, Periyar, Parambikulam, Silent Valley National Park and Eravikulam National Park. The "backwaters" region an extensive network of interlocking rivers, lakes, and canals that centre on Vembanad Lake, also see heavy tourist traffic. Heritage sites, such as the Padmanabhapuram Palace, Hill Palace, and Mattancherry Palace, are also visited. To further promote tourism in Kerala, the Grand Kerala Shopping Festival was





started by the Government of Kerala in 2007. Since then it has been held every year during the December-January period.

The state's tourism agenda promotes ecologically sustained tourism, which focuses on the local culture, wilderness adventures, volunteering and personal growth of the local population. Efforts are taken to minimise the adverse effects of traditional tourism on the natural environment and enhance the cultural integrity of local people. The state has also made deep inroads into Meetings, incentives, conferences and exhibitions(MICE) tourism mainly centered at Kochi.

### **Tourism and the Kerala's Economy During the Covid-19 Pandemic**

The Covid-19 pandemic has shattered Kerala's tourism industry. The tourism sector alone employs about 15 lakh people and contributes 11.5 percent of the state's Gross Domestic Product (GDP). From the hill stations of Munnar and Wayanad to the backwaters of Alappuzha, tourism in Kerala has taken a severe hit due to the pandemic. The total earnings of the sector, which in 2019, stood at Rs 45,010 crore is now only Rs 11,000 in 2020 earned during the months of January to March, before the pandemic struck the world and mid-November onward, when the restrictions eased after first wave of Covid-19 (Financial Express, 2021, August 9).

As per the state officials reveals that both domestic and international arrivals have fallen short this time of the year. According to State Tourism data, domestic arrivals fell by 72.86 percent in 2020 from the year before that (2019), and international arrivals have also reduced significantly by 71.36 percent. The first three months of this year, before fears of the third wave loomed over, the state recorded a 40.53 percent decline in domestic and 95.65 percent decline in international arrivals compared to the same period last year (2020) (Financial Express, 2021, August 9).

The backwaters in Alappuzha, with around 1,000 houseboats, would employ at least three-five persons. Those employees and investors have taken other routes for income generation with some delivering fish and vegetables. In Wayanad, a large number of properties are sitting idle and are in crisis with nobody having a single penny to restart business. Several resorts and home-stays have also been closed in the state with many up for sale at half the rate of pre-Covid days. The properties that were taken on lease have now been abandoned. The fact that only bikers are now checking in at off-road resorts is the only source of income.

The State Government is working hard to revive domestic tourism. The government is identifying unexplored tourist spots in various places and will collate them on an application promoted by tourism department to bring everyone's attention. The virtual celebration will help showcase the state's arts, culture, food and travel destinations on a digital platform (Financial Express, 2021, August 9).

The tourism industry has been struggling ever since the epidemic struck the country in March 2020. The data reveals that from March 2020 till December 2020, the tourism sector alone suffered a loss of Rs 33,000 crores. Also, foreign exchange earnings have come down significantly by Rs 7,000 crores (Financial Express, 2021, August 9).





### **The Practice of Sustainable Tourism**

Sustainable tourism is defined as the responsible type of tourism which generates the administration of natural resources economic and social needs while following the fundamental procedures such as environmental, biological, cultural, and supportive networks (World Tourism Organization, 2017). The term sustainability is still being broadly examined and gradually tourism industry is adopting the sustainable factor with the arising concerns for the environment. The 21<sup>st</sup> century has made clear on some of the severe environmental issues, hence, most businesses including tourism sector had to make environment a priority.

As the issues related to sustainable development were gathering momentum, they became interwoven with tourism issues that potentially cause environmental and cultural harm such as anthropogenic overload of tourist facilities, pollution of ecosystems, and the destruction of national identity and culture. Thus, there was a call in the tourism industry to move towards tourism practices that are not destructive to the natural and social environment. However, today, the tourism sector accounts for about 5 percent of global carbon dioxide (CO<sub>2</sub>) emissions, including 40 percent for air transport and 20 percent for accommodation facilities. Tourism industry is responsible for 4.6 percent of radiation pressure, which causes climate changes (Stukalo, Krasnikova, Krupskiy, & Redko, 2018). The challenges posed by tourism on the environment do not seem to be ending soon; therefore, there is a need to understand sustainable tourism in a more holistic perspective.

While the concept of sustainable tourism has been embraced by many scholars and policymakers as an noble cause, there are concerns when it comes to implementation. A concern raised by Aydin and Alvarez (2020), observes sustainable tourism programmes on supply side (of demand and supply) and neglect the viewpoints of the tourists - "obtaining the support of the tourists is essential for the success of sustainability initiatives". However, a noteworthy issue related to sustainable tourism that emerged from the literature is that no one-size-fits-all solutions to measure its. Following that reason, it is of crucial to devote a sub-section on sustainable tourism specifically related to the Kerala to reveal the unique characteristics it possesses.

### **The Kerala Case - On Sustainable Tourism**

As a coastal state, Kerala is especially vulnerable to climate change impacts. These impacts include: (a) changes in rainfall trends; (b) increases in surface temperatures causing changes to ecosystems; (c) increases in the intensity of extreme weather events; (d) changes in precipitation, which can exacerbate the effects of sea-level rise; (Government of Kerala, 2018).

The observations made above demonstrate the magnitude of the sustainability problem in Kerala. This necessitates serious action against climate change at global level. This means that no matter how much they can do to make their tourism sustainable, they still require other countries to play their part so that they are not put in jeopardy. The literature on the Kerala's sustainable tourism seems to under-emphasise the importance of understanding the tourists' demand. As for the issue of social media in relation to sustainability, there seems to be a gap that can be explored because it is not dealt much in detail in the existing literature.





### **Social Media Marketing**

The social media serves as a platform where individuals come together and share mutual thoughts, comments, and opinions with no definite restrictions on the time or location. Kietzman, Hermkens, McCarthy and Silvestre (2011) opined that the social platforms can be identified through, personal interests, friendship, or professional connection. Social media has transformed the marketing strategies and continues to popularise among the businesses. The latest global social media statistics shows that 4.20 billion people are active social media users. This figure takes up 53.6% of the global population (Chaffey, 2021). It is also noted that each user spends approximately 2 hours daily and owns 5.5 social media accounts each. Under the most used platforms of social media today are Facebook (2,740 million users), YouTube (2,291 million users), Instagram (1,221 million users), Twitter (353), TikTok (689 million users), and many more (Perrin & Anderson, 2019). The scale of new technologies over the past years has transformed the way in managing the social media marketing. Li, Larimo and Leonidou (2020) opined that social media marketing is noted as the most worthwhile strategic positioning tool which companies utilise in their marketing strategy to expand their horizons in reaching to a vast audience. The role of social media should not be underestimated as social media platforms are utilised by a multitude of users, especially in an era that has advanced technology. Moreover, with the Covid-19 pandemic, the world was highly depending on the online sources and social media, which reflected the importance of the online web. The central role played by the online platforms, highlights the dominance factor.

### **The Role of Social Media in Sustainable Tourism Promotion**

With the advent of social media, the tourism industry entered the e-Marketing sphere where tourism promoters are utilizing the attributes and functions of online mediums to get closer to the audience. The role of social media marketing in the tourism industry has contributed tourists to make travel decisions over the past years (Stylos, 2020) and continues to create significant values in their travel experiences (Buhalis, 2019; Zhang, 2020). As highlighted by DeMers (2014), social media contributes to a wider range of courses including content postings, grasping demand for products and services through specific marketing tactics, and to spread awareness to stakeholders about sustainability practices and initiatives by the company. Moreover, with revolution of social media marketing, it has become a vital tool for tourism industry to succeed in their visions and achieve their objectives. Part of this justifies the unique and persuasive power social media in attracting tourists to the destinations and further bringing the holistic change into the scope of sustainable tourism.

The rapid adoption of social media in sustainable destination promotion often creates virtual communities that are built on shared experiences, and therefore, it is important to maintain the trust among these communities for building new social interactions (Gulati, 2021). According to Luck and Gianti (2013), social media has been studied as an effective interactive channel that contributes to the promotion of sustainable consumption practices. As Hardeman, Font and Nawijn (2017), urged that information shared on social media tend to be more persuasive than the traditional way of marketing, thus, having a favorable impact on tourist's behavioural intentions into choosing sustainable activities. A sustainable tourist can be specified to those who plan to travel for business or leisure, but also have responsible concerns for the society and its environment (Gulati, 2021). As stated, earlier, with the growing awareness of environmentalism, more consumers are choosing products and services that have minimum effect on the environment. In the context of tourism, social media is used most





prominently to make certain decisions, social sharing, information exchange, publicity or promotion and trip planning (Gössling & Stavrinidi, 2016). Hence, social media has been widely acknowledged in gaining public support for sustainability initiatives as it plays a vital role in spreading awareness and information at a quick pace. With the driving force of social media, it opens opportunities for extensive sustainable destination promotion and engaging tourists toward the sustainable choices.

### **The Kerala Case - Social Media in Sustainable Tourism Promotion**

The introduction of new features and influence of social media attributes has connected social, economic, and environmental spheres of the tourism sector as it offers various alternative frameworks that facilitate effective communication. While the concept of social media marketing has been used by many marketing experts at an innovative level, there are yet many features and dimensions not discovered and utilized in the implementation process. Although, social media networks are taking up the popularity in the tourism sector, it varies with different demographics of audience (Chaffey, 2021). Ecological advancement, equity, futurity, and holism are some of the concept ideas behind the sustainable factor (Gulati, 2021). Hence, it is important to explore the degree of social media marketing practices implemented in Kerala. As discussed earlier, sustainability can be a competitive advantage in the marketing segment. However, most of the literature has focused on physical factors rather than looking from a marketing perspective for promoting sustainable tourism. Moreover, exploratory case studies have been done in relation to sustainable tourism and environment identifying the existing causes concerning the natural environment (Eiseman, 2018; Sae-Tang & Yamchuti, 2020). However, these studies do not highlight the promotion of green image nor the importance of social media marketing. Promoting green image from the marketing perspective has limited attention in previous studies as the main focus in rising environmental issues are mostly through exploitation of resources and environmental related activities. However, the previous literature has suggested finding ways to preserve the green image and maintain the sustainable factor especially the countries that rely on tourism (Eiseman, 2018).

Setting a new benchmark on social media platforms, the number of followers on the official Facebook page of Kerala Tourism has now increased to over two million followers, making it unique among the portals of any such tourism departments in the country. One of the first tourism departments in India to have an online presence, the Facebook page, packed with fascinating information, presents to the followers some of the most engaging visual treats of Kerala's landscape.

Innovative tourism products and experiences of Kerala such as 'Responsible Tourism' and 'Village Life Experiences' form a part of the daily updates of the page. This achievement has brought recognition for Kerala Tourism not just from other parts of India but also from countries like the United Arab Emirates (UAE), Saudi Arabia, United States of America (USA), Australia and the United Kingdom (UK). Driven by brand new content and fascinating visuals, the interactive Facebook page of Kerala Tourism has hit a new high, emerging as the most followed tourism page in South Asia, overtaking Tourism Malaysia, Singapore and Thailand by a fair margin. The number of 'likes' on Kerala Tourism's Facebook page has tripled in the past two years, touching 3,481,239, thus eclipsing the popular social media platform of Tourism Malaysia that has 3.3 million, Visit Singapore 3.2 million and Amazing Thailand 2.6 million likes. Internationally, now only three countries Australia with 8.3 million, Go USA with 6.7 million and Visit Dubai with 6.7 likes are ahead of Kerala (Deccan Chronicle, 2019, September 25).





When compared with the portals of other tourism departments in the country, Kerala retains its number one position by a huge margin. It is followed by Gujarat (1,336,836 likes), Madhya Pradesh (1,198,165), Rajasthan (588,453), Uttarakhand (494,992) and Odisha (238,143). "It gives me immense pleasure and a feeling of pride to note that Kerala Tourism's social media page has now become the second most followed in the whole of Asia after 'Visit Dubai'". It has been achieved by a sustained social media and digital media campaign, especially 'Human by Nature' video film, which focused on the people of Kerala and garnered 15 million views. The 'Kerala Tales Video Campaign', a series of 50 plus videos based on authentic stories from the state, garnered over 60 million views online. One of the contributory factors to the impressive growth on social media platform is a sound content strategy based on engagement data analysis. It has helped Kerala to fine-tune the content for better reach and create specific content for audiences with specific interests (Deccan Chronicle, 2019, September 25).

Besides generating appealing content, efforts were made for posting vernacular updates in seven Indian languages to cater to the domestic audience, she said. "Social media has helped Kerala transcend geographies and connect with all segments of the population. The aim is to become the best Facebook page in the world. It has helped Kerala to fine-tune the content for better reach and create specific content for audiences with specific interests. Kerala Tourism had overtaken Jammu & Kashmir and Gujarat Tourism's Facebook page and secured first spot in the ranking based on total engagement with tourists that included reactions, shares, and comments on the page. It was in August 2014 that it had crossed the one million mark. Kerala Tourism also has an active presence on Twitter (1.8 million) and Instagram (225K) (Deccan Chronicle, 2019, September 25).

### Conclusion

As a conclusion, tourism is one of the sectors that falls under the danger zone with its substantial risks related to environmental issues. Hence, sustainable tourism has been an integral part of the development of the Maldives. However, main bodies promoting sustainable tourism are challenged by the limitations in knowledge for social media marketing tactics, which affects the green image of the industry and tourist's arrival rate. Emerging online media communications and social media attributes offer extensive possibilities for bringing up the green image and managing tourist relations in a way that can influence tourist's to repeat their intentions on visiting the resorts that practice sustainable tourism. Moreover, with this contribution to the greater course, the country can benefit both environmentally as well as economically.

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Journal of the Asiatic Society of Mumbai  
ISSN : 0972-0766

UGC Care Group 1 Journal

9284419876

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**INVESTIGATION OF THE CHANGES ON REACTION TIME AND ANAEROBIC  
POWER OF FOOTBALL PLAYERS DUE TO LOW AND HIGH FREQUENCY  
AEROBIC INTERVAL TRAINING**

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**Abstract**

The purpose of the study is to find out the investigation of the changes on reaction time and anaerobic power of football players due to low and high frequency aerobic interval training. To achieve the purpose of the study forty five male football players were selected from Altius International Football Academy, Palakkad, Kerala, India, were selected as subjects. The subjects were selected in the age group of 15 to 18 years. Forty five subjects were selected at random and subjects were divided into three equal groups designed two experimental group and the other control group. Thus each group consisted of 15 subjects. Experimental group-I was given the packages of low frequency aerobic interval training (3days/week), experimental group-II was given the packages of high frequency aerobic interval training (6days/week) and group III was acted as control. Each subject was oriented in the procedure to the administration of the test. Prior to and after the exercises period the subjects were tested for, reaction time and anaerobic power measured by reaction time ruler test and running-based anaerobic sprint test. The statistical tool were used for the present study is ANACOVA. Further to determine which of the paired means has significant improvement, Scheffe's test was applied as Post-Hoc Test. The result of the study was a significant increase on reaction time and anaerobic power after twelve weeks of low and high frequency aerobic interval training. However the increase was favour of experimental group. There was a significant difference was occurred between experimental and control groups after twelve weeks of low frequency aerobic interval training.

**Keywords:-** *Aerobic interval training, Reaction time, Anaerobic power and Football*

## **INTRODUCTION**

Aerobic interval training is good training plan for improving aerobic fitness, without side effects on strength, power and sprint performance. In enhancing aerobic fitness and football-specific endurance using aerobic interval training, both exercises (specific or generic) is equally effective. Effective training strategy for developing aerobic fitness in football players can be considered with high intensity aerobic interval training (Ferrari et al., 2008). A large number of studies have evaluated the physical demands of a football game and the effects of fitness training on football players.

Aerobic training causes the heart and lungs to work harder. Effective weight loss is possible with moderate intensity aerobic workout rather than short-term and high intensity activities such as sprints. An aerobic workout trains one's lungs to process more air with less effort and one's heart to pump more blood with fewer beats.

Football is a demanding sport. Not only the football player must have tremendous cardiovascular endurance to run up and down the court time after time for four quarters of play, but he will also need to be able to execute explosive bursts of speed, explosive jumps, and explosive movements for agility, time after time. Such an ability to perform explosively regardless of extreme cardiovascular fatigue is called "strength-endurance". Explosive power, one of the most important components of performance related factors, helps the player to move fast, jump high, and beat out the man in front of him. Football is no longer just a game of shooting baskets and dribbling the ball around opponents.

Reaction time is the interval time between the presentation of a stimulus and the muscular response initiation to that stimulus. Reaction time, in physical fitness, is the time needed to respond consciously to an external stimulus. An important thing to note here is that reaction time must not be confused with reflexes. Reflexes are involuntary.

Anaerobic Power is work capacity created when our muscles use aerobic energy system in exercises at maximal and supramaximal levels is referred to anaerobic capacity. Anaerobic power is defined as a value of this work per unit time (kgm/sec, kgm/min, watt).

## **STATEMENT OF THE PROBLEM**

The purpose of the present investigation was to examine the changes on reaction time and anaerobic power in response to different frequencies of aerobic interval training among football players.



### **METHODOLOGY**

The purpose of the study is to find out the investigation of the changes on reaction time and anaerobic power of football players due to low and high frequency aerobic interval training. To achieve the purpose of the study forty five male football players were selected from Altius International Football Academy, Palakkad, Kerala, India, were selected as subjects. The subjects were selected in the age group of 15 to 18 years. Forty five subjects were selected at random and subjects were divided into three equal groups designed two experimental group and the other control group. Thus each group consisted of 15 subjects. Experimental group-I was given the packages of low frequency aerobic interval training (3days/week), experimental group-II was given the packages of high frequency aerobic interval training (6days/week) and group III was acted as control. Each subject was oriented in the procedure to the administration of the test. Prior to and after the exercises period the subjects were tested for, reaction time and anaerobic power measured by reaction time ruler test and running-based anaerobic sprint test. The statistical tool were used for the present study is ANACOVA. Further to determine which of the paired means has significant improvement, Scheffe's test was applied as Post-Hoc Test. The result of the study was a significant increase on reaction time and anaerobic power after twelve weeks of low and high frequency aerobic interval training. However the increase was favour of experimental group. There was a significant difference was occurred between experimental and control groups after twelve weeks of low frequency aerobic interval training.

### **ANALYSIS AND INTERPRETATION OF DATA**

The data collected prior to and after the experimental periods on reaction time and anaerobic power on low and high frequency aerobic interval training and control group were analyzed and presented in the following table -I.

*Table-I*

*Analysis of covariance for reaction time and anaerobic power on low and high frequency aerobic interval training and control group*

<b>Variable Name</b>	<b>Group Name</b>	<b>Control group</b>	<b>Low frequency group</b>	<b>High frequency group</b>	<b>F ratio</b>
<b>Reaction time</b>	<b>Pre-test Mean ± S.D</b>	0.32 ± 0.05	0.31 ± 0.04	0.30 ± 0.04	0.656
	<b>Post-test Mean ± S.D.</b>	0.31 ± 0.04	0.28 ± 0.04	0.24 ± 0.03	8.543*
	<b>Adj. Post-test Mean ± S.D.</b>	0.31	0.28	0.25	15.628*
<b>Anaerobic power</b>	<b>Pre-test Mean ± S.D</b>	224.00 ± 5.55	223.60 ± 5.56	223.13 ± 4.58	0.436
	<b>Post-test Mean ± S.D.</b>	224.20 ± 4.90	232.73 ± 5.77	244.26 ± 8.48	11.65*
	<b>Adj. Post-test Mean ± S.D.</b>	224.02	232.72	244.45	40.018*

\* Significant at 0.05 level of confidence (The table value required for significance at .05 level of confidence with *df* 1 and 43 and 1 and 42 were 3.21 and 3.22 respectively)

Table - I showed that the results of the study there was a significant difference found between low and high frequency aerobic interval training and control group on reaction time and anaerobic power. Further the results of the study showed that there was a significant improvement on reaction time and anaerobic power due to twelve weeks of programme. However the improvement was in favour of experimental groups. The results of the study also shown that high frequency aerobic interval training was better than low frequency aerobic interval training and control group on reaction time and anaerobic power. Further to determine which of the paired means has a significant improvement, Scheffé *S* test was applied as post-hoc test. The result of the follow-up test is presented in Table – II



*Table – II*

*Scheffé S test for the difference between the adjusted post-test mean of reaction time and anaerobic power on low and high frequency aerobic interval training and control group*

<b>Adjusted post-test mean of reaction time</b>				
<b>Low frequency group</b>	<b>High frequency group</b>	<b>Control Group</b>	<b>Mean Difference</b>	<b>Confidence interval at .05 level</b>
0.28	0.25		0.03*	0.02
0.28		0.31	0.03*	0.02
	0.25	0.31	0.06*	0.02
<b>Adjusted post-test mean of anaerobic power</b>				
232.72	244.45		11.73*	5.80
232.72		224.02	8.70*	5.80
	244.45	224.02	20.43*	5.80

\* Significant at 0.05 level of confidence.

Both low and high frequency aerobic interval training improves reaction time and anaerobic power when compare with control. High frequency aerobic interval training may have better effect to improves reaction time and anaerobic power of male football players.

### **CONCLUSIONS**

Within the limitations and delimitations of this study the following conclusions were drawn from the result.

1. It was concluded that there was significant improvement in reaction time among football players due to low and high frequency aerobic interval training. MonikaGarg et al., (2013) determined the effect of aerobic exercise on auditory reaction time (ART) and visual reaction time (VRT). They found that auditory and visual reaction times are better in aerobic exercisers as compared to non-exercisers irrespective of age and gender. Similar results regarding the positive effect of exercise on RT time have been reported previously (Levitt & Gutin, 1971; Nakamoto & Mori, 2008; Parekh et al., 2004). In one study faster RTs for both auditory and visual stimuli were reported among aerobic exercisers compared to controls (Nakamoto & Mori, 2008).

2. The result of the study reveal that low and high frequency aerobic interval training would improve football players anaerobic power significantly. MacDougall et al., (1996) found that, relatively brief period of sprint training increased aerobic and anaerobic capacities in initially untrained individuals. These results are in agreement with the previous observation by Wenzel (1992) and Nowberry & flowers (1999) in which they found significant improvement in anaerobic power following speed training. Medbo and Burgers (1990) reported that, six weeks of intense exercise of short duration improved anaerobic capacity.

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# An Investigation Into Organisational Performance and Knowledge Management in the Context of E-Knowledge

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## Abstract

Competitive businesses need to be able to locate, capture, store, exchange, and exploit not only data and information but also the firm's knowledge. A system is required to record and codify this knowledge, if employees already possess the majority of the knowledge required for decision making. This article discusses the context of how Decision Support Systems (DSS), Artificial Intelligence (AI), and Information Technology (IT) might support the process of knowledge transformation. New technologies have improved organizations' capacity to exchange knowledge, both within and with stakeholders outside the organization. To increase the effectiveness and efficiency of tactical and strategic decisions, participants in e-knowledge networks can produce, exchange, and use strategic knowledge. To facilitate information sharing between organizations, the proposed e-knowledge network will assess and implement these technologies. For the purpose of enhancing business processes, the effects of knowledge sharing across organizations on the supply chain are also taken into account.

**Keywords:** Knowledge Management, Business Performance, Data Warehousing, E-knowledge

## Introduction

Organizations have understood that having access to reliable information and expertise will keep them competitive. However, managers realized that they needed to develop a successful knowledge strategy and provide their personnel with access to the best information available to aid in decision-making because business environments change frequently.

Data warehousing projects leveraging various data mining techniques have become commonplace in many business infrastructures for aiding the decision-making process. However, because most information is retained in employees' heads, it is unclear how well they will serve users, especially for complex questions (Nemati, Steiger, Iyer, & Herschel, 2012). Therefore, new systems are needed that not only find, capture, store, distribute, and use data and information, but also knowledge.

Although the idea of knowledge management has lately gained popularity, many businesses are still unsure of what knowledge actually is. The inability to create and use information to enhance organizational performance is more significant. This is due to organizations' increasingly complicated organizational structures, which leads to knowledge that is dispersed, difficult to find, use, share, and difficult to reuse (Zack, 2010).

This article explains how knowledge and technology may help an organization capture, code, retrieve, share, and utilize various forms of knowledge. It also discusses several types of knowledge. It prompts a variety of inquiries. What is knowledge that has been formally codified, and how should it be managed? What function can technology serve? How should the resources and capabilities of an organization be set up? These inquiries are meant to give the decision-maker a sufficient analytical framework for making choices that will improve every stage of the intra-organizational knowledge management process.

### **Knowledge Management**

Although knowledge has historically been undermanaged, it is unquestionably a critical resource that aids decision-making. Knowledge was not formerly valued as highly as it is now. This, without a doubt, was caused by a lack of management structures and norms as well as a poor understanding of what knowledge is. There seems to be a common vocabulary, concepts, and terminology used in most definitions and explanations of knowledge. Instead of offering a uniform definition, the article tackles the broad themes and concepts that have emerged in recent years as follows.

1. Knowledge is shared tacitly with other tacitly shared knowledge, then it is transformed from tacit to explicit, used as leverage, and then transformed back into tacit.
2. The creation and testing of knowledge.
3. Knowledge can be separated from information and data.
4. Explicit information is often distributed throughout the organization after being filtered, saved, and retrieved.
5. No culture can expect technology to address its issues if it does not encourage and promote knowledge exchange.

Tacit knowledge is hard to explain, instinctively comprehended and used, and typically obtained via prolonged immersion in an activity. A system of language, symbols, rules, equations, and objects can be used to convey explicit knowledge to others with ease. It includes quantitative information, written instructions, mathematical models, etc. The most crucial knowledge for businesses is explicit knowledge; consider a company without any software or procedure manuals.

The transformation of knowledge can be aided by the use of Decision Support Systems (DSS), Artificial Intelligence (AI) and other tools. DSS is a type of information technology (IT) software created expressly to support decision-making at all organizational levels, including those below the executive level. DSS, such as the specification of mathematical modeling, can play a significant part in the transformation process of explicating knowledge. Particularly, the decision maker must explicitly state the objectives of these models and the decision variables. The decision-maker must also express the model restrictions directly. In the context of the decision-making environment, this specification of explicit knowledge symbolizes the tacit information the worker has accrued through time (Nemati, Steiger, Iyer, & Herschel, 2012).

By generating one or more "what-if" scenarios that illustrate topics the knowledge worker would like to study, DSS can further improve the explanation of knowledge (Nemati, Steiger, Iyer, & Herschel, 2012). In essence, the implicit knowledge of past choices is made apparent so it can be shared and used to improve decision-making. Making this knowledge accessible to others when and when they need it will enable it to be exploited once it has been transformed and saved. Nemati, Steiger, Iyer, and Herschel (2012) propose that deductive and/or inductive model analysis systems can be used to exploit explicit information held in the form of instances of a mathematical model (what-if scenarios). In order to answer queries like



“Why is this solution?” and “Why do the solutions to two model instances differ so much?” model-specific information is applied to a single instance of a model.

Workers who are learning, or converting explicit knowledge to implicit knowledge, can benefit from DSS. Internalization is the process of locating knowledge bases pertinent to a given user's requirements (Warkentin, Sugumaran, & Bapna, 2013). It entails extracting information and filtering it to compare a specific issue with the body of information. A decision maker may be able to internalize explicit and/or fresh knowledge by altering the internal mental model that serves as his or her performance manual in a given circumstance (Nemati, Steiger, Iyer, & Herschel, 2012).

If tacit knowledge can be explained but is unable to be expressed, it indicates a missed opportunity to use that knowledge to improve the decision-making process. Competitors who can complete this activity may have an advantage over them (Zack, 2010). Because the organization lacks a formal model or vocabulary for its articulation, this information can continue to be tacit. Organizational performance, however, may be negatively impacted by an organization's attempts to explain intrinsically unarticulable knowledge because it may ultimately be lost. Because it guides the decisions employees make in a particular scenario, tacit knowledge is a very significant resource. A lack of good management will result in knowledge loss and an inability to learn from others' experience.

Although explicit knowledge only makes up a small portion of an organization's intellectual assets, it is clear that it is essential to the organization's knowledge strategy. According to Zack (2010), the least understood part of knowledge management is appropriately explicating tacit information for sharing and reapplication. Organizations should not avoid this process, though, as the harmony between tacit and explicit knowledge might affect an organization's ability to compete. Therefore, organizations should concentrate on deciding which knowledge should be made explicit and which should remain implicit. Any knowledge management endeavor must have a sufficient set of principles for managing this knowledge if it is to be successful.

### **Inter-Organizational Knowledge Sharing**

The article has so far examined how knowledge can be managed to aid organizational decision-making. The researcher will now go over how improving an organization's stakeholder interactions can be accomplished by the development of new technologies. The last section of the article will discuss how modern technology, particularly web-enabled technology, can improve the use and leveraging of information for inter-organizational knowledge exchange. To make it easier for people to share data, information, and knowledge, enterprises are reorganising their internal and external ties and building virtual networks for e-knowledge.

The combination of knowledge networks and the internet effectively creates one, complete virtual repository, simulating an intra-organizational knowledge warehouse and enabling all participants to create, share, and use strategic knowledge to cooperatively improve operational and strategic efficiency and effectiveness. Instead of the providers, decision-makers, or any potential tacit knowledge they may possess, the major focus of this integrated, virtual community is on the explicit knowledge housed in the repository (Zack, 2010). An organization must be able to use this information to particular procedures and unanticipated scenarios in addition to collecting, storing, and retrieving it. Because it can offer considerable chances for competitive advantage, specific contextual knowledge must be effectively utilized to reflect the complete spectrum of organizational knowledge.

A community of practice is described as a loosely organized group where there is significant knowledge sharing and education. Each member of the organization has a shared agenda and area of interest, therefore in essence it functions like a loose network. When people try to get knowledge from people who have different interests and goals than themselves, the value of these networks becomes clear. Social networks and communities of practice emphasize the significance of the connection between social capital and knowledge resources.

The majority of knowledge management projects try to record data about certain user profiles and inquiries. The greater difficulty lies in capturing and reusing knowledge created during knowledge work. Although DSS can manage this knowledge in a variety of ways that are efficient, much of the knowledge produced by this process typically tends to remain private. Because of the following: (1) A dearth of context for describing individual learning. (2) The time and effort necessary to evaluate and document what has been learned. (3) It could not be culturally appropriate to express some forms of information, and it might not be politically or socially acceptable to challenge what the organization already knows. (4) Making confidential information available to the public might lead to a power imbalance that some company cultures may find difficult to accept.

Communities of practice are viewed as a way to get through these obstacles to sharing information. Inter-organizational systems are networks of business systems that enable organizations to communicate electronically and share information across organizational boundaries (Warkentin, Sugumaran, & Bapna, 2013). The Internet serves as the common platform for these systems. The idea that "information equals power, so share it and it multiplies" is one that organisations are now embracing (Verna, 2014). Their goals are to improve an organization's engagement with its stakeholders and increase efficiency and speed of reaction in dynamically changing markets (Walsham, 2011).

Knowledge management and inter-organizational systems work together to create e-knowledge networks. A platform for the ongoing, unattended sharing of knowledge and information about markets, customers, demand, inventories, and other topics has been made possible by the use of the internet. These platforms allow organizations to collaborate more effectively with their strategic partners by facilitating the exchange of important knowledge, frequently produced by technologies like decision support systems, intelligent agents, and data warehousing technologies.

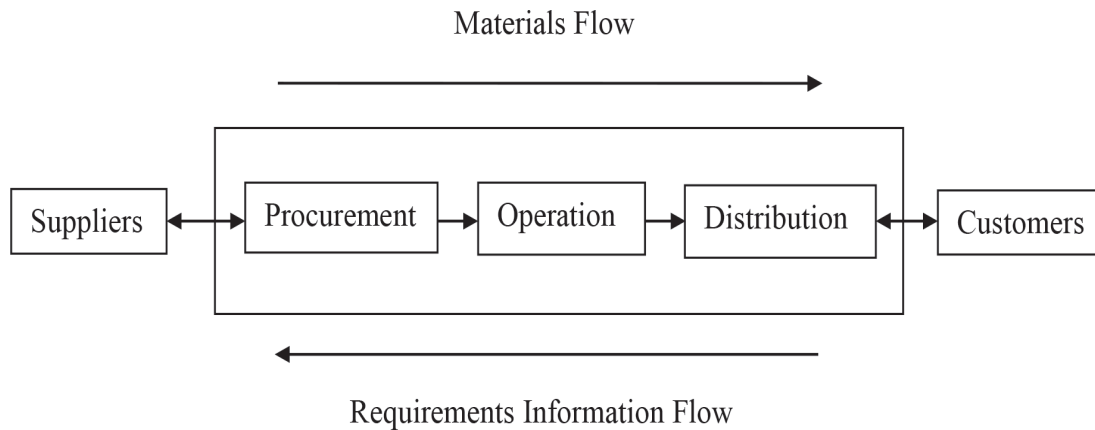
It is clear that businesses must be adaptable and ready to spot vulnerable situations. Implementing electronic systems that produce real-time knowledge about internal operations and procedures, clients, markets, supply chain participants, suppliers, and dealers can help achieve these objectives (Warkentin, Sugumaran, & Bapna, 2013). Additionally, a strategic partnership should give access to various knowledge sources rather than duplications of the same knowledge (Day, Schoemaker, & Gunther, 2014). Organizations can be dynamic and flexible thanks to such technologies, which enable quick adjustments to their strategies and activities. Utilizing this information, businesses can build new internal and external linkages and structures that foster knowledge growth and strategic advancement.

### **E-Knowledge Networks for Business Improvement**

The researcher will talk about one long-term alliance that Warkentin (Warkentin, Sugumaran, & Bapna, 2013) predicted would emerge as a trend as a result of putting strategic e-knowledge networks into practice in the setting of supply chains. In the supply chain process, businesses acquire resources and offer products or services (Johnson & Scholes, 2014). In order to better coordinate the supply chain and provide customers with value, progressive supply chain management seeks to boost each link's profitability (Warkentin, Sugumaran, & Bapna, 2013). This coordination aspect addresses the importance of shared knowledge and makes it possible to analyze and oversee all supply change initiatives. In other words, Choi, Budny, and Wank (2015) describe knowledge as technologies, inventions, and know-how that assist firms in bringing products to market and refer to the supply chain that involves knowledge as the "knowledge supply chain." The knowledge flow is comparable to the flow of technology that joins the pieces together, whereas the material flow is the physical flow of material. A typical supply chain's material flow is shown in Figure 1. It demonstrates how material goes from a supplier to a buyer, adding value to the material at each step. In contrast, a network creates value through knowledge as well as commodities, services, and money. Building a strong network of reliable connections becomes essential to success when knowledge transforms into a medium of exchange in and of itself. The Warkentin, Sugumaran, and Bapna (2013) supply chain network is expanded to stress the development of a value network for a challenging e-business environment. The effects on the value chain have received significant attention in support of



this trend toward e-networks. According to Verna (2014), the new enterprise model of the value network has rendered the conventional perspective of the value chain obsolete.

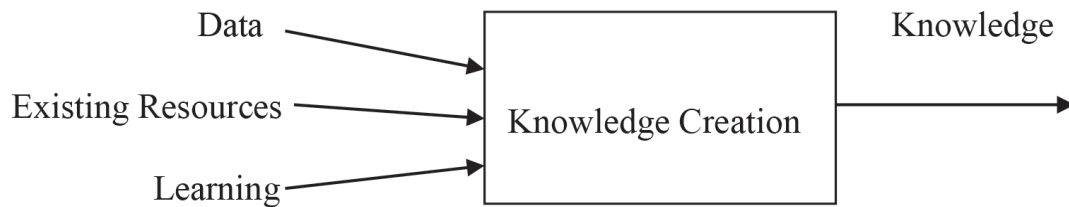


**Figure 1**  
**A Typical Supply Chain**

Prior to the development of the internet, the supply chain was traditionally viewed as having ineffective allocation and communication. There was a linear flow of information, either upstream or downstream. A second disadvantage was that firms were compelled to interact through wholesalers, distributors, and retailers, which made it difficult to connect directly with customers. Lack of formal relationships prevented information from spreading past one supply chain link. Additionally, the lack of standardized data representation schemes restricted the information flow through links, making it impossible to share information with parties outside of the local supply chain partners (Warkentin, Sugumaran, & Bapna, 2013).

The conventional wisdom regarding knowledge was to hoard it, and if firms shared this priceless information, they would lose a competitive edge (Verna, 2014). However, there is agreement among new economy organizations to promote an atmosphere where information may be shared freely. Organizations are urged to collaborate closely in order to improve the flow throughout the entire supply chain (Warkentin, Sugumaran, & Bapna, 2013). A new relationship between suppliers, partners, and customers is suggested by the idea of “e-supply chain,” along with the integration of processes, information systems, and cross-organizational problem resolution (Manthou, Vlachopoulou, & Folinas, 2015). A virtual network’s foundation is its e-supply chain, which connects each participant as a single functional entity. From the supplier to the consumer, there are several value-added phases that make up the chain. The bi-directional flow of information is the main emphasis of the e-supply chain; each stage is a provider to its neighboring downstream level and a customer to its upstream stage. Therefore, each participant is able to play a variety of roles along the supply chain, but the supplier and consumer roles are ultimately what will determine the connection.

Demand information has typically been transmitted through a number of levels, each layer lowering the quality of the information. The discrepancies in this data led to ineffective resource allocation and production scheduling, which resulted in excessive inventory across the chain (Warkentin, Sugumaran, & Bapna, 2013). The e-supply chain idea put forth by Manthou, Vlachopoulou, and Folinas (2015), in contrast, replaces inventory with information and expertise, competing on agility and speed and perceiving customer participation as a strategic, competitive advantage. The production of knowledge in an organization is depicted in Figure 2. Here, it is suggested that a normal organization is closed loop, meaning that it can only gain knowledge from outside sources. However, it must be highlighted that the primary goal should be properly managing and retrieving the current information, which may be in the form of data and expert knowledge.



**Figure 2**  
**Knowledge Creation**

Knowledge creation would guarantee by assisting the organization in detecting skill or knowledge gaps between what an organization has overall and what it would need to tackle future challenges. It would also be simple to determine which areas a firm ought to concentrate on or outsource its tasks to. The dynamic and ever-changing nature of the world we live in makes it important to underline that simply leveraging information within a company may not be sufficient. Therefore, this should be supported by creating a learning atmosphere by encouraging and rewarding people. The ability of a company to properly combine the skills it possesses is the key to success. New strategic partnerships are created in the e-marketplace as a result of the new flows of strategic supply chain knowledge that ensue. The “knowledge created by analytical processes carried out by automated data mining algorithms” may be represented by these flows (Warkentin, Sugumaran, & Bapna, 2013). E-knowledge networks are important because they allow for new interorganizational information and knowledge flow, which significantly improves supply chain management. An organization must employ these newly established flows of information and knowledge strategically, though, if they are to benefit as much as possible from them.

## Conclusion

The goal of this article is to raise awareness of crucial technological concerns that affect the organization’s ability to capture, organize, and distribute knowledge. It illustrates the requirement to store not just various kinds of knowledge, but various types of knowledge. It should be kept in mind, nevertheless, that an organization might be forced to focus on information storage rather than knowledge transfer if technology is overemphasized. If businesses can integrate knowledge across shared and distinct settings, they will have access to new insights and opportunities. Virtual communities that are networked by technology that were only available a few years ago have been made possible thanks to the internet. The tendency of the e-knowledge network appears set to continue as Internet communication between organizations becomes the norm. While technology can significantly improve an organization’s knowledge management strategy, it does not guarantee that an organization is managing its skills and resources in the best possible way. However, technology is essential to the collection, indexing, archiving, and sharing of knowledge inside and among organizations. If an organization is to perform better, it is imperative that all of the many contexts in which knowledge can be seen are handled.

The ability of firms to connect their business strategy to their knowledge requirements will determine the success of their knowledge initiatives. Allocating resources and skills for explaining and utilizing knowledge depends on this articulation. To identify areas of weakness, the competitive value of knowledge must be considered. To ensure the firm maintains its competitiveness, strategic measures should be made to close these knowledge gaps. It is important to address the strategic importance of knowledge, emphasizing its distinctiveness. The social factors that influence knowledge projects, such as cultural, political, and reward systems, should also be addressed by an organization. The atmosphere should foster collaboration, creativity, and learning for individuals participating in knowledge-based activities in addition to the management roles suggested in the article. Knowledge is no longer just a passing trend; it has taken centre stage in how a company thinks strategically.



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ISSN 2349 - 5588

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(UGC CARE listed Journal)

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## INVESTMENT PATTERN OF GOVERNMENT EMPLOYEES IN KERALA

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### Abstract

*The present study has selected the investment pattern of Government employees, a unique group of individuals who has respectful behaviour in society. The investment pattern included the objectives, perceived factors, Risk associated and the avenues selected by the employees. The employees' Personality was also taken for the study, and the relationship between the investment pattern and Personality has established using statistical inference. The demographic factors are partially affecting the investment pattern.*

**Keywords: Investment pattern, Government employees, Personality**

### INTRODUCTION

Investment is one of the most fruitful ways to make financial requirements for the future, where most of the circumstances are uncertain and volatile. With well-planned investment, one can get the fulfilment of security and surety in life. All investments have some risk, whether in stock, capital market, banking, real estate, bullion and Mutual fund. The degree of risk, however, varies on the basis of the features of the assets, securities, the mode of investment, time frame or the issuer of the security. Investment benefits individuals, the economy and society. In Kerala, the most secured working group are government employees, as per the perception of the general public. The demographic factors of the state also support the perception. The investment pattern of the Govt. employees was studied with the help of their Personality. In this study, the investment pattern included the objectives of investment, perceived factors affecting investment, risk perception, and selection of investment. The study enables the reader to know the investment pattern and Personality of the salaried class. This study will be a reference point for other researchers in the same field.

### OBJECTIVES OF THE STUDY

- To analyse the investment pattern of select Government employees
- To understand the Personality and intelligence of select Government employees
- To know the differences in investment patterns among different groups of employees

- To study the significance of the relationship between the personality and investment pattern

#### HYPOTHESES

1. H<sub>0</sub>: There is no significant difference in objectives and factors affecting investment among different age groups, income levels and geographical area
2. H<sub>0</sub>: There is no significant difference in objectives and factors affecting investment among the Male and Female employees.
3. H<sub>0</sub>: There is no significant relationship between the investment pattern and the Personality of employees

#### REVIEW OF LITERATURE

Venkateshraj, V. and Nagaraj, H. (2015) studied the investment pattern of employed women and found that women prefer low-risk products about which they are aware and are simple to understand. This makes provident funds and life insurance their natural choice and gained popularity among investors. They concluded that employed women do not make investment decisions alone but prefer to seek the help of parents, friends and relatives or their spouses.

Bindu, P. K. (2017) studied the investment pattern of college teachers in Kerala and found that the ultimate objective of the investor is to derive a variety of investments that meet his preference for Risk and expected return. The investor will select the portfolio which will maximise his utility. The temperament and psychology of the investor is another important consideration in making an investment decision by the investors.

Charly, C., and Lincy, P. T. (2019) analysed the relationship between the awareness level in various investments and the investment pattern of the high-income group in Kerala. The high-income group people are not interested in investing in financial assets, and they are more interested in traditional investment avenues. They found that lack of awareness of return and Risk involved in financial assets are the primary cause behind this attitude. The awareness of the investment avenues is directly related to their investment pattern.

#### RESEARCH METHODOLOGY

The study used a descriptive research method, and the survey was conducted among the three hundred and eighty-four government employees of Kerala. The samples are selected equally from Kottayam, Palakkad, and Kozhikode districts, representing the South, Central, and North zones. A questionnaire was prepared to understand investment patterns and Personality. The dimensions used for the questionnaire are the objectives of investment, factors considered while selecting the avenue, and perception of Risk. On the basis of data collected from respondents, analysis was made using the tools like t-test, ANOVA and correlation analysis.



## RESULTS AND DISCUSSION

The analysis of the study is discussed here with the help of charts and statistical tables. The objectives of investment are identified.

Table 1.

### *Descriptive analysis*

<b>Variable</b>	<b>Mean</b>	<b>Std. Deviation</b>
Personality of respondents	12.60	1.934
<b>Objectives</b>		
Primary Objectives	3.95	0.580
Other Objectives	3.82	0.794
<b>Factors in investment</b>		
Primary factors	3.86	0.579
Other factors	3.54	0.793
<b>Selected Assets/ securities</b>		
Rank 1 Mostly selected	0.64	0.354
Rank 2 More selected	0.40	0.269
Rank 3 Often selected	0.34	0.345
Rank 4 Selected	0.26	0.321
Rank 5 Less selected	0.25	0.266
Rank 6 Least Selected	0.24	0.325
<b>The risk associated with Assets/ securities</b>		
Low Risk perceived	2.00	0.645
Medium Risk perceived	2.71	0.808
High Risk perceived	3.50	0.808

Table 1 shows the mean and standard deviation of the variables in the study. The Personality shows the mean of 12.6, where the maximum value is 20. Primary objectives, other objectives are 3.95 and 3.82 mean value while the maximum is 5. The selected assets scored a maximum of 1; the most selected showed a mean of 0.64, and the least selected had a mean of 0.24. Risk is a maximum of five, and high Risk perceived showed a high score of 3.5 while the low Risk scored a low value of 2.00.

Table 2

*Demographic analysis*

Variable	Geographical area	Age	Income
Df (2,382)	F	F	F
Primary factors	2.307	1.00	3.689
Other factors	0.216	2.285	2.176
Primary Objectives	0.800	1.244*	3.158*
Other Objectives	2.688	3.432	2.925*

\*p<0.05

Table 2 shows the significance of demographic variables related to investment patterns. Investment factors and objectives are not different according to the geographical area. The F value of Income and Age is significant for Primary objectives, and income is also significant in other objectives. Both the investment factors do not significantly differ according to age and income.

Table 3

*Gender-wise analysis*

Variable	Male		Female		t (382)	p
	M	SD	M	SD		
Primary factors	3.825	0.601	3.894	0.553	-1.167*	0.024
Other factors	3.422	0.763	3.661	0.806	-2.984*	0.003
Primary Objectives	3.921	0.606	3.972	0.550	-0.863	0.389
Other Objectives	3.771	0.780	3.866	0.808	-1.179	0.239

\*p<0.05

Table 3 shows the analysis of the significance of gender in investment-related variables. Both categories of factors affecting investment significantly differ between males and females, whereas both the objectives do not significantly differ according to gender.

Figure 1.

*Sources of Information and Factors affecting an investment decision*



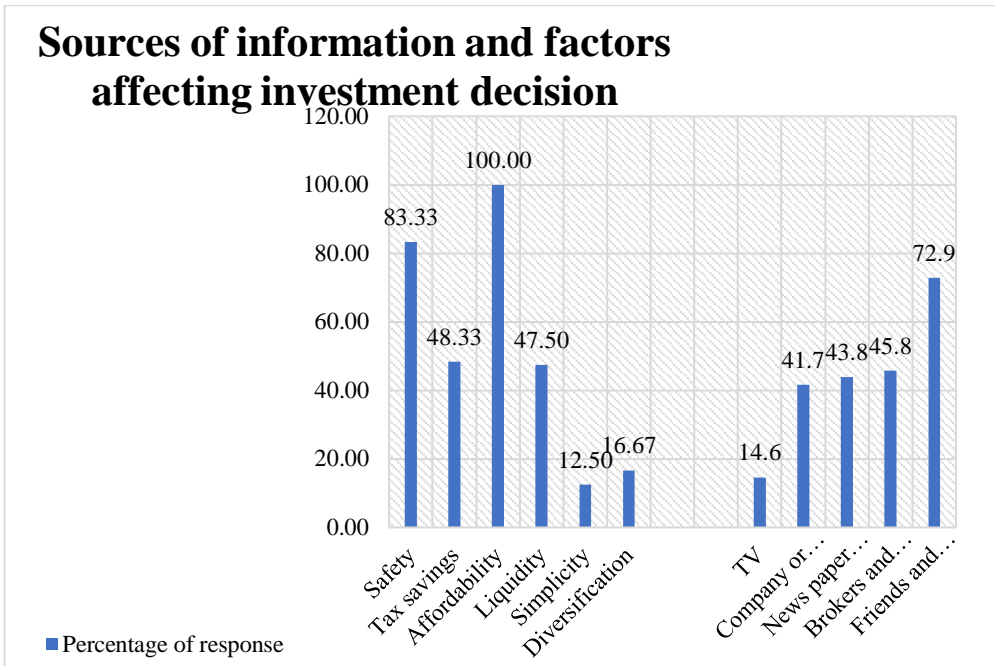


Figure 1 shows the sources of information for the investment. 72.9% of respondents get information from friends and family, and 45.8% get it from brokers and financial experts. 43.8% gets from newspapers and magazines, 41.7% from company/ websites and only 14.6% learn from TV programmes. The factors considering investment decisions as per the perception of government employees are shown in the chart. All the respondents believe that affordability is the primary factor considering the investment. Next, safety is treated as an essential factor to a majority of them.

Figure 2.

*Selection of Investment avenues*

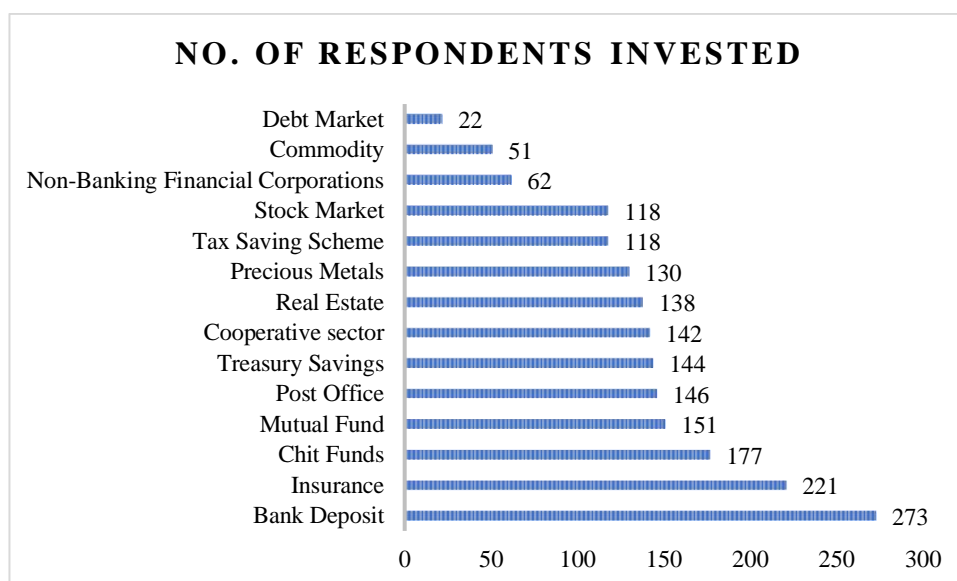


Figure 2 shows the numbers of respondents invested in the different assets and securities. Bank deposit is selected by most of them, and commodity is the least selected asset.

Table 4

*Correlation analysis*

**Correlation with Personality of respondents**

Variable	R-value
<b>Objectives</b>	
Primary Objectives	0.081*
Other Objectives	0.055
<b>Factors perceived</b>	
Primary Factors	.118*
Other Factors	0.067
<b>The risk associated with Assets/ securities</b>	
High Risk Perceived	0.101*
Medium Risk Perceived	0.069
Low Risk Perceived	-0.030
<b>Selected Assets/ securities</b>	
Rank 1 Mostly selected	-0.100
Rank 2 More selected	-0.050
Rank 3 Often selected	-0.050
Rank 4 Selected	0.096
Rank 5 Less selected	0.044
Rank 6 Least Selected	-0.031

\*p<0.05

Table 4 shows the correlation coefficient between the investment-related variables and the respondent's personality. Primary factors affecting investment, primary investment objectives, and high-risk perception showed a significant relationship with Personality. All the other variables are not significantly related to Personality. Hence, H<sub>0</sub>: There is no significant relationship between the investment pattern and the Personality of employees



## CONCLUSION

Government employees depend on friends and relatives than financial experts or magazines. The study concludes that the investment patterns of government employees are related to their personality. The categories under demographic factors like gender, income and age are significantly different factors and objectives. Geographic categories are not differing significantly in factors and objectives of investment.

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## MULTIPLE INTELLIGENCE AND PERSONALITY TRAITS OF COLLEGE TEACHERS ON THEIR BIASES IN FINANCIAL DECISIONS

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### Abstract

The study concentrated on the relationship between intelligence, personality and biases in financial decisions. Among the Intelligence theories, multiple intelligence, which consists of nine types of intelligences, has been taken for study. From different Personality theories, big five personality theories have taken. The descriptive research design was used for analysis with samples from college teachers in Kerala. Multiple intelligence inventory, personality inventory and biases scales were used for data collection. Canonical correlation technique used to study relationship as intelligence has nine and personality has five dimensions. The study results indicate only Extroversion and Verbal intelligence only varies according to gender, and Openness only differs among different age groups. Biases are studied using multiple regression and simple linear regression techniques. Personality traits and intelligence have a significant influence on biases in financial decisions. The study concluded that cognitive and behavioural factors are affected in biases in the financial decisions.

**Keywords:** Multiple intelligences, Personality traits, Biases in Financial decision, College Teachers, Kerala.

Intelligence and personality are two inner characteristics or original magnitudes that describe most of the variances that occur between people in behaviour, development and life outcomes. Intelligence is considered to be at the pinnacle of a more specific range of skills, all of which are interconnected. Personality can be described on three different levels, including: characteristics, traits and life stories. Psychologists study individual differences through different ages. Most researchers consider intelligence and personality in different domains, the cognitive and behavioural domains. Several studies are conducted that enhance the association or relationship between them. There are some psychological studies combining intelligence and personality and majority are reported the association between these variables like Von Strum S. (2017). In the current study, investigators try to check the relationship between intelligence and personality of college teachers and study their biases in financial decisions in related to these variables.

Intelligence is the capacity of an individual to do purposeful actions and logical thinking. There are several ideas related to Intelligence. In the present study, multiple Intelligence has been taken for analysis. Howard Gardner forwarded multiple Intelligence in his book Frames of Mind (1983). This theory gained universal acceptance and several discussions are reviewed related to the theory. Gardner himself studied the theory and updated it several



times. He included nine types of Intelligence in an individual's cognitive system: linguistic, logical, musical, spatial, kinaesthetic, intrapersonal, interpersonal, naturalistic and existential Intelligence. Thus, Intelligence and domains are getting confused with each other. But Gardener differentiates these like the domain of music can involve any number of Intelligence and include musical Intelligence and linguistic, naturalistic, etc. Thus, he asserts that Intelligence is a bio-psychological construct while the domain is sociological. He had developed tests for each Intelligence and demonstrated their psychometric independence.

### **Verbal Intelligence**

Verbal Intelligence is the cognitive ability to learn languages, interpret words and signs, and use words that lead towards specific goals. A person with verbal Intelligence can understand and use complex phrases or learn more than one language. They have highly developed auditory skills and marvel at the use of language. The professions they prefer are creative writing, public speaking and journalism.

### **Logical Intelligence**

Logical Intelligence can analyse information or problems logically and investigate issues scientifically. The person who possesses logical Intelligence thinks conceptually in analytical and numerical patterns making a connection between the bits of data, and are curious about the universe. They are interested in experiments and posing questions, and the preferred profession are scientists, statisticians, mathematicians or detectives.

### **Musical Intelligence**

Musical Intelligence is the ability to identify different sounds distinguish between specific pitches, tones and rhythms. The person who possesses musical Intelligence is highly sensitive to environmental sounds and immediately respond to the sounds they hear. They are often sensitive listeners and can reflect or reproduce music quite accurately. This is related to other Intelligence like verbal, mathematical and kinaesthetic Intelligence. They are successful in the professions like musicians, composers, vocalists, drummers etc.

### **Spatial Intelligence**

Spatial or Visual Intelligence is the capacity to visualise, recognise and manipulate patterns of vast space. This ability includes manipulating images, graphic skills and spatial reasoning. The visually intelligent person tends to think in pictures and need to develop visions for processing and retaining information. This Intelligence is essential to sculptors, surgeons, engineers and navigators.

### **Kinaesthetic Intelligence**

Kinaesthetic or bodily Intelligence is the ability to manipulate both body and object with a keen sense of timing. This is the ability to control own body movements and handle things skilfully by eye-hand coordination. The people with kinaesthetic Intelligence may see success as dancers, magicians, athletes, sportspeople and builders.

### **Intra-personal Intelligence**

Intra-personal Intelligence is the capacity to be aware of their own emotions, needs, interests, confidence, feelings, motivation, attitude and personality. Intrapersonal intelligent persons tend to daydream, enjoy self-reflection and analysis, and assess themselves. They can understand the basis of their feelings, motivation and attitude. They may be philosophers, scientists, behavioural theorists, and writers.

### **Interpersonal Intelligence**

Interpersonal Intelligence is the ability to communicate effectively with others verbally and non-verbally and accurately understand others' emotions and mental states. Persons who possess this type of Intelligence try to see things from others' points of view to know how they think and feel. They may be good managers, organisers, teachers, counsellors, and great leaders. This Intelligence may depend on verbal and visual Intelligence.

### **Naturalistic Intelligence**

Naturalistic Intelligence is the ability to sensitise with the environment and distinguish and identify the living and non-living things with the specification. It involves expertise in the recognition and classification of species in the background. Individuals with this type of Intelligence are highly aware of even subtle changes in the environment. They may be interested in natural science and dislike studying topic which has no connection with the environment. The profession they prefer may be botanist, farmer, or meteorologist.

### **Existential Intelligence**

Existential Intelligence is the ability to think about the meaning of life and human beings' existence and survival during unfavourable situations. The persons with this Intelligence are more futuristic and are sensitive but can take rational decisions in difficult situations.

Howard Gardner and his followers treated all these Intelligence as separate entities and related to the behaviour, attitude, personality, career preferences and success in different professions. This theory stresses the individualisation of Intelligence. Several studies on multiple Intelligence in the social sciences and education field were conducted. The studies related to multiple Intelligence have proven that multiple intelligences affect an individual's creativity, education and development.

### **Personality Traits**

The personality is the sum of all the factors relating to an individual. It includes an individual's physical, psychological, and emotional adjustment to their environment. Personality traits are the stable features that describe an individual's behaviour. Psychologists have identified several traits and dimensions that differentiate individuals. There are trait theories that explain a different number of traits and dimensions of personality, like the sixteen-factor theory of Raymond Cattell and the five-factor theory of Robert McCrae and Paul Costa. Lewis Goldberg named the five-factor theory as Big Five personality. The personality traits are:



### **Openness**

Openness is the response to the environmental and social background and changes. Otherwise, it is the response to experience and its link with intellectual activity. It is the ability to think out of the box and creative and artistic value and interest in learning new things. It tends to enjoy a unique experience and its influence on novel ideas, imagination and divergent thinking. High Openness indicates the person is curious and has a wide range of interests, and low Openness indicates one's preference in routine work and conventional style. Sub dimensions identified under this trait are Curiosity, Aesthetic, Ideas and Action.

### **Conscientiousness**

Conscientiousness is the ability to control impulses, lead a disciplined life and fulfil goals within the limitations. The person who has this trait will be thoughtful and careful and have a deep sense of duty and orderliness. High conscientiousness indicates a hardworking and organised personality, while low conscientiousness indicates a careless and disorganised character. Sub dimensions identified under this trait are Competence, Deliberation, Order and Self-discipline.

### **Extroversion**

Extroversion is a person's intensity or level of interaction with society and environment and a tendency to seek stimulation and company; make good relationships with society. It is the foundation of social, honest and emotional expression. High extraversion indicates external, warm, and disturbing, while low extraversion indicates quiet, reserved, and withdrawn. Sub dimensions identified under this trait are Excitement seeking, Assertiveness, Gregariousness and Warmth.

### **Agreeableness**

Agreeableness is the tendency to keep the relationship and interaction with others. It is the willingness to accept others and cooperate with fellow mates. High agreeableness indicates an empathetic and trusty personality, and low agreeableness shows a critical suspicious personality. Sub dimensions identified under this trait are Modesty, Altruism, Straightforwardness and Trust.

### **Neuroticism**

Neuroticism is the opposite of a stable personality and describes emotional stability and the ability to experience negativity. It is the tendency to experience and expect unpleasant emotions. High Neuroticism indicates an anxious and unpleasant personality, while low Neuroticism indicates a calm and even-tempered personality. Sub dimensions identified under this trait are Vulnerability, Self-consciousness, Depression and Anxiety.

### **Bias in financial decisions**

Financial decision making is an essential factor in the economic well-being of an individual. Financial decision-making is the key to success in the individual's financial success, and here the irrational decision-making factors are treated as bias. Biases in financial decisions may

arise from the lack of financial knowledge, prejudices, personal values and beliefs, and misconception or influence of friends and relatives. Here the investigators try to study the relationship of bias with Intelligence and personality.

### **Review**

Lounsbury, J.W., Sundstrom, E., Loveland, J. M. and Gibson L.W. (2003) have conducted a study on Intelligence, big five personality traits and work drive on the course grade. They performed hierarchical multiple regression analysis and found that general intelligence influence significantly in course grade. The big five personality traits and work drive are also significant in course grades. The study discussed the importance of specific features of personality in understanding the details of pedagogical training and the need for further research using different perspectives and basic comparisons.

Motah, M. (2008). Studied the Influence of Intelligence and Personality on the Use of Soft Skills in Research Projects among Final Year University Students. The researcher examined the influence of the big five model of personality, emotional Intelligence and multiple Intelligence on the use of soft skills among final year university students. This study provided information on how young students use interpersonal skills in their work and how multiple intelligence and their personalities influence the preparation and presentation of their final project.

Deary, I.J., Weiss, A., and Batty, G. D. (2010) studied illness and death and its association with Intelligence and personality. They tried to analyse the chronic disease epidemiology and collaborate it with differential psychology. They found that personality traits and intelligences are associated with health and illness.

Baptiste, A. A. M. B. (2018) studied authentic leadership and its relationship with big five personality traits. The results of the study show that only the conscientiousness of the Big Five personality traits is positively correlated with authentic leadership, and that the combination of conscientiousness and neuroticism is best paired with authentic leadership. Agreeableness was indirectly significant in a simple correlation analysis.

Neuroticism has a negative Correlation, and conscientiousness has a positive Correlation with authentic leadership, and thus they concluded Neuroticism and conscientiousness are combined predictor of authentic leadership.

Reviews of the other literature related to different areas of life are made for the study, taking personality traits and Intelligence as a variable for study.

### **Objectives of the study**

- To study the relationship between the nine multiple intelligences with big five personality traits.
- To study if there are any differences in the personality traits and multiple intelligences of the teachers according to gender and age.



- To reduce the dimensions of multiple intelligence and personality traits using factor analysis
- To study if there are any significant influence for multiple intelligences on bias in financial decisions.
- To study if there are any significant influences for personality traits on bias in financial decisions.

### **Hypotheses**

- H0: There is no significant relationship between the nine multiple intelligences with big five personality traits
- H0: There are no significant differences in the teachers' personality traits and multiple intelligences according to gender and age.
- H0: Multiple intelligences have no significant influence in bias in financial decisions.
- H0: Personality traits have no significant influence on bias in financial decisions.

### **Methodology used**

The present study is descriptive in nature. The data were collected from a hundred college teachers using a questionnaire containing multiple intelligence inventory, personality traits scale, and financial bias scale. Data analysis was done with ANOVA, t-test, factor analysis, Canonical Correlation, Pearson's coefficient of Correlation and multiple regression analysis.

### **Results and discussion**

#### **Tables are numbered as A1 to A21**

##### **A1.**

All the personality traits are above average mean values, and as the weighted score is five, the trait extroversion has less, and Openness has a high mean value.

##### **A2.**

The weighted score of each Intelligence is maximum five, and minimum one and the table exhibits that all the intelligences are above average score in individual mean.

### **Canonical Correlation**

Canonical correlation analysis is used to identify components of multiple Intelligence that are most highly related linearly to the components of the big five personality traits. The logic of this analysis involves deviating the linear combination of variables from each of the two sets of variables so that the correlation between the two groups is maximized. Canonical Correlation follows the similar procedure of principal component analysis but tries to account for the maximum amount of Correlation between the two sets of variables rather than within a single set of variables.

##### **A3.**

The sum of the squared canonical correlations is called Pillai's trace, which can be found:  $.65275^2 + .56364^2 + .55485^2 + .36114^2 + .28251^2 = 1.26185$ . The Hotelling trace is very

similar to Pillai's trace and can be calculated as the sum of the values of (canonical correlation<sup>2</sup>/(1-canonical correlation<sup>2</sup>)). It can be calculated as:  $.65275^2 / (1-.65275^2) + .56364^2 / (1-.56364^2) + .55485^2 / (1-.55485^2) + .36114^2 / (1-.36114^2) + .28251^2 / (1-.28251^2) = 1.889407$ . The product of the values of (1-canonical correlation<sup>2</sup>) is called Wilks' lambda. Here, it is  $(1-.65275^2) * (1-.56364^2) * (1-.55485^2) * (1-.36114^2) * (1-.28251^2) = .21688$ . This is Roy's greatest root. It can be calculated from the largest eigenvalue: largest eigenvalue/(1 + largest eigenvalue).

$$.74240 / (1+.74240) = .42608$$

#### A4.

Since there are five dependent variables, five canonical functions are derived. The first three are statistically significant (dimension reduction analysis). The first function having a squared canonical correlation is 0.43, and the other four functions are 0.32, 0.31, 0.13 & 0.07 respectively. These values are interpreted like  $r^2$  in multiple regression analysis. That is, 43% of the first function is influenced by the independent variables, and all others are 32%, 31%, 13% and 7%, respectively.

#### A5.

Wilk's lambda is a statistic for testing the statistical significance of canonical Correlation, and the lambda may range from a value of 0 to 1. The closer lambda is to 0, the more likely canonical Correlation. Here the first three functions are closer to 0, and the other two functions are not.

### Structure correlation coefficients

#### A6.

#### A7.

A structure coefficient is a Correlation between the predictor or dependent variable composites and the variable used to create the composites. Structure coefficients help interpret Canonical results in each variable's contribution to the canonical solutions.

Here the squared structure correlation between Openness and the first canonical function is 0.15; conscientiousness is 0.63, Extroversion is 0.59; Agreeableness is 0.50; and Neuroticism is 0.10.

Agreeableness & Openness are more related to function 4. Extroversion is related to function 1, and Neuroticism is related to function 2. That means the first canonical function has more to do with conscientiousness and Extroversion. The fourth canonical function has more to do with agreeableness and Openness, and Function 2 is more related to Neuroticism. The same interpretation can be made upon examining covariates.

### Variate Adequacy Coefficient

The average of all the squared structure coefficients for the variables in one set concerning one function is a canonical variate adequacy coefficient. This indicates how adequately a



given group of canonical variate scores perform with reference to represent every variance of the original unweighted variables in the group.

**A8.**

The first canonical function represents 20.62% of the variance in the dependent variable and 17.53% of the variance in the independent variable. The second function represents 13.89% of the dependent variable and 6.5% of the independent variable, and so on.

**Redundancy Coefficient**

The redundancy coefficient indicates the average proportion of variance in the variable in one set that is reproducible from the variable in another set. It is an evaluation of the capacity of prediction and not association because it is not entirely affected by all the intercorrelations of the variables. The redundancy coefficient equals 1.00 only when two variables share precisely 100% of their variance and a variate perfectly act for the original variables in its domain.

In this analysis, on average, 8.97% of the variance of the dependent variables is reproducible by the independent variables in the first function. 4.41%, 4.76%, 3.83% & 1.65% in case of second to fifth function respectively.

On the independent variables, only 7.47%, 2.08%, 4.01%, 2.07% and 0.75% of their variance can be reproducible by the first to fifth functions, respectively.

The pooled redundancy coefficients for a given set of variables equals the average multiple Correlation for the variables in the set when they are predicted by all the variables in the other set.

In this analysis =>  $8.79+4.41+4.76+3.83+1.65 = 23.44\%$  for the independent variables and  $7.47+2.08+4.01+2.07+0.75 = 16.36\%$  for dependent variables.

**A9.**

$R^2$  for personality traits are: Openness 0.19, Conscientiousness 0.27, Extroversion 0.27, Agreeableness 0.24 and Neuroticism 0.19. All the regression coefficients are significant at 0.05 levels.

**A10.**

Among the personality traits, Extroversion significantly differs from male to female. All other traits do not differ significantly at 0.05 levels.

**A11.**

Among the multiple Intelligence, Verbal Intelligence significantly differs from male to female. All other intelligences do not differ significantly at 0.05 levels.

**A12.**

Among the personality traits, Openness significantly differs from different age groups. All other traits do not differ significantly at 0.05 levels.

**A13.**

A post hoc test in Tukey's HSD test which provides greater insight to get differences between different age groups was conducted. Multiple comparisons show that the Openness of the age group between thirty and forty are significantly different from that of the age groups forty to fifty and fifty to sixty.

**A14.**

**Dimension reduction**

For the analysis of multiple intelligence and personality traits with bias in financial decisions, the data and dimensions were reduced using factor analysis. The multiple intelligences have nine different intelligences, and personality consists of five different traits. The dimensions are reduced with principal component analysis and rotation using the varimax method. The eigenvalue greater than or equal to one has taken for the study.

**A15.**

**A16.**

After the factor analysis, the dimensions of Multiple intelligences are reduced to three from nine. The three dimensions are decided as per the rotated component matrix.

**A17.**

There are three factors aroused from multiple intelligences, and they are treated as intrapersonal and related intelligences, interpersonal related intelligences and logic related intelligences. These three dimensions are compiled for further analysis of the research.

**A18.**

**A19.**

After factor analysis, only one factor is raised from five personality traits, and the five traits are compiled to a single score for the further analysis of data.

**A20.**

The R squared is 0.69, which is significant at 0.01 levels; it denotes that 69% of Biases in the financial decision are influenced by multiple intelligences. The general form of the equation to predict biases in the financial decision from multiple intelligences is predicted as:  $0.634 + (0.74 * \text{Intra P Factors}) - (6.66 * \text{Inter P Factors}) + (4.1 * \text{Logical factors})$ . The general form of equation to predict personality from multiple intelligences is predicted as:  $5.935 + (0.57 * \text{Intra P Factors}) + (1.567 * \text{Inter P Factors}) - (0.977 * \text{Logical factors})$

**A21.**



The R squared is 0.077, which is significant at 0.05 level; it denotes that 7.7% of Biases in financial decisions are influenced by personality traits. The general form of the equation to predict biases in financial decisions from personality traits is predicted as: 2.984.

## Conclusion

Multiple intelligences and big five personality traits of college teachers are studied with biases in financial decisions. All the personality traits are present in the college teacher community, and all the respondents have above average Intelligence also. The canonical Correlation on five dimensions of personality traits and nine dimensions of multiple intelligences have been studied, and there are five functions in canonical Correlation. Two personality traits are related to function four and one each with function one and two. In gender-wise analysis, Extroversion is the only personality trait and Verbal intelligence is the only intelligence that differ between males and females. In age-wise analysis, Openness is the only trait that differs between different age groups and no any dimension of intelligence differ according to age. Both multiple intelligences and personality traits are influenced significantly by biases in financial decisions.

College teachers are highly educated and highly paid category in the social strata of Kerala. The study helped to identify the personality traits and multiple intelligences of college teachers, and it analysed the biases which affect the financial decisions of the teachers. The study concludes that personality and Intelligence are combinedly influenced the biases in financial decisions. This study may throw light on this area of research and may lead the researchers to do a depth investigation in this direction.

## Acknowledgement

The authors are grateful to the respondent professors who have been reported their response to the questionnaire in a very enthusiastic manner. The co operation and prompt responses helped us to complete the study.

## Conflict of interest statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. There was no external fund received for the study. There is no conflict of interest.

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**Data Availability Statement**

The authors confirm that the data supporting the findings of this study are available within the article and its supplementary materials.

**A1.**

**Table 1 Descriptive statistic of Personality traits**

<b>Variables</b>	<b>M</b>	<b>S.D.</b>
Openness	3.58	0.708
Conscientiousness	3.15	0.632
Extroversion	2.98	0.711
Agreeableness	3.28	0.655
Neuroticism	3.36	0.746

**A2.**

**Table 2 Descriptive Statistics of Multiple Intelligence**

<b>Variables</b>	<b>M</b>	<b>S.D.</b>
Verbal Intelligence	3.75	0.81
Logical Intelligence	3.61	0.89
Spatial Intelligence	3.32	0.90
Kinesthetic Intelligence	3.14	0.91
Musical Intelligence	3.18	1.01
Interpersonal Intelligence	3.77	0.87
Intrapersonal Intelligence	3.78	0.80
Naturalistic Intelligence	3.8	1.01
Existential Intelligence	3.22	0.99



A3.

**Table 3 Test of significance of within cells of Regression of Personality traits and Multiple Intelligences**

Test	Value	Approx. F	Sig. of F
Pillais	1.26185	3.37561	.000
Hotellings	1.88950	3.54387	.000
Wilks	.21688	3.51011	.000
Roys	.42608		

A4.

**Table 4 Eigenvalues and Canonical Correlations of Personality traits and Multiple Intelligences**

Rank of E.	E	Canon r.	Can r <sup>2</sup>
1	.74	.653	.43
2	.47	.563	.32
3	.44	.553	.31
4	.15	.363	.131
5	.087	.28	.08

E. - Eigen Value

A5.

**Table 5 Analysis for reducing dimensions**

Rank of E.	Wilks L.	F(DF)	p
1 TO 5	.27**	3.51 (45)	.00
2 TO 5	.38**	3.04 (32)	.00
3 TO 5	.55**	2.76 (21)	.00
4 TO 5	.80	1.75 (12)	.06
5 TO 5	.92	1.56 (5)	.17

\*\* P ≤ 0.01 E. - Eigen Value

A6.

**Table 6 Correlation between dependent and canonical variables**

Variable	Function No.1	Function No.2	Function No.3	Function No.4	Function No.5
Openness	-.15	.50	.31	.63	-.49
Conscientiousness	.63	.01	.49	.18	-.579
Extroversion	.59	-.101	.47	.62	.18
Agreeableness	.50	-.16	-.46	.629	-.348
Neuroticism	.10	-.64	.079	.51	-.568

A7.

**Table 7 Correlation between covariates and canonical variables**

Variable	CV.1	CV.2	CV.3	CV.4	CV.5
Verbal	.023	.002	-.67	-.11	-.28
Logical	-.16	-.08	-.19	.86	-.24
Spatial	.27	.206	.39	.59	-.29
Kinesthetic	.59	-.176	.50	.39	-.25
Musical	.23	-.16	-.16	-.04	-.58
Interpersonal	.28	-.65	-.03	.31	.12
Intrapersonal	.63	-.02	-.28	.27	.38
Naturalistic	-.13	.25	.38	.09	.24
Existential	.76	.01	.16	.08	.11

A8.

**Table 8 Variance explained by canonical variables**

CV	Dependent variables		Covariates	
	% of variance (dep.)	% of variance (cov.)	% of variance (dep.)	% of variance (cov.)
1	20.62	8.79	7.47	17.53
2	13.89	4.419	2.08	6.54
3	15.48	4.769	4.01	13.04
4	29.398	3.839	2.07	15.89
5	20.61	1.65	0.76	9.5

CV-Canonical variable dep -Dependent variable cov. – covariate



A9.

**Table 9 Univariate F-tests - Regression F-tests with (9, 90) D. F.**

Variable	R <sup>2</sup>	Adj. R <sup>2</sup>	Hypoth. MS	F	Sig. of F
O	.19	.11	1.04	2.31	.022
C	.27	.201	1.20	3.76	.000
E	.27	.201	1.52	3.77	.000
A	.24	.17	1.14	3.18	.002
N	.19	.11	1.20	2.43	.016

A10.

**Table 10 Personality traits t test with equality of means between male and female**

	Male		Female		t test
	M	SD	M	SD	
OPENNESS	3.54	0.595	3.63	0.850	-0.63
CONSCIENTIOUNESS	3.19	0.603	3.09	0.675	0.78
EXTROVERSION	3.13	0.571	2.76	0.835	<b>2.57*</b>
AGREEABLENESS	3.30	0.662	3.26	0.653	0.3
NEUROTISM	3.47	0.681	3.19	0.812	1.87
N	59		41		

\*  $P \leq 0.05$

A11.

**Table 11 multiple intelligence t test with equality of means between male and female**

	Male		Female		t test
	M	SD	M	SD	
Verbal Intelligence	3.56	0.80	4.02	0.75	<b>-2.870*</b>
Logical Intelligence	3.72	0.86	3.46	0.92	1.460
Spatial Intelligence	3.31	0.75	3.33	1.08	-0.080
Kinesthetic Intelligence	3.22	0.88	3.03	0.94	1.000
Musical Intelligence	3.03	0.98	3.40	1.02	-1.820
Interpersonal Intelligence	3.81	0.82	3.71	0.93	0.570
Intrapersonal Intelligence	3.73	0.63	3.87	1.00	-0.850
Naturalistic Intelligence	3.66	0.94	4.01	1.09	-1.720
Existential Intelligence	3.25	0.92	3.18	1.09	0.310

\*  $P \leq 0.05$

A12.

**Table 12 One-Way Analysis of Variance of Personality traits of College teachers by Age**

Measures	20-30		30-40		40-50		50-60		F (3,96)
	M	SD	M	SD	M	SD	M	SD	
Openness	3.6	0.34	3.27	0.70	3.77	0.69	3.83	0.61	4.485*
Conscientiousness	2.95	0.33	3.01	0.68	3.23	0.58	3.33	0.66	1.46
Extroversion	3.2	0.54	2.78	0.71	3.02	0.67	3.28	0.77	2.28
Agreeableness	2.95	0.21	3.27	0.70	3.37	0.59	3.19	0.79	0.76
Neuroticism	3.3	0.41	3.33	0.86	3.35	0.74	3.44	0.58	0.09

\*  $p \leq 0.05$

A13.

**Table 13 Multiple comparisons of Openness by age**

(1) Age	(2) Age	Mean Difference (1)-(2)	Std. Error	Level of signi.
20-30	30-40	.33	.32	.73
	40-50	-.17	.32	.95
	50-60	-.23	.35	.91
30-40	20-30	-.330	.32	.732
	40-50	-.499*	.15	.008
	50-60	-.56*	.20	.032
40-50	20-30	.168	.32	.952
	30-40	.50*	.16	.008
	50-60	-.06	.19	.990
50-60	20-30	.23	.35	.911
	30-40	.56*	.20	.032
	40-50	.06	.19	.990

\*  $p \leq 0.05$



A14.

**Table 14 One-Way Analysis of Variance of Multiple intelligence of College teachers by Age**

Measures of Intelligence	20-30		30-40		40-50		50-60		F (3,96)
	M	SD	M	SD	M	SD	M	SD	
Verbal	3.8	0.69	3.98	0.76	3.6	0.88	3.58	0.68	1.81
Logical	2.85	1.23	3.51	0.99	3.79	0.74	3.64	0.81	1.97
Spatial	3.4	0.89	3.39	1.08	3.21	0.78	3.41	0.75	0.32
Kinesthetic	2.7	1.72	3.11	0.98	3.18	0.77	3.27	0.79	0.53
Musical	2.9	1.33	3.4	0.95	3.06	0.99	3.08	1.08	0.99
Interpersonal	3.3	1.08	4.01	0.78	3.58	0.92	3.84	0.73	2.28
Intrapersonal	3.45	0.89	4.05	0.76	3.65	0.83	3.59	0.63	2.53
Naturalistic	4.3	0.76	3.9	1.01	3.56	1.12	4.02	0.65	1.57
Existential	3.2	1.04	3.32	0.95	3.16	0.98	3.14	1.15	0.22

All the multiple intelligences do not differ significantly in different age groups.

A15.

**Table 15 KMO test for dimension reduction for multiple intelligences using factor analysis**

Measure of Sampling Adequacy		.66
Test of Sphericity	Approx. Chi-Square	249.59
	df	36
	Sig.	.000**

\*\*  $p \leq 0.01$

A16.

**Table 16 Rotation component matrix in factor analysis (PCA)**

	Component		
	1	2	3
Verbal Intelligence	.045	-.068	.865
Logical Intelligence	-.112	.698	.503
Spatial intelligence	.166	.847	-.034
Kinesthetic Intelligence	.355	.753	-.216
Musical intelligence	.417	.004	.595
Inter-personal Intelligence	.304	.282	.698
Intrapersonal Intelligence	.823	.041	.078
Naturalistic intelligence	.579	.073	-.186
Existential intelligence	.649	.369	-.113

A17.

**Table 17 New dimensions for multiple intelligences after factor analysis**

	<b>Intrapersonal dimension</b>	<b>Interpersonal dimension</b>	<b>Logic dimension</b>
<b>Intelligence types</b>	Musical Intelligence	Verbal Intelligence	Logical Intelligence
	Intrapersonal Intelligence	Interpersonal Intelligence	Spatial Intelligence
	Existential Intelligence		Kinesthetic Intelligence

A18.

**Table 18 KMO test for dimension reduction for Personality traits using factor analysis**

<b>Measure of Sampling Adequacy</b>		<b>.716</b>
Test of Sphericity	Approx. Chi-Square	154.61
	df	10
	Sig.	.000**

\*\*  $p \leq 0.01$

A19.

**Table 19 Rotation component matrix in factor analysis (PCA)**

<b>Personality traits</b>	<b>Component</b>
	<b>1</b>
Openness	.594
Conscientiousness	.821
Extroversion	.748
Agreeableness	.745
Neuroticism	.770

A20.

**Table 20 Multiple Regression analysis of multiple intelligence with Biases in financial decision**

<b>Model summary</b>		<b>ANOVA</b>		<b>Coefficient</b>	
				<b>Constant</b>	<b>0.63</b>
<b>R</b>	.83 <sup>a</sup>	<b>F</b>	71.56	Intrapersonal dimension	0.74
<b>R Square</b>	0.69	<b>Sig.</b>	.000 <sup>b</sup>	Interpersonal dimension	-6.66
<b>Adjusted R<sup>2</sup></b>	0.68	<b>df</b>	3,96	Logical dimension in Intelligence	4.1



a – Independent variables - multiple intelligences b – Dependent variable – Biases in financial decision

A21.

**Table 21 Regression analysis of Personality traits with Biases in financial decision**

Model summary		ANOVA		Coefficient	
<b>R</b>	.278 <sup>a</sup>	<b>F</b>	8.183		<b>B</b>
<b>R Square</b>	0.077	<b>Sig.</b>	.005 <sup>b</sup>	<b>Constant</b>	2.984
<b>Adjusted Square</b>	<b>R</b> 0.068	<b>df</b>	1,98	<b>Personality trait</b>	0.225

Dependent Variable: Bias b. Predictors: (Constant), Personality traits

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# INVESTMENT DECISION-MAKING OF GOVT. EMPLOYEES IN KERALA

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**INVESTMENT DECISION-MAKING OF GOVT. EMPLOYEES IN KERALA**

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*Abstract*

This study is focused on the investment decision-making of the government employees, and it examined the objectives and factors of investment decisions and its connection with investment decision making. The major objectives of the study are the objectives and factors influencing investment decision-making. The risk level perception of each investment avenue and its relationship with investment decision-making. The study also considers the role of gender, age, and geographic area in investment decision-making. The study was descriptive in nature and the data were collected from a hundred group II government employees from Kerala using a questionnaire. Analysis was done with the help of Pearson's correlation, multiple regression ANOVA test, t-test, and Factor analysis. The factors influencing investment decisions are reduced to two factors and objectives are reduced to three objectives after factor analysis. As per the Multiple regression, Investment decisions are significantly influenced by the objectives of investments and correlation analysis proved the risk level perception on different avenues. The investment decision-making of government employees is not significantly differed according to gender and significantly differed according to age, region and percentage of savings. The observed results help to get new visions on investment behaviour and base of investment decisions of investors.

**Keywords:** Investment decision making, Government employees, Kerala, Risk level perception, factors of investment decision making

**Investment decision making**

Investment is the process of setting aside a portion of finance in the expectation of getting a return as dividend or interest and capital appreciation. The different investment avenues are available for the investors, like real assets and financial assets. Both have different classifications; each has a different rate of return and risk associated. Investment decision-making is a complex process of analyzing the investment avenues, objectives, return, investment policies, and investment environment. This process needs high cognitive involvement and rational thinking. Investment decision-making involves five stages: developing policy, analysis of investment, valuation of avenues, and construction, and evaluation portfolios. Using the step-by-step process of investment decision-making differs from person to person, like all other decisions. Different factors help in investment decision-making.

Investment decisions are basically related to the financial knowledge and attitude of investors and their intellectual and behavioural factors. Government employees are the most secure employees in Kerala in relation to job security and stability in income in this pandemic situation. The workers in the unorganized sector and private employees faced a reduction in payment and insecurity in their jobs. Some of them have failed to continue their investment in a recurring pattern. But government employees have not faced such a situation. Government employees are appointed by Kerala Public Service Commission and they strictly adhere to the reservation rules. Thus the employees included all the socio-economic sectors.

The basic orientation to the study is the curiosity to know the investment decision making and the factors and objectives behind the selection of the investment avenue.

**Review of literature**

Kavitha C. (2013) studied the Determinants of Retail Investors Behaviour and its Impact on Investment decisions. She found that Individuals have inconsistent attitudes towards risk in making investment decisions. In profitable situations, they show risk intolerance, while in risky environments, risk

aversion occurs, which explains the case of psychological accounting. The behaviour of individual investors is inconsistent. All investors are characterized by high participation rates and extreme confidence. At the same time, they are less optimistic about future market forecasts and avoid risks. Jagongo, A. and Mutswenje, V. S. (2014) studied the factors on investment decisions from individual investors under the Nairobi Stock exchange. They found out that the main factors influencing each investment decision are the reputation of the company, the position of the company in the industry, the expected returns and returns of the company.

Shunmugathangam, P. (2017) studied Investment Decision Making for Small Individual investors and the factors on investment decisions. He tried to correlate the investment experience and investment decision. They found some personal factors are age, education and income. Technically, investment decisions can come from different financial models. In other words, the decision also takes into account the context of the situation, which takes into account the psychology of the environment and the market. They suggest that investors should be aware of the various biases they may face and take steps to prevent them, improving their efficiency.

Kengatharan, L. (2019). Conducted a study to identify factors that influence investment decisions of individual investors and to explore how these factors are connected to the investors' socioeconomic characteristics in the Sri Lankan Stock Market. Known factors in investment decision are the success of the previous company, the integrity of the company, the will of the company, the reputation of the company in the industry, the dividend paid, the amount expected from the company and the expected dividend. . They see the opinion of most business owners, access to credit, the need for Type A, the understanding of friends / colleagues, management system and social status as the most important factors in making investment decisions.

### Objectives

- To study the factors influencing investment decision making as perceived by Government employees
- To study the objectives of investment of government employees
- To study the influence of objectives in investment decision making
- To study the risk level perception of each investment avenue and its relationship with decision making
- To study the role of gender, age, and geographic area in investment decision making

### Hypotheses

- The relationship between investment decision making and objectives of investment is not significant
- The relationship between investment decision making and risk perception is not significant
- The difference in investment decision making according to gender, age and geographical area is not significant.

### Methodology of Research

The study was descriptive in nature and the data were collected from a hundred group II government employees from Kerala using a questionnaire. The sample was selected as a multi-stage cluster sampling method. Analysis of data was done by using ANOVA test, t-test, Factor analysis, Correlation and Multiple regression.

### Results and Discussion

Factors affecting investment decisions are studied using factor analysis. The investigators listed seven dimensions related to investment decision making. After collecting data, the dimensions are reduced to two using factor analysis.

**Table 1 : Factors involved in investment decision**

<b>KMO and Bartlett's Test</b>		
<b>Measure of Sampling Adequacy.</b>		<b>.773</b>
Sphericity test	Chi-Square	281.814



	Degree of freedom	21
	Significant at	.000

**Table 2**

	Com.		RCM	
	I.	E.	Comp.	
			1	2
<b>Return</b>	1.000	.767	-.030	<b>.875</b>
<b>Safety</b>	1.000	.663	<b>.813</b>	-.049
<b>Liquidity</b>	1.000	.728	.345	<b>.781</b>
<b>Tax Savings</b>	1.000	.459	<b>.638</b>	.228
<b>Diversification</b>	1.000	.460	.325	<b>.596</b>
<b>Simplicity</b>	1.000	.757	<b>.815</b>	.305
<b>Affordability</b>	1.000	.790	<b>.815</b>	.305

Com. – Communalities  
I – Initial  
E – Extraction  
Comp. – Component  
RCM – Rotaion Component Matrix  
Method: Principal Component Analysis.  
Rotation: Varimax method with Kaiser Normalization

As per the analysis, the Factors of the investment are divided into two main factors with three or four sub factors.

**Table 3**

Primary factors	Secondary factors
Safety	Return
Tax savings	Liquidity
Simplicity	Diversification
Affordability	

Further analysis on factors of investment decision is done by using these two factors.

**Table 4****Objectives of investment of Govt. Employees in Kerala**

	Com.		RCM		
	I.	E.	Comp.		
			1	2	3
good return	1.000	.790	.184	<b>.717</b>	-.491
capital appreciation	1.000	.695	.159	<b>.812</b>	.106
liquidity	1.000	.685	.122	<b>.787</b>	.226
tax savings	1.000	.846	<b>.899</b>	.196	.025
child career	1.000	.854	<b>.920</b>	.060	.068
future safety	1.000	.671	<b>.748</b>	.319	.101
pension	1.000	.860	.143	.227	<b>.888</b>
others	1.000	.604	.370	.615	<b>.299</b>

Com. – Communalities  
I – Initial  
E – Extraction  
Comp. – Component  
RCM – Rotaion Component Matrix  
Method: Principal Component Analysis.  
Rotation: Varimax method with Kaiser Normalization

As per the factor analysis, the Objectives of the investment are divided into three main objectives with three or two sub factors.

**Table 5**

Short term goals	Medium Goals	Long term goal
Good return	Tax saving	Pension
Capital Appreciation	Child career	Others
Liquidity	Future safety	

The three factors are treated as short term, medium term and long term goals.

**Table 6**

Descriptive Statistics		
	Mean	Std. Deviation
Short term Goals	4.17	.58
Medium term Goals	3.98	.91
Long term Goals	3.58	.87
Valid N		<b>100</b>

The mean and standard deviation of different goals are found more than average.

**Table 7**

**Investment decision making and Objectives – Multiple regression**

R	R <sup>2</sup>	AR <sup>2</sup>	S.E.
.419 <sup>a</sup>	.176	.150	6.34582
a. Predictors: (Constant), Long term Goals, Medium term Goals, Short term Goals			

**Table 8**

ANOVA <sup>a</sup>					
	S.S.	d.f.	M.S.	F' value	Level
Regression	825.129	3	275.043	6.830	.000 <sup>b</sup>
Residual	3865.861	96	40.269		
Total	4690.990	99			
a. Investment Decision					
b. (Constant), Long term Goals, Medium term Goals, Short term Goals					

**Table 9**

Coefficients <sup>a</sup>					
	US. Coefficient		S. Coefficients	t	level
	B	Std. Error	Beta		
(Constant)	63.176	4.754		13.290	.000
Short term Goals	4.959	1.233	.423	4.023	.000
Medium term Goals	-.798	.787	-.106	-1.014	.313
Long term Goals	.496	.827	.063	.600	.550
<b>a. Investment Decision</b>					



The Investment decisions are significantly influenced by the objectives of investments.  $F(3,96)=6.830$ ,  $p<0.05$ ,  $R^2 = 0.176$ . Thus the regression equation may be  $63.176 + (4.959 * SG) - (0.798 * MG) + (0.496 * LG)$ .

**Table 10****Investment decision making and Risk perceptions – Correlation**

Model Summary			
R	R <sup>2</sup>	A R <sup>2</sup>	S.E.
.599 <sup>a</sup>	.358	.294	5.78373

a. (Constant), Risk level perception on Stock market, Real estate, insurance, Tax saving scheme, Commodity, Bullion, Debt market, Mutual fund

**Table 11**

ANOVA <sup>a</sup>					
	S.S.	d.f.	M.S.	F' value	Level
Regression	1680.348	9	186.705	5.581	.000 <sup>b</sup>
Residual	3010.642	90	33.452		
Total	4690.990	99			

**a. Investment Decision**  
b. (Constant), Risk level perception on Stock market, Real estate, insurance, Tax saving scheme, Commodity, Bullion, Debt market, and Mutual fund

The Investment decisions are significantly influenced by the risk level perceptions of different investment avenues.  $F(9,90)=5.581$ ,  $p<0.05$ ,  $R^2 = 0.294$

**Table 12**

Correlations								
Risk level perception of difference investment avenues and investment decision making on the specific avenue								
Pearson Correlation	insurance	Real estate	Tax saving scheme	Commodity	Bullion	Stock market	Mutual fund	Debt market
Investment Decision	.259	.132	.441	.333	.430	.202	.249	.480

Investment decisions on the different investment avenues and their risk perception are correlated significantly and all are moderately positive correlation.

**Table 13****Demographic factors affecting investment decision making- ANOVA and t test**

Factors	Age		Zone		Gender	
	a.	b.	a.	b.	Male	Female
Sum of Squares	771.713	3919.277	376.31	4314.68	t	0.591
F	6.301		4.23			
Sig.	0.002		0.027		Sig. (2-tailed)	0.06

a. – Between groups      b. – within groups

The investment decision making of government employees are not significantly differed according to gender as the p-value of the independent sample t-test is greater than 0.05

The investment decision making of government employees are significantly differed according to age, and region as the p-value of ANOVA is less than 0.05

**Table 14 : Multiple Comparisons of different groups Investment Decision**

Tukey HSD				
Age	Age	M.D.	S.E.	Level
20-30	30-40	-3.50	3.04	0.660
	40-50	-7.84	3.03	0.053
	50-60	-9.67*	3.27	0.020
30-40	20-30	3.49	3.04	0.660
	40-50	-4.34*	1.43	0.017
	50-60	-6.17*	1.90	0.009
40-50	20-30	7.84	3.03	0.053
	30-40	4.35*	1.44	0.017
	50-60	-1.82	1.88	0.769
50-60	20-30	9.67*	3.27	0.020
	30-40	6.17*	1.90	0.009
	40-50	1.82	1.88	0.769
*. The mean difference is significant at the 0.05 level.				
Zone	Zone	M.D.	S. E.	Level
South	Middle	2.16	1.62	0.383
	North	-2.47	1.72	0.325
Middle	South	-2.16	1.62	0.383
	North	-4.64*	1.59	0.012
North	South	2.47	1.72	0.325
	Middle	4.63*	1.59	0.012
*. The mean difference is significant at the 0.05 level.				

Table no. 14 shows the multiple comparisons of different groups in age, and region. In age wise comparison, 20 -30 age group significantly differs with 50 -60 age group and 30 – 40 age group significantly differs with 40 -50 and 50 – 60 age groups.

### Conclusion

The factors of the investment are reduced to two factors and objectives of investment are reduced to three factors. Investment decisions are influenced by objectives and risk level perceptions of different investments and the selection of investment avenues. The female and male employees do not differ in their investment decision making. But there is much difference in different age groups and employees from different regions in their decision making.

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# **A STUDY ON CUSTOMER SWITCHING BEHAVIUR IN TELECOMMUNICATION INDUSTRY WITH SPECIAL REFERENCE TO MALAPPURAM DISTRICT**

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## **ABSTRACT**

Brand switching in the telecom domain is the process in which a customer switches from the usage of products/services of a service provider to those being offered by another service provider. Due to fierce market competition, it is highly possible that although customers are satisfied with an existing service/product from a particular service provider, they may switch over to other service providers providing a more customized product at a lower price with a better service. This study examines brand-switching attitude, information sources for brand switching, factors influencing brand switching and brand switching behavior. A survey was conducted among 5 age groups between males and females.

**Keywords;** switching behaviour, network coverage, value added service

## **Introduction**

The demand of mobile service keeps increasing around the world due to the improvement of technology in the telecommunication industry. Due to number of factors such as customers' low switching cost, price sensitivity, and availability of Mobile Number Portability (MNP), choices available to customers and there is

increase in the brand switching by them across mobile networks. This increased competition among players set pressure on them to find ways and means to retain their customers. In order to survive in this stiff competition market, mobile service providers are eager to implement competitive and attractive promotion package in terms of their products and services to attract more customers. Hence it is important to explore the factors that make the consumer switch towards other cellular network brands. This research aims to investigate customer switching behaviour in the mobile industry, why it takes place and what factors influence to brand switching behaviour of consumer in telecom sector. The Indian telecommunications industry is one of the fastest growing in the world. Government policies and regulatory framework implemented by Telecom Regulatory Authority of India (TRAI) have provided a conducive environment for service providers. This has made the sector more competitive, while enhancing the accessibility of telecommunication services at affordable tariffs to the consumers.

Switching behaviour is a consumer behaviour where the behaviour of the consumers differs based on the satisfactory level of the consumers with the providers or companies. Switching behaviour can be enunciated as the process of being loyal to one service and switching to another service, due to dissatisfaction or any other problems. Even if a consumer is loyal to a particular brand, if the brand does not satisfy his/her needs, the consumers switch to a competitor brand. There are different factors and determinants which affect the consumers in switching their service from one service to another. The cost which is incurred during the switching process is called switching cost.

CSB may have different switching incidents. The model formulated by contained eight switching incidents. These were (a) pricing (price increase, unfair pricing practices); (b) inconvenience (location, waiting hours); (c) core service failures (billing errors, service catastrophes); (d) service encounter failures (uncaring, impolite, unresponsive and unknowledgeable staff); (e) employee responses to service failures (reluctant response, failure to respond); (f) attraction by competitors (consumers positive responses related to the service provider they switched to); (g) ethical problems (dishonest behaviour, intimidating behaviour, unsafe practices or conflict of interest) and (h) involuntary switching, besides other seldom mentioned incidents (such as customer having shifted locations or service provider having changed alliance). The persons working in this sector were interviewed to understand which factors motivated the customers to switch among service providers.

## LITERATURE REVIEW

Canadian Cellular Industry: Consumer Switching Behaviour by Aneeta Sidhu (2002). The author of this paper finds out that customers with one year contract are more likely to switch. Customers find using their services as expensive. Whereas, customers who are attached to the service provider for a long time are less likely to switch. Some of the strategies have been identified like building value for the customers by providing them with better service and reliable reception.

Richard Lee, Jamie Murphy (2005), explored determinants that cause mobile phone customers to transit from being loyal to switcher. They concluded that there are different factors which affect the Customers to switch from loyalty to switching intentions such as price, technical service quality, functional service quality, switching costs, etc. The result shows that price is the most important factor which affects the customers to switch loyalties to another provider.

Jessy John (2011) explored the factors that influence customer loyalty of BSNL mobile customers. A Sample of 100 consumers who have BSNL mobile services in Jaipur city were surveyed to assess the reasons behind the hard core customer loyalty even in an environment with high quality alternatives. The author recommended that BSNL mobile service enterprises should work on its problems related to servers in order to further strengthen its customer satisfaction and loyalty.

A Study on Consumer Switching Behaviour in Cellular Service Provider: A Study with reference to Chennai: Far East Journal of Psychology and Business Vol. 2 No 2, February 2011: M.Sathish, K.Santhosh Kumar, K.J.Naveen, V.Jeevanantham, they have attempted to identify the factors that affects the consumers into switching the service provider. To find the major influences that goes into the decision of purchasing a SIM card, to find the likeliness of switching the service provider. The study reveals that call rates play the most important role in switching the service provider followed by network coverage; value added service, Consumer care and advertisement which plays the least important role.

M. Satish and V. Jeevananthan, (2011) identified the factors that influence the consumers to switch the service providers. They concluded that there is a relation between switching the service provider and the factors like poor network coverage, frequent network Problem, High call rates, influence from family and friends.

## STATEMENT OF THE PROBLEM

Brand switching also known as brand jumping refers to the process in which a customer changes from buying one brand of a product to buying another brand. In telecommunication sector, the brand switching cost is relatively low, so consumers easily switch to another network, which offers competitive prices and quality. The factor behind consumer brand switching includes negative experience of consumer due to poor product quality or service. The intention of this paper is to scrutinize the factors that influencing consumers switching the service provider in telecom industry.

## OBJECTIVES

- To identify the factors that affects the customers into switching the service provider.
- To identify the main competitors in the market.
- To find the most preferred service provider in Malappuram district.

## RESEARCH METHODOLOGY

The research design used in this study is descriptive research design.

The research was done using both primary as well as secondary data. A questionnaire is used as instrument for collecting responses online by using simple random sampling technique. The observed variables under study are brand switching, service quality, network coverage and value added services.

Sampling: For this study, I have taken Malappuram district. The respondents will be randomly drawn. So sampling method is used for data collection. The sampling size is 150

Tools Used for Analysis: Simple percentage analysis: The percentage method is used for comparing certain feature. The collected data represented in the form of tables and graphs in order to give effective visualization of comparison made. And chi square test is applied.

## Hypothesis : Significant relation between age and switching behaviour

### Limitations of the study

- Though structured schedules were used to collect the information from the respondents, some subjectivity in their responses is possible.
- The study limited to only one district.



## DATA ANALYSIS AND INTERPRETATION

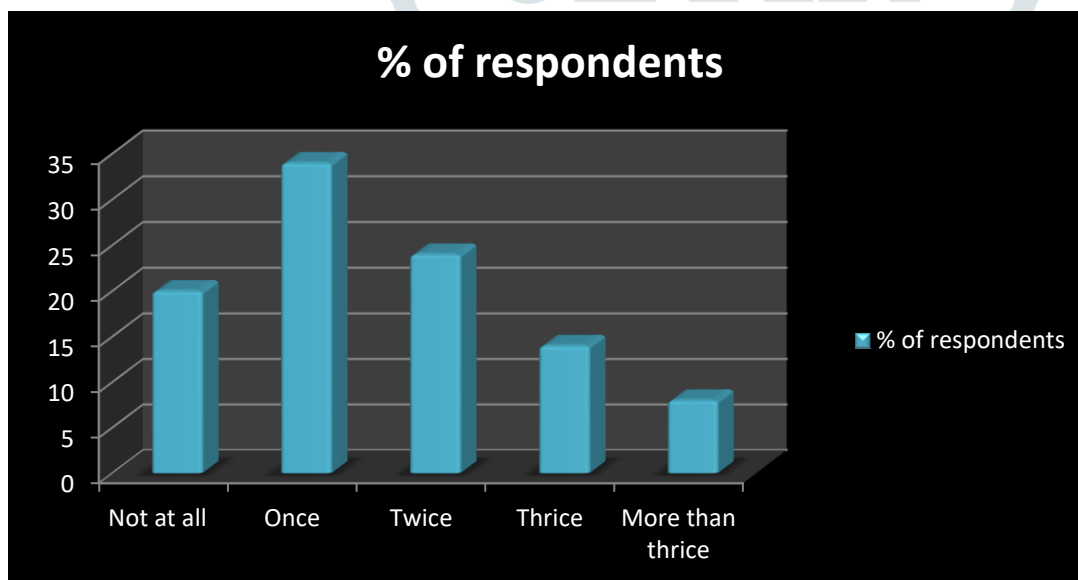
Five age ranges were given in the questionnaire. That is from less than 20 years to more than 50 years. Among the 150 sample most of the respondents are male (100) and others are female (50).

### Number of Times Switching the Brand

Respondents were asked about switching mobile service providers. This question was asked for the further direction of questionnaire and also to analyze the trend of switching mobile service providers in respondents. The responses about switching mobile service providers are given in the following table.

**Table and chart 1: Number of times switching the brand by respondent**

	No of respondents	% of respondents
Not at all	30	20
Once	51	34
Twice	36	24
Thrice	21	14
More than thrice	12	8
Total	150	100



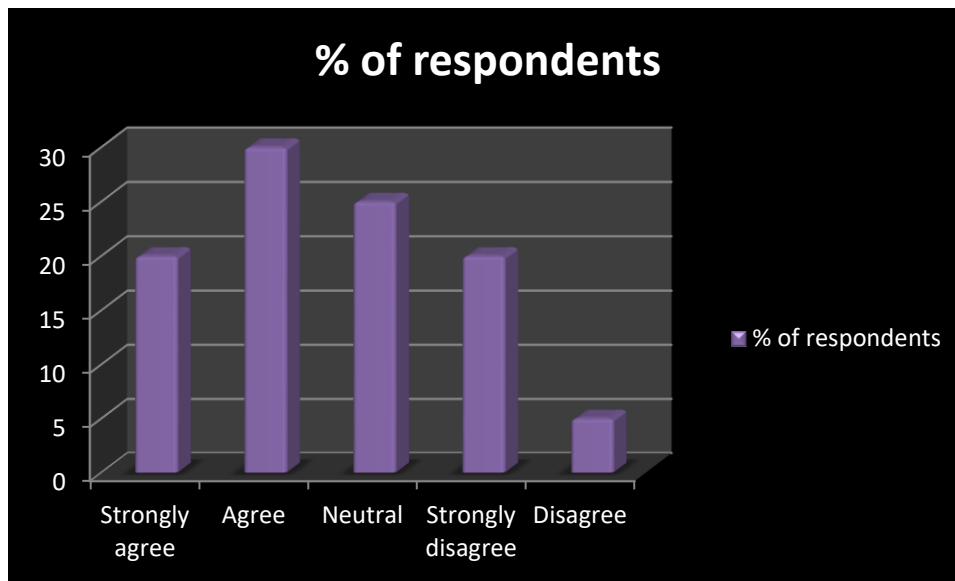
Above table presents clear picture about results of switching behavior of respondents. There were 20% respondents who have never switched mobile service provider. 34% respondents have switched mobile service providers once in the life. There were 24% respondents who have changed mobile service provider twice in their life. 14% respondents have switched mobile service provider thrice in their life. There were only 8% respondents who have switched mobile service providers for more than thrice. The results suggest that 80% respondents have experienced switching mobile service providers. Majority has done this only for one time.

### Factors influencing Brand Switching:

**Influence of Call Rates among brand switchers:** The first question was asked that for did the call rates has influenced you to switch the brand. Literature review has discussed that call rates is the most important factor that influence brand switching behavior.

**Table and chart 2: Influence of Call Rates among brand switchers**

	No of respondents	% of respondents
Strongly agree	24	20
Agree	36	30
Neutral	30	25
Strongly disagree	24	20
Disagree	6	5
Total	120	100



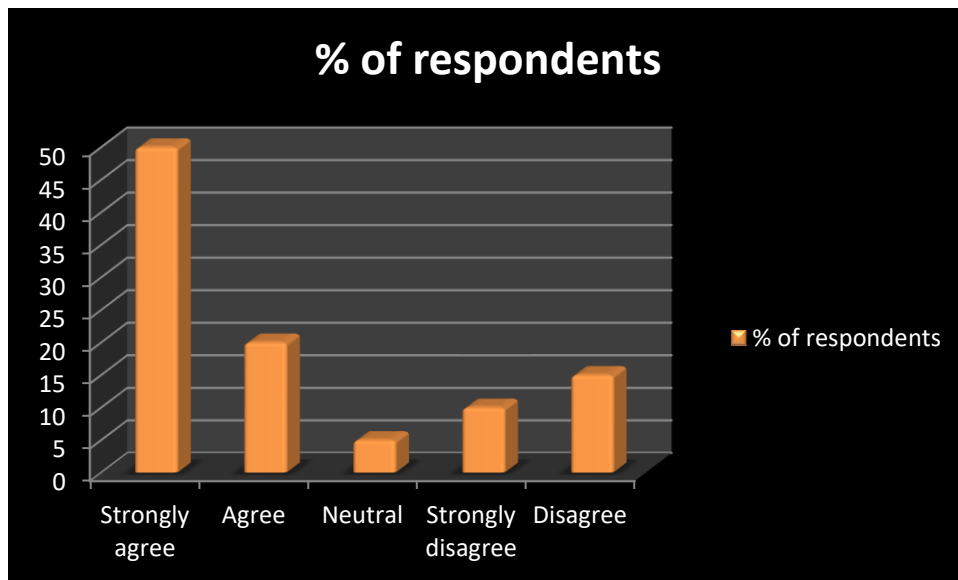
There were 20 % respondents who strongly agreed that call rates are influenced to brand switching. 30 % respondents are agreed brand switching has influenced because of call rates. 25% respondents remained neutral in their opinion. 20 % respondents disagreed to the fact that call rates are influenced to brand switching. 5% of respondents strongly disagreed with this opinion.

#### **Network Coverage is An Influence factor**

Respondents were asked that whether Network coverage of previous mobile service provider was poor comparing other service providers.

**Table and chart 3: Influence of Network Coverage among brand switchers**

	No of respondents	% of respondents
Strongly agree	60	50
Agree	24	20
Neutral	6	5
Strongly disagree	12	10
Disagree	18	15
Total	120	100



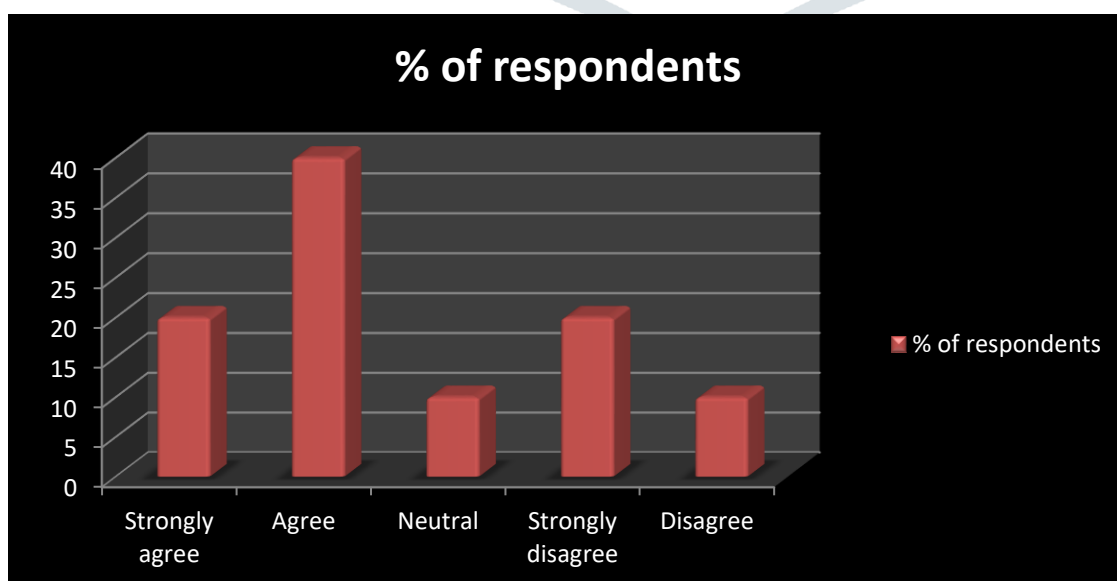
Results suggest that 50% respondents strongly agreed that poor network coverage of previous service provider comparing to current operator that can influenced to switch. 20% respondents agreed, 5% remained neutral, 15% disagreed and 10% respondents strongly disagreed to the fact that they are influenced by network coverage service of previous operator.

**Value Added Services is the factor influence**

Brand Switching Respondents were asked that whether value added services have encouraged them for brand switching or not.

**Table and chart 4 : Influence of Value Added Services among brand switchers**

	No of respondents	% of respondents
Strongly agree	24	20
Agree	48	40
Neutral	12	10
Strongly disagree	24	20
Disagree	12	10
Total	120	100



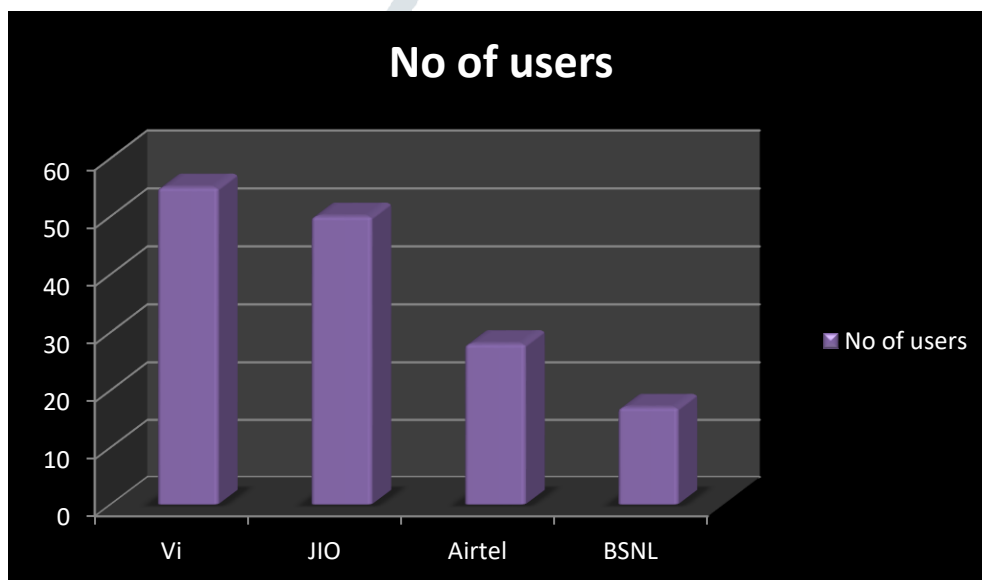


The above table suggests that 20% respondents strongly agreed to the fact that value added services have encouraged them to switch over new service provider. 40% respondents agreed to the fact that value added services of new operator have encouraged them for brand switching. 10% respondents remained neutral in their opinion. 10% respondents disagreed to the fact that value added services of new service provider have encouraged brand switching. 20% respondents strongly disagreed with this opinion.

### Most demanded mobile network

Among 150 respondents most of the people preferred Vi and Jio mobile service providers in Malappuram district. The main reason for the preference is because of its wide network coverage and 4G availability.

Service provider	No of users
Vi	55
JIO	50
Airtel	28
BSNL	17
total	150



From the above figure it is clear that most of the respondents preferred Vi network because of its wide coverage and the second preferred network is Jio because of its 4G availability and speed. The other service providers are Airtel and BSNL.

### Chi square test

Age	Switching behaviour
20	30
20 - 30	50
30 -40	35
40 – 50	25
50 and more	10

**Chi square value = 0.503668**

The table value at 5% level of significance is 9.488. Calculated value is less than the table value. So we accept the null hypothesis. That means there is a significant relation between age and switching behaviour.

## FINDINGS

1. Respondents who were young have been found very frequent in switching mobile service providers. It has been found that respondents who are older in age have never switching mobile service providers. It can be deduced that these respondents might have some personal or professional reason for changing mobile service providers. It has been found that respondents who are young have switched for more than 3 times since they are using mobile telecommunication.
2. During this pandemic situation most of the respondents wants 4G availability, network coverage and internet availability in their mobile networks. Because of most of them are work from home people and in online classes.
3. Among 150 respondents most of the people preferred Vi and Jio mobile service providers in Malappuram district. The main reason for the preference is because of its wide network coverage and 4G availability.
4. From chi square test, it is clear that there is a significant relation between age and switching behaviour of customers.

## SUGGESTIONS

1. It is clear that different groups have different switching behavior , age, gender, marital status and brand have significant dependency on those who switch.
2. Customer care service need to be updated by providing extra options to customers.
3. Mobile service providers have to provide more offers for family and friends. Enticing offers still hold a major sway.
4. Mobile service provider should satisfy their current consumers by providing them innovative offers.
5. Mobile service provider should accept valid feedbacks from consumers regularly and make sure that they satisfy the consumers.

## CONCLUSION

Telecommunication services are globally recognized as one of the driving forces for overall economic development in a nation. They are also one of the prime support services needed for rapid growth and modernization of various sectors of the economy. The Government of India recognizes this fact and hence, has taken several major initiatives to provide a business friendly environment for companies in this sector. This particular research aimed at examining the factors influencing brand switching in telecommunication industry of India. In order to examine the factors triangulation methodology has been adopted. Questionnaire strategy has been used for collecting primary data. There were 80% respondents who have experienced brand switching of service providers at any stage in their life. 20% respondents have never switched mobile service providers. The findings of research suggest that there network coverage has been most influential factor in decisions of customers regarding brand switching. The results have shown that most of respondents switch mobile service providers in response to network problems. On the other hand service providers charging low call rates have been succeeded in stopping their customers to switch over other service providers. All customers do not value reduction in prices of calls but they value quality of services.

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VOLUME 20 ISSUE 2

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**“Let Us Inquire, to What End Is Nature?”**

An Ecological Reading of Nathaniel Hawthorne’s  
*The House of the Seven Gables* and *The Marble Faun*

GIRIJA SANKARA ARAVIND AND LAXMI DHAR DWIVEDI



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**THE INTERNATIONAL JOURNAL OF  
CRITICAL CULTURAL STUDIES**

<https://thehumanities.com>

ISSN: 2327-0055 (Print)

ISSN: 2327-2376 (Online)

<https://doi.org/10.18848/2327-0055/CGP> (Journal)

First published by Common Ground Research Networks in 2022  
University of Illinois Research Park  
60 Hazelwood Drive  
Champaign, IL 61820 USA  
Ph: +1-217-328-0405  
<https://cgnetworks.org>

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# “Let Us Inquire, to What End Is Nature?”: An Ecological Reading of Nathaniel Hawthorne’s *The House of the Seven Gables* and *The Marble Faun*

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Laxmi Dhar Dwivedi, VIT University, India

*Abstract:* There is a possible misconception regarding Nathaniel Hawthorne, the canonical author in American literature, that nature is not particularly significant in his fiction. This article aims to disprove this notion by providing an ecological reading of his novels, *The House of the Seven Gables* (1851) and *The Marble Faun* (1860). The study argues that although the novels are not explicitly environmental texts, they exhibit genuine environmental concerns. The environmental orientation of the novels are investigated by analyzing the representation of a nonhuman environment as setting, by identifying metaphors and symbols related to nature, by examining the depiction of human–nature interactions, and by discovering the ecological vision embedded in them. The study shows that both the novels are environmentally conscious. The detailed depictions of the nonhuman environment in the form of physical and natural settings help in representing nature and elevate its role beyond just a passive framework. The novels emphasize the need to live in communion with nature by exploring the complex dynamics of human–nature interactions through various characters. An ideal human–nature relationship is envisaged through Clifford, whereas Donatello is an expression of environmental crisis. Furthermore, the novels are replete with metaphors, symbols, and imagery related to the natural world in such a way that a complete appreciation of the works would be impossible without giving attention to them. The novels underscore the aspect of human accountability to nature while upholding the environmental vision that with the right perspective, nature has the capacity to heal desolate minds.

*Keywords:* Ecocriticism, Ecological, Hawthorne, Nature

## Introduction

Through the multifarious representations of the natural world in literary works, one learns about the different attitudes that humans have harbored about nature in different ages and how the concept of “nature” was constructed by the cultural, social, and religious ideologies of the time. Ecocriticism, as a literary theory, evolved in the late twentieth century in an effort to read literature and nature side by side. Even though nature as a theme had already been explored in fiction, an attempt to interpret literature from an ecological perspective was new to the field of literary criticism. Cheryll Glotfelty, in *The Ecocriticism Reader* (1996), stated that the literary critics of the time held on to a complacent notion that literary criticism was deeply concerned about the contemporary issues of the time. However, they were insensitive to the most burning issue: the mistreatment of nature and the ensuing ecological crisis. Although the newspaper headlines were filled with the news “of oil spills, lead and asbestos poisoning, toxic waste contamination, extinction of species at an unprecedented rate, battles over public land use, protests over nuclear waste dumps, a growing hole in the ozone layer, predictions of global warming” (Glotfelty and Fromm 1996, XVI) and kindred accounts, not enough journals or conferences were dedicated to discussing how literature could contribute toward the betterment of the situation. Even so, it cannot be said that there was a complete detachment of literary scholars toward environmental causes. Hence, Cheryll Glotfelty, in the 1989 WLA (Western Literature Association) conference held in the United States, revived the term “ecocriticism” (which was first used by William Rueckert in 1978) and suggested that it could replace “the diffuse critical field that

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had previously been known as ‘the study of nature writing’” (Branch and O’Grady 1994, 1). Ecocriticism does not follow a single methodology, but its practitioners aim at “promoting ways of reading literary texts that can, however indiscreetly, motivate and guide us to strive for a more ethical co-existence with the rest of the biotic community” (Borlik 2011, 10).

An important function of ecocriticism is to aid efforts in protecting the environment from unchecked human advancements that result in the pollution of land, air, and water and the depletion of natural resources. Yuval Noah Harari notes in *Homo Deus* (2016) that if anything has degraded the ecological balance most disastrously as a “single force,” it is the anthropomorphic attitude of humankind. The hunter-gatherer ancestors of human beings were animists who saw themselves and nature as part of one entity. They lived in communion with nature. As humans began to build societies and became settlers engaging in agricultural production, a paradigm shift occurred in the attitude toward nature. The new cultural and political ideologies saw nature as an object to be exploited for the improvement of human living conditions. Religions reinforced this by exalting human beings as the “chosen” ones. As a result, the human beings have, “rewritten the rules of the game... Within a century, our impact may surpass that of the asteroid that killed off the dinosaurs 65 million years ago” (Harari 2016, 85).

The birth of ecocriticism in the United States is largely indebted to the “American literary, philosophical, religious and political movement of the early nineteenth century” (Goodman 2019) named Transcendentalism. Nature had a crucial role to play in the Transcendentalist philosophy that observed the natural world at a close range and emphasized the importance of enjoying and appreciating the beauty of nature. Emerson was greatly influenced by nature as is evident in his essay “Nature” (1849). The question “Let us inquire, to what end is nature?” served to inspire naturalists in America (Emerson 1849, 2).

### Contemporary Relevance of Hawthorne’s Perspective on Nature

Even though Hawthorne disagreed with the fundamental tenet of Transcendentalism regarding the innate goodness of humankind (he believed that “darkness of the heart” resides in everyone), he shared their awe for nature (Bramlet 2020). In the *American Notebooks* (1875), he expresses his view of nature as follows:

Man’s finest workmanship, the closer you observe it, the more imperfections it shows; as in a piece of polished steel a microscope will discover a rough surface. Whereas, what may look coarse and rough in Nature’s workmanship will show an infinitely minute perfection, the closer you look into it. The reason of the minute superiority of Nature’s work over man’s is, that the former works from the innermost germ, while the latter works merely superficially. (88–89)

Although Hawthorne cherished his love for the natural world that is frequently portrayed in his fictional and nonfictional writings, Petersheim (2020) opines there is a misconception that nature is insignificant in his writings. He says that this could be because Hawthorne personified and allegorized nature in his writings and his observations on nature have been overlooked as “little more than a romantic morass” (45). The general notion holds that “Hawthorne writes about culture, not about nature” (45). According to Mason (2005), “of all the traditionally canonized male authors of the mid-nineteenth century American literature... [Hawthorne] has been considered the least interested in nature” (52). However, upon analysis of his writings, it becomes clear that he was a keen observer of nature with acute environmental consciousness seeking “expiation for the rape of maternal nature” (xiv).

Hawthorne’s novels are not explicitly environmental texts. However, his diary reveals that nature was a subject of utmost importance. In *Passages from the American Notebooks* (1875), he described his firm belief that nature would provide for all his material and spiritual needs. Because

Hawthorne's love for nature is evident in his nonfiction works, an investigation as to how nature is represented in his fiction also provides scope for study. The present study explores this aspect in Hawthorne's fiction. As his monumental novel *The Scarlet Letter* has already received much attention, this article tries to focus on two other significant novels, namely, *The House of the Seven Gables* (1851) and *The Marble Faun* (1860a, 1860b). Both the novels are critically acclaimed; the former has been hailed as the "the most valuable contribution to New England history that has been made" (Crowley 1970, 191) and the latter emboldened his reputation as the most "purely original writer" of his times (Wright 2006, 160).

This article evaluates the foregoing novels from an ecocritical perspective, studying the representation of nature in the selected works, the role of nature in building the narrative, and how nature has been used as a medium to communicate the themes and psychological preoccupations of the characters. The effective use of nonhuman environment as settings will be analyzed to understand whether it is merely a silent entity. The interaction of the characters with the natural world and its effects upon them is another area of enquiry. Because animals are an inevitable part of the natural world, the representation of animals and its due importance in the narrative will also be a focus area of the study. This article intends to prove that nature is not just a pretty backdrop in Hawthorne's works, but that it holds, in its own right, the important position of a character. It also aims to unearth the ecological vision, values, and implications that Hawthorne tries to communicate. The study gains relevance in the contemporary world where human-nature relationship is falling apart, to provoke action toward "returning to nature."

### **Nature, Natural Setting, and Place-Sense**

The study progresses through textual analyses and close-readings of the selected novels. Before proceeding with the methodology, certain key concepts such as nature, setting, and place are conceptualized. Nature, as Kate Soper (1995) says, is difficult to define in concrete terms; it is "a term that we are at home with but with a 'loss of grip' when we contemplate the usages" (3). In this study, nature is taken as the nonhuman environment, referring to all that is attributed as natural, such as plants, trees, and animals. In this analysis, the setting is divided into two: natural and physical. The natural setting, as Scheese (1994) says, is the natural landscape, which includes air, soil, trees, rocks, animals, and rivers. The physical setting includes, as Sarver (1994) says, all the artificial constructions such as buildings, houses, dooryards, farms, and cities. Other important concepts related to the study are place and place-sense. In this study, place is taken as an area to which meaning is attributed by a person based on one's experiences. Place-sense develops from myriad sensations, including love, hate, fear, and peace that one has experienced at a particular place. The importance of place in human lives is aptly accentuated by Gray (1989) when he says, "All experience is placed experience" (53). This article studies how these concepts are incorporated into the narrative to make it ecologically significant.

The study also uses the following checklist developed by Lawrence Buell in *The Environmental Imagination* (1995) to identify whether a work is environmentally oriented: (a) The nonhuman environment in the work shouldn't be just "a framing device but as a presence that begins to suggest that human history is implicated in natural history" (7); (b) "The human interest is not understood to be the only legitimate interest" (7); (c) "Human accountability to the environment is part of the text's ethical orientation" (7); (d) "Some sense of the environment as a process rather than as a constant or a given is at least implicit in the text" (8). A close examination of the works will reveal whether the aforementioned features of a truly eco-conscious work reflect in them. Those features, along with the manifestation of the concepts of "nature," "natural setting," and "place-sense," make nature a significant aspect in Hawthorne's selected novels.

## Ecological Representations in Hawthorne

### *Representation of Nature*

*The House of the Seven Gables* (henceforth, *Seven Gables*) is the story of the Pyncheon family. It begins with the arrogant Colonel Pyncheon usurping a small piece of land owned by a poor farmer named Mathew Maule. After annexing the land by unfair means, the Colonel built a gabled house at the place of Maule's humble hut, but nobody could live peacefully in the mansion ever since. The Colonel died mysteriously and his successive generations led a distressed life under the same roof. All the main characters in the novel are his descendants, namely, Hepzibah, Clifford, Phoebe, and Judge Pyncheon. Although the story is set two centuries after the death of Pyncheon, the spell of his evil deeds still percolate through their lives.

To unearth the ecocritical connotations in this work, the first challenge is to shift the focus primarily from the thoughts, motives, and actions of the characters and to lay more emphasis on the setting of the story. A glance at the sturdy towering mansion helps the readers assume certain details verbally unrecorded in the text, such as its age, the current state of its inhabitants, their mental state, or a general state of affairs. The "rusty wooden house," which is a "weather-beaten edifice" with "mossiness on its roof and walls," indicates a "long lapse of mortal life, and accompanying vicissitudes that have passed within" (Hawthorne 1851, 9). The flowering shrubs growing on the roof of the house, later revealed as "Alice's Posies," points at the state of neglect the edifice has been subjected to and the innocuousness of its occupants. Such subtle clues delivered through the careful depiction of the house and its surroundings indicate that the nonhuman environment is used not just as a framing device but as an illustration of how human history is suggested through her environment. As Buell (1995) notes, this use of the nonhuman environment beyond the capacity of a mere framing tool is a striking feature of an ecologically oriented work.

Apart from the physical settings of the nonhuman environment, natural settings are also effectively used to heighten and communicate the condition of the characters. For example, a bleak representation of nature hints at the characteristic desolateness and misfortune of the house and its inhabitants. The land in which the house stands was earlier owned by Mathew Maule, who lived there in a shaggy hut. It was misappropriated by the powerful Colonel Pyncheon who accused Maule of witchcraft and had him hanged. The reaction to the evil and unethical means by which the Colonel usurped the soil reflected upon its natural surroundings too. During Maule's time, there had been a natural spring in the plot, which was "a rare treasure on the sea-girt peninsula" (Hawthorne 1851, 11). But after the Colonel snatched away the property and constructed the mansion, the spring disappeared. The water there turned "hard and brackish...productive of intestinal mischief to those who quench their thirst here" (14). In other words, when the Colonel wronged Maule, its repercussions were visible in nature too. The changes in the environment after the wrongful death of Maule can be seen as a reflection of how oppression affects human and nature alike. Maule was a farmer, a producer and sustainer of life. When he was killed, the life-giving force of the fresh and pure water in the spring changed into a life-depriving force of salty and bitter water. It also put an end to the process of cultivation, the production of life, at that place. The land was then used to erect a towering edifice that witnessed no growth, but only decay. This spiritual and physical deterioration of the inhabitants and the edifice, respectively, is metaphorically presented in the form of the water turning brackish. The text advances the ecological notion that trying to control the unstoppable force of nature would end up badly. Nature is thus represented in the novel not as a marginalized entity but as self-articulatory in the sense that reactions to human aberrations are clearly visible in nature.

Numerous passages in the novel depict detailed and accurate descriptions of nonhuman environment as the setting. The representation of natural surroundings such as soil, plants, and flowers are done so vividly that it becomes not just a framework, but also weaves layers of meaning.



The unkempt garden in the gabled house is an example. The garden is not maintained because the inhabitants were too engrossed in the coarseness of life that they lost touch with the tender aspects of it. This turned the garden soil black because it had "fed itself with the decay of a long time" (Hawthorne 1851, 96). The natural history of the place mirrors its human history by foreshadowing the nature of characters. Like the black soil that had enriched itself with the decay of old things, the characters inherited the decaying effects of the actions of their forefathers. On the flipside, the paucity of human interference in the garden led to nature taking over, giving it a wild charm. As the narrator notes, "The eye of Heaven seemed to look down into it pleasantly, and with a peculiar smile, as if glad to perceive that nature, elsewhere overwhelmed, and driven out of the dusty town, had here been able to retain a breathing-place" (97). The narrator hints that the development of the town and human settlements has in some way affected nature. The gabled house is an example of such interference. However the garden retains its charm because the inhabitants do not meddle with it. It also insinuates that the development of wilderness into towns, seemingly measuring human progress, often comes at the cost of destroying nature.

The narrator's keen observation is evident in the meticulous descriptions of nature throughout the novel. Various plants such as the white double rose-bush, antique and hereditary flowers, pear trees, and the damson trees, are realistically portrayed. Natural processes of growth and decay are used as symbols in the narrative. Examples are the big Pyncheon-elm planted by a great-grandson of the first Pyncheon and the flower shrubs growing atop the roof, the seeds of which Alice Pyncheon had flung up in the air for sport, thereby indicating that nature outgrows humankind. Even an action as innocuous as throwing up seeds is shown to have long-lasting effects. The people who planted them died before witnessing the fruition of their actions, but nature continued its normal course even without them. The great-grandson did not live long enough to see the seed grow into a giant elm tree, nor could Alice see the growth of the flower shrubs across the roof. Another notable symbol is the old bean wine, the seeds of which were discovered from the belongings of an old Pyncheon ancestor. It was later planted by Holgrave. Surprisingly, it grew luxuriantly and attracted a lot of hummingbirds into the garden. This also expresses that the implications of one's actions, both good and bad, carry over to the next generation and impact nature as well. It is also one of the main themes of the novel as to how the actions of one generation influence the progeny. The environmental relevance of the novel lies in the depiction of the nonhuman world not merely as a backdrop, but as an active influencer of the plot. The place where the story happens is intertwined with the lives of the characters there; some actively construct it and some others destroy it. Nature bears the impact of their actions while still retaining "an unexpected charm" (Hawthorne 1851, 97).

*The Marble Faun* (henceforth, *Marble Faun*), the fourth novel of Hawthorne, revolves around the life of four friends: Kenyon, Donatello, Hilda, and Miriam. Except Donatello, all others are artists. Donatello is special in their group and the most naturally joyful among them. His friends say that Donatello has a striking resemblance with the statue of the Faun of Praxiteles. They even believe that he is the descendant of the faun as he is always happy and walks as if he is dancing with joy. The turning point of the story is when Donatello murders a man who causes severe agony to Miriam, his love. This act changes the life of not just Donatello but all three of his friends. The novel discusses how sin educates people and how it aids the transition from innocence to maturity, particularly visible in Donatello. However, the act of murder also changes him drastically, transforming the innocent and light-hearted Donatello into an anguished being. Along with the loss of innocence, he is also deprived of his intimate connection with nature. The downfall of Donatello manifests the ecological concept of the author that an unblemished conscience is crucial to sustain connection with nature.

The characterization of Donatello as a strange mix of human and the mythical faun is interesting from an ecological perspective. The faun originates from Roman mythology; the word is derived from Faunus, the god of the woods (Britannica n.d.). The characterization of Donatello as a combination of the sophisticated human and the unsophisticated faun implies that he is a creature

entwined with nature. Donatello's distinctive identification with the faun enables him to mingle with nature better than all other characters in the novel because, unlike humans who see themselves as different from the rest of nature, Donatello does not. He carried within him the essence of nature such as simplicity, capacity for warmth, attachment, and emotion, as well as its coarser animal instincts. He is the perfect example of an ideal human–nature relationship with his unique sensibility to see man and animal alike as part of the same ecosystem. He was blessed with “the pleasantness of sylvan life, all the genial and happy characteristics of creatures that dwell in woods and fields” (Hawthorne 1860a, 22). However, with the loss of this intimate connection with nature, Donatello faces downfall in his life, becoming unable to find happiness in nature as he once did. This becomes the most vocal representation of environmental crisis in the novel.

The nonhuman environment as setting in *Marble Faun* is not merely a framework, but is interfused with the narrative. The physical settings such as the boisterous city of Rome, its picture galleries, statues, and gardens are meticulously sketched by the author. The creative spirits of Miriam, Hilda, and Kenyon are attuned with the spirit of the town itself. The city, as the place is described, is an enthusiastic center of celebration of artists and tourists. The dynamic use of setting can be seen in the choice of the Roman catacomb as the backdrop for the fateful encounter of Miriam with the old man. The catacomb is an underground burial spot used in the ancient times. The use of the catacomb as the setting symbolically insinuates the death of the monk and the death-like existence of Donatello and Miriam which are to follow. Another example of the effective use of setting is the ancient country house and the Owl tower of Donatello. The country house resembles an old castle and is a very strong and vast edifice, which makes Donatello feel lonely. His desolateness is further emphasized in the Owl tower. It is a very tall structure and consists of grim rooms, which were used as prison chambers in the past. Donatello says that he likes the isolated windy summit of the tower more than the world below. This is a reflection of the mental state of Donatello who is weighed down by guilt. The natural setting appears more significant in the second volume of the novel in the descriptions of the Green Apennines where Donatello grew up. It is pictured as an exotic ground of valleys, mountains, forest, and pristine fountains. It demonstrates the intimate connection Donatello had with the natural world before he came to Rome. During those times, nature reflected the purity and innocence of Donatello. However, nature does not reciprocate the same feelings after he commits the murder. He no more finds the same joy in rambling through the forest paths as he used to in his childhood. Hence, nature is used as a tool to communicate the ruminations as well as the ramifications of actions of the characters.

In short, it can be seen that Hawthorne has effectively employed nonhuman environment as setting in both the novels. The two novels are ecologically inclined, with reference to Buell's checklist, as the nonhuman environment is not reduced merely to a framework without any organic relation between the story and characters. It mingles with the narrative and reflects human history as well.

### ***Representation of Human–Nature Interactions***

The dynamics of human–nature interaction is an interesting area in ecocritical studies. Through the character of Clifford in *Seven Gables*, Hawthorne illustrates the benefits of nurturing an intimate connection with nature. At the beginning of Clifford's appearance in the novel, he is physically and mentally fatigued. The many years spent in prison had taken a heavy toll on him and he was scared of everyone and everything. As a result, he feels connected and secure in only one place: the gabled house. He does not dare to go beyond the compound. Before the incarceration, he loved to be in the company of nature and had appreciated its bounties, but he had forgotten it all during his imprisonment. After coming back from prison, “he found it again, now, as he slowly revived from the chill torpor of his life” (Hawthorne 1851, 160). He pined for the soothing sunlight and fragrant flowers. The pill to cure his illness was predominantly, nature.

How balmy the atmosphere, through that open window! An open window! How beautiful that play of sunshine! Those flowers, how very fragrant! That young girl's face, how cheerful, how blooming!—a flower with the dew on it, and sunbeams in the dew-drops! Ah! this must be all a dream! A dream! A dream! But it has quite hidden the four stone walls! (Hawthorne 1851, 120)

Clifford's love of nature is not just a fancy toward picturesque landscapes or a desire to be in open spaces after being confined in prison for long. He sought in nature a deeper understanding of life, a tool to widen his perceptions and discover the real meaning of life. The narrator's description of his passionate love for flowers shows this:

Not merely was there a delight in the flower's perfume, or pleasure in its beautiful form, and the delicacy or brightness of its hue; but Clifford's enjoyment was accompanied with a perception of life, character, and individuality, that made him love these blossoms of the garden, as if they were endowed with, sentiment and intelligence. (Hawthorne 1851, 160)

Clifford's place-attachment reaches its zenith in the beautiful garden spot that Phoebe arranges for him. It provided him with a deep sense of joy and peace. He basked there in his love for nature by fondling beautiful flowers and listening to the music of the bees: "When Clifford heard their sunny, buzzing murmur, he looked about him with a joyful sense of warmth, and blue sky, and green grass, and of God's free air in the whole height from earth to heaven" (Hawthorne 1851, 160–161). The luxuriant bean-vines in the garden attracted hummingbirds from far and wide, and upon watching them, Clifford was excited like a child. Clifford's interaction with nature shows that it plays an important role as a healing agent in one's life. It soothed his wounds and kindled the liveliness he had lost upon facing the worst phase of his life. The garden in the novel is a microcosm of nature itself, and the positive change that the garden brings upon Clifford's life indicates nature's ability to cure humankind's maladies. For Clifford, the garden "was the Eden of a thunder-smitten Adam, who had fled for refuge thither out of the same dreary and perilous wilderness into which the original Adam was expelled" (163). Other than Clifford, Phoebe and Holgrave also spend time with nature. Phoebe believes she can talk with the hens and is largely responsible for reviving the garden. When Holgrave feels smothered by the dullness of the house, he refreshes himself by digging and hoeing in the garden. The impact of nature upon these characters is that, it makes them happier.

The theme of human–nature interaction and its dynamics are profoundly sketched in *Marble Faun*. The history of the Monte Beni family located in the pristine mountains of the Green Apennines unrolls the deep connection that Donatello and his forefathers shared with nature. The beginning of this peculiar race could be traced back to prehistoric times when "a sylvan creature, native among the woods" (Hawthorne 1860b, 10), not completely human, fell in love with a mortal human. The progeny of this union, however, continued as the human race. As generations passed, the original traits of this blood, the "strong, active, genial, cheerful as the sunshine, passionate as the tornado" (10), withered away along with their rapport with nature. The birth of the Monte Beni race could be interpreted as the symbolic representation of the birth of civilization itself at a microcosmic level. In the beginning, humans revered nature, but with the advent of agriculture, the idea of taming nature for human benefit started. Still, the exploitation of nature was minimal. With the coming of the industrial age and mechanization, the meaning attributed to nature drastically changed for the worse. Exploitation became rampant and nature was reduced to a means for making profit. In other words, as humankind became more civilized, they went farther away from nature.

In *Marble Faun*, the interaction of nature with humans is most vividly sketched in the character of Donatello. He is described as a person who lives in communion with nature. For example, while rambling through the Villa Borghese garden in Rome, Miriam is surprised to see the excitement of Donatello as he kisses the ground and embraces the trunk of a tree as if they are creatures like him.



As he lay down on the turf, birds alighted upon the branches and started singing. Other small creatures like the lizards seemed to acknowledge his presence, as if “they recognized him,...as something akin to themselves...that he was rooted and grew there” (1860a, 86). They were not scared, but considered him alike the soil and flowers. However, this connection with nature was destroyed forever because of the murder that he committed. After he returned to his castle in the Apennines, he discovered that nature despised him. The act of destroying life destroyed his innocence and subsequently destroyed his relationship with nature and its delights.

The effect of moral degradation on human–nature relationships is displayed through Donatello’s forefather who fell in love with a nymph who lived in a fountain in the interiors of the lush Green Apennines. The nymph’s “life and soul were somehow interfused throughout the gushing water” (Hawthorne 1860b, 23–24) and she was “as young as a May morning, and as frolicsome as a bird upon a tree, or a breeze that makes merry with the leaves” (24). She was endowed with the magical capacity of healing all the earthly troubles of the knight by just laying “her moist hand upon his brow, and charmed the fret and fever quite away” (25). The nymph symbolizes the bounties of nature, and the fountain with its pristine water symbolizes the purest form of life. However, matters took an unfortunate turn when the knight came one day to meet the nymph but she did not appear. While waiting for the nymph, the knight washed his hands and brow in the fountain. He immediately heard a wail and the water shrank away from him because “he had tried to wash off a bloodstain” (25). Since then, he beheld the nymph’s face only one more time in his whole life, but then there was “a bloodstain on the poor nymph’s brow” (26). There ended the relationship of the knight with the nymph, and the rest of his life was spent mourning for the lost love. This incident had a significant impact upon Donatello as a child and adult. In his childhood, this little dell where the fountain stood was his most favorite place. However, as he grew into an adult, the place and the story triggered a diametrically opposite sentiment, particularly after he murdered the old man. The excitement of the childhood gave way to desolation; the story that was once sweet felt sad now. All the places in the woods and hills that he frequented as a child suddenly felt strange, to such an extent that he could hardly recognize them. This change in attitude shows the dynamic aspect of the human–nature relationship. It is never static, but the way humans perceive nature basically depends on human behavior itself. This incident implies the perspective that human’s capability or incapability of bonding with other humans is reflected in their bonding with nature.

The changing human–nature dynamics is also portrayed through Donatello and his changing place-attachment. The novel illustrates that the impact of place upon a person’s mood or character, whether it be the city of Rome or the Green Apennines of Donatello’s native place, is not a static phenomenon. It depends on one’s experiences associated with a particular place. Donatello had an idyllic childhood that was spent in the Green Apennines amidst the untainted woods, hills, and streams. There, he developed a deep connection with nature. He also enjoyed the bustling life in Rome, which is in stark contrast to his native place. But his attachment to the city was because of the presence of Miriam whom he loved. It gave meaning to that place in his life. However, the same place he loved became unbearable for him after he killed the old man, and he desperately wanted to escape from there to his house in the green valley where he had once enjoyed tranquility. Unfortunately, he fails to achieve peace even there. One’s experience of place is determined by associations. For Donatello, Rome was earlier associated with love and hence he enjoyed the place, but afterwards, it became associated with murder, which is why the place became intolerable. However, despite having only good associations with his native place, he still could not find peace there because of his guilty conscience. This shows that place-attachment is not a static phenomenon, but that it depends on our mental and physical experiences.

The novel uses bloodstain as a symbol of sin and pollution to indicate how such deeds would affect the dynamics of human–nature relationships. Once mortals become corrupted, nature severs her bond with them. The misdeed not only pollutes humankind but nature too. This is implied by the bloodstain upon the nymph’s brow and the water receding away from the knight

when he tried to wash it off. The bloodstain is the metaphorical representation of the moral degradation of man. The aversion of the nymph and water conveys the message that humans relationship with nature is dependent on their acts. The intimacy with nature was lost because a fellow human was murdered. It raises the issue of how humans can love nature when they cannot love their own species, implying that human–nature bond is affected not only by the atrocities committed upon “nature” but upon other humans too. The fate of Donatello and his forefather exemplifies this. The bloodstain could also be taken as a symbol of pollution that destroys the pure life-giving fountain water. Pollution continues to destroy life by contaminating water.

### *Representation of Animals*

The fundamental approach of ecocritics regarding the animal world is that they question the notion of superiority of humans over animals and refute the idea that the former is an altogether different kind. Environmentalists dislike the distinction between humans and animals and argue that we are all part of the natural world. According to Buell (1995), the sincere depiction of animal world is one of the key features of an eco-conscious work. This section explores Hawthorne’s attitudes toward animals by analyzing how they are represented in the selected works.

In *Seven Gables*, the animal world is represented with due importance. The novel illustrates the deep connection that is possible between humans and animals. Hens, bees, and hummingbirds appear in the novel as creatures that bring smile and solace to the characters. As Hepzibah says, “God send them thither, to gladden our poor Clifford” (Hawthorne 1851, 161). The fragile Clifford is shown to derive great pleasure, almost a sort of childish excitement, in watching the murmur of the bees and play of the hummingbirds. In fact, the company of humans, except Hepzibah and Phoebe, is traumatizing for him because of which he is unwilling to mingle with the society. However, he feels comfortable sitting in the garden chatting with the bees and looking at hens. He is empathetic to animals and orders to free the hens from their cages, probably because the pain of imprisonment is familiar to him. The hens are characterized as having a history of their own. Holgrave says that a particular chicken had certain “hereditary marks” such as “the peculiar speckle of its plumage, the funny tuft on its head, and a knob on each of its legs” and that “these marks betokened the oddities of the Pyncheon family,...the chicken itself was a symbol of the life of the old house, embodying its interpretation” (165). By depicting the family resemblance as common to both humans and animals, Hawthorne diminishes the notion of superiority ascribed to humankind and supports the ecocritical notion of humans’ connection with animals. This could be interpreted as an eco-conscious depiction of animals into the narrative.

In the final chapter of the novel, the rooster in the household is transported well in advance to the new residence that the family plans to relocate to. At the new place, “the two hens had forthwith begun an indefatigable process of egg-laying...to continue their illustrious breed under better auspices than for a century past” (Hawthorne 1851, 338). It shows the importance that the family attaches to animals as their beloved companions and their care in providing them with a secure habitat. The process of egg-laying could be taken as a metaphor of new life. This is also a reflection of the new start that Clifford and the other characters would have in their new house. In short, the novel illustrates Hawthorne’s keen interest and sympathy to the emotions of animals and treats them not as the “other” but as an integral part of human life.

Animals have been well represented in *Marble Faun* as well. A striking difference between the representations of animals in the two novels is that in *Marble Faun*, wild animals, their savage nature and its influence on humans are explored more than domesticated animals that feature in the previous novel. The presence of animal instincts is particularly visible in the character of Donatello. Animal nature is ingrained in his character because of his resemblance to a faun. He is a strange mix of “savage fierceness” (Hawthorne 1860b, 10) as well as “honest impulses...simple tastes...love of homely pleasures...which he could associate himself with the wild things of the forests, and with the fowls of the air” (12). Animal imagery is abundantly used

throughout the novel. Miriam considers Donatello as one among the “four-footed kindred” (Hawthorne 1860a, 21) and “so full of animal life” (22). His love toward Miriam is compared to that of the adoration of a pet dog:

was as gentle and docile as a pet spaniel; as playful, too, in his general disposition, or saddening with his mistress’s variable mood like that of any other kindly animal which has the faculty of bestowing its sympathies more completely than men or women can ever do. (1860a, 22)

This confirms the presence of animal instincts in him, which are represented as wild yet beautiful. However, there is another facet to his animal nature, as in the “tiger-like fury gleaming from his wild eyes” (Hawthorne 1860a, 164), which is visible while murdering the old man. He assimilates into him the roughness of animals, but is also endowed with the capacity to be in perfect communion with nature. The author has also used the temperaments of animals in the description of characters. For example, Donatello tells Kenyon while climbing the stairs of the Owl Tower that the two owls that inhabit one of its prison chambers recognize him far better than they used to in his childhood days. His identification with the nocturnal owl indicates estrangement from his earlier life of sunshine and happiness. Another similar incident occurs when he along with Kenyon tries to summon the forest creatures with the help of his unique ability to communicate with animals, which he had possessed as a child. However, all he could summon was a poisonous lizard. This hints at the poisoned soul he inherited after committing the murder. Donatello is never complete without the animalistic nature inherent in him. The same appears in the character of Hilda, who is called by her friends as “Hilda the dove.” The tower where she lives is called the Dove-Cote. This is because the tower is home to a fleet of doves and also because Hilda is lovely, independent, and as gentle as a dove.

In short, animals are depicted in both novels with deserved importance. They are represented as creatures that have kinship with humans. Some of them appear as an extension of the characters in the novel. The sympathetic treatment of animals as it appears in *Seven Gables* also aligns with what Buell (1995) suggests as an important trait of an eco-conscious work where the human interest is not the only interest. The use of animal imagery and character descriptions inspired from animals underscore the importance of animals in the narrative.

## Conclusion

In this era of modern-day distractions, being sensitive to nature is a virtue. Rereading canonical works like Thoreau’s *Walden* (1854) is important now because it reminds us of the importance of nature, nature writing, and representation of nature in literary works. An understanding of doctrines such as Transcendentalism may help in reducing environmental disasters, excessive industrialization, and urbanization. Although one may wonder whether it is obsolete, the reality is that forms of modernized Transcendentalism are still relevant today. In Kantarjian’s (2021) article “The Legacy of American Transcendentalism in Contemporary Literature,” the author conducts a detailed study on the influence of Transcendentalism in modern literature. She conducted the study on two diverse works: *Into the Wild* (1996) by John Krakauer and *Our Endless Numbered Days* (2015) by Claire Fuller. The study concluded that the allegedly transient movement features in many modern works thus proving to be inspirational to the current generation too. Hawthorne was greatly inspired by the Transcendentalist’s attitude to nature, and this reiterates the relevance of inquiring the representation of nature in Hawthorne’s works in the present. The study has its limitations too. First, only two novels of Hawthorne have been included. Analysis could be expanded to his remaining novels and short stories in future studies. The apprehension regarding the article’s real-world significance, whether it would generate any physical action toward protecting the environment, is the second limitation.



While applying ecocritical theories on literary works, there are serious misgivings about its practicability and outcome in reality. Whether it becomes just an academic exercise is a legitimate concern. However, Glotfelty's (1996) introduction to *The Ecocriticism Reader* alleviates this concern to a great extent. He says that, studying environmental problems is important, but equally important is to understand what causes it. According to him, humans cause this as a "by-product of culture." This reasons why ecocritical studies are important today in raising awareness regarding how human attitude affects nature. To holistically understand this phenomenon, ecocriticism must expand and become multiethnic, multicultural, multidisciplinary, and international. The growing interest in ecolinguistics could be seen as a positive trend in this line. According to Stibbe (2015), language plays a major role in how humans perceive the world. Like how bad advertising encourages one to buy products that are harmful to environment, nature writing could generate love toward natural world. Ecolinguistics aims at "critiquing forms of language that contribute to ecological destruction, and aiding in the search for new forms of language that inspire people to protect the natural world" (Stibbe 2015, 1). The development of theoretical approaches like ecocriticism proves that studying nature in literature could generate a positive attitude toward nature.

An ecocritical reading of Hawthorne's *Seven Gables* and *Marble Faun* shows that environmental concerns are at the heart of its narrative. Through a subtle representation of nature, the novels propagate the ecological notion that nature should not be a marginalized entity in human lives. The novels also confirm with certain key features in Buell's checklist that are used in the study to check the environmental orientation of the works. Primarily, the nonhuman environment is not used just as a framing device. The setting, both physical and natural, is well laid out and interacts with the characters in such a way that they help in the interpretation process. Metaphors and symbols help in conveying the ruminations of the characters and impart the ecological vision effectively. They convey how nature maintains its course unperturbed even when there are human interventions. The second key factor according to Buell's checklist is the depiction of animal life with due importance and establishing their connection with humans. Both novels conform to this aspect in multiple ways. Whereas the *Seven Gables* focus on domestic animals and how their life merges with the house's inhabitants, *Marble Faun* through Donatello shows how a connection becomes possible with even wild animals. Thirdly, human accountability toward nature is highlighted in both the novels by projecting environmental ideals that have great ecological value. An ideal human-nature relationship is illustrated in *Seven Gables* through Clifford for whom nature becomes a healing agent for his tormented psyche. He shows that by keenly observing nature, one's perception of life could be enhanced. On the contrary, Donatello in *Marble Faun* shows how an ideal connection with nature could be spoiled by one's transgressions. Here, nature is depicted as a mirror that reflects human conscience. One cannot engage in cruel and vengeful acts and still maintain healthy relationship with nature; the bond with nature is not constant but depends on "human nature." Donatello's life proves that humans cannot escape their accountability to nature. Finally, in accordance with Buell's criteria, the ecological vision that the novels advance is that environment is neither constant nor given. It constantly evolves and the role of humans in this process is pivotal. They interact and play an active role in shaping each other. This makes the novels relevant from an ecological perspective.

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ISSN 2229-404X  
A Peer Reviewed Journal

**INDIAN JOURNAL OF TOURISM  
&  
HOSPITALITY MANAGEMENT**

*(Special Covid-19 Pandemic Issue)*

**Vol 11, No. 2 December 2021**



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# INDIAN JOURNAL OF TOURISM AND HOSPITALITY MANAGEMENT

Vol. 11, No. 2 December 2021

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# IMPACT OF COVID-19 PANDEMIC ON HOMESTAY TOURISM STAKEHOLDERS IN FORT KOCHI - AN EMPIRICAL ANALYSIS

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## Abstract

*Homestay tourism is a fundamental section of tourism in Kerala. The distinctiveness of this leisure sector has made Fort Kochi a protuberant terminus in Kerala's circuit. Due to Covid-19 outbreak, tourism industry is facing an extremely hard situation to meet the necessities of labour force which is dependent on this sector. As it is a lively connected industry accommodating different sections of the economy, there is an imperative need to discourse the issues to resuscitate the industry at the earliest. This study emphasised on the impact of Covid-19 outbreak on the operations of homestay tourism and stakeholder's life in Fort Kochi. The impact of the pandemic in homestay operators in Fort Kochi is being examined in this paper. Also the measures implemented at Governmental level are also explored.*

**Keywords:** Homestay, Covid-19, SOPs, Service providers, Livelihood, Stakeholders.

## Introduction

Tourism businesses are perceived to focus simply on the economic facet which is inconsistent to the concept of the triple bottom line (TBL), that calls for an equal accent on all the three key areas: economic, environmental, and social (Wise, 2016). Mainly for the least developed countries, tourism may signify "growth without prosperity," where the government talks about the environment but actually priority is given to economic development over environmental security (Ruhanen & Shakeela, 2013). Governments are presently paying much courtesy to tourism in order to diversify tourism industry and play an active role in managing economic doings to increase local communities' earnings (Chin et al., 2014). Homestay is a striking sustainable tourism product (Acharya & Halpenny, 2013; Walter, Regmi & Khanal, 2018). Tactlessly, there is no worldwide definition for a homestay; it is classically defined as a type of accommodation in which visitors stay in the homes of residents (Agyeiwaah, 2019; Agyeiwaah & Mensah, 2017). A homestay is a stay by a tourist, traveller, or student at a house, which is hosted by a local family (Rizal et. al., 2018).

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Homestay provides tourists with a sense of feeling at home, interaction with the host family, first-hand relationship with locals, the experience of the local culture and low-cost accommodation (Kuhzady, Seyfi & Béal, 2020; Kulshreshtha & Kulshreshtha, 2019). Tourism is playing an enormous part in Kerala's Gross Domestic Product (GDP), where Fort Kochi is a stand-out contributing unit. The lingering scuffle of the homestay tourism industry starts with the onset of Covid pandemic. Around 80 percent of home stay owners have converted their salaried employees into daily wage workers citing the collapse in their business. Since the beginning of Covid-19 pandemic from last week of January 2020, tourism sector has recorded zero business and did not generate a single penny for all these days, affecting the dependent people. The upheaval is not for the workers alone, but the pandemic has put homestay owners, who invested a considerable amount in business by availing bank loans, in severe financial quandary.

In Fort Kochi, homestay owners with variant capacities are available with single stay to family stay; the quote for the stay also varies according to the comforts and luxuries it provides to its customers. As per a rough estimate, each stay entails an initial investment of Rs. 35 lakhs to Rs. 1.15 crore. Excepting a few, most of the owners have bank loans. The Covid-19 hit created global economic disturbance, where the tourism industry must pause their operations as it more comprehensively depended on transportation and individual mobility. This effort is largely focused on the identification of factors that are hindering the progression of homestay tourism in Fort Kochi. The magnitude of disasters faced by the stakeholders due to the loss of the market is significant. Hence the study attempts to identify the key issues involved and to find out the possible wayout for revival.

### **Review of Literature**

Sustainability is considered inevitable and its a long-term goal for firms, nations, and society as a whole (Finke, Gilchrist & Mouzas, 2016; Tura, Keränen & Patala, 2019). Like other industries, tourism needs to be understood and managed with a broader frame work of sustainability (Higgins-desbiolles, 2018). Sustainability tenders an enduring viewpoint that stresses commitment to ethical beliefs and ethics, integrating the environmental and social uncertainties with economic objectives. Through balanced and complete strategies, the stakeholder's roles are identified and resources can be used sensibly for both present and future generations (Font & McCabe, 2017).

The homestay business is a section of the broader tourism and hospitality industry, with discrete features of intangibility, variability, and inseparability (Sun & Ghiselli, 2010).



Homestay business inspires the community to get involved in the tourism industry (Samsudin & Maliki, 2015). Homestays are powerful visitor-host interaction zone (Walter et. al., 2018) with threefold sustainable community-based tourism goals of environmental, cultural, and local employment protection (Reimer & Walter, 2013). Variants of the homestay concept include cultural homestay, farm stay, heritage homestay, agricultural homestay, leisure homestay, cottage homestay.

There is an incredible disruption in the supply chain of the tourism sector and as this pandemic disease reached every corner of the world, it caused in the reduced drive of people as they are asked to stay back at home and to be self-quarantined. Health-related precautionary measures should be a concern of both political administration and responsible authorities otherwise it will result negatively in the growth of the world tourism sector by reducing the drive of tourist to various destinations (Buckley et. al., 2004). This reduced drive of people, directly and indirectly affected resulted in both the international and domestic tourism sector. Particularly travel divisions, booking agencies, airline sector, and various other hospitality services have been affected. In addition to this the pandemic has affected the personal as well as family lives of the work force in tourism sector. Loss of job or reduced salary of the common public drastically results in socio - economic balancing in the society. From January 2020, cases are being reported from various parts of the world and in India as well, but it was nominal in numbers. When we look at the numbers reporting day by day that makes all the stakeholders think seriously about what could be the next. This study focuses on suggesting certain measures which can be implemented immediately to help the stakeholders to maintain their livelihood.

Coronavirus is a new kind of virus that is affecting human life with its rapid spread. But the factors show that even before the spread of such diseases studies conducted regarding the need for vaccinations to block the chain and block the spread of those diseases were conducted. The study focuses on the need for vaccinations against different spreading diseases since tourists travel across various continents and countries. Defensive measures must be organised in a good manner and that should be implemented in a systematic way otherwise smooth conduct of tourism may be a major challenge (Loscher et. al., 1999). The tourism industry is one of the industries where human beings are interacting face to face not only in the booking stage but also at the operational level. There were studies regarding the spread of human immunodeficiency virus (HIV) in connection with sex tourism practiced by few countries in the world and that also resulted in reduced mobility (Worm & Lillelund,



1989). When it comes to the ground operation local service providers, restaurants, and accommodation facility providers forced contact with tourists and this cannot be avoided to a certain extent. But in this pandemic situation unfortunately industry could not take up any such decision immediately for leisure travel within the country or internationally. Another study focuses on trends issues in connection with international travel and their ethical concerns and the role of public administrators to prepare various strategies to address the health-related concerns of both guest and host community (Richter & Richter, 1999). There should be a standard operating procedure (SOPs) which can help both tourist and service providers and all other stakeholders to have a better time. This study focusses on various suggestions and strategies which can be put forward for the betterment of the home stay tourism as soon as possible.

### **Objectives**

The objectives of the study are as follows:

- a. To identify the major challenges faced by the homestay stakeholders in Fort Kochi during the pandemic.
- b. To examine whether Covid-19 SOPs are creating any hurdles for the tourism operations in Fort Kochi.
- c. To comprehend the sureness and reassurance level of the stakeholders in light of the measures taken by the state government for the revival of the homestay tourism industry in Fort Kochi.

### **Methodology**

The study design incorporate an exploratory research method for evaluating the main barriers prevailing in the major tourist destination "Fort Kochi" in Kerala. Primary data have been collected using a self-designed standardised questionnaire from the associated persons in the Fort Kochi region. The sample size is limited to 75 samples due to the obvious constraints of pandemic. Convenient random sampling method is chosen for the study. Statistical Package for Social Science (SPSS) is used to analyse the data. In addition to descriptive statistics with percentage analysis, Independent t-Test and One-way ANOVA are employed for the data analysis.



### Data Analysis and Discussion

Table 1 elucidates the setbacks of the stakeholders' earning sources and the progression of their debt level. The indication from the Table 1 specifies the intensity and 71.67 percent of the sample respondents are agreeing on the fact that pandemic situations and the followed restrictive factors have pushed up their debt level to a higher scale. This may harmfully asset their quality of life.

**Table 1**  
**Stakeholders' Susceptibilities with Respect to Debt Level**

Variable	Particulars	Frequency	Percent
Debt Level - Not increased due to Pandemic	No	22	29.33
Debt Level - Increased due to Pandemic	Yes	53	71.67

Table 2 manifested that over 74.67 percent of the stakeholders have not received any means of financial aid or pandemic-based concession in terms of monetary aspects. The homestay management also suffers due to absence of tranquil measures on tax slabs. Further, the SOPs and other guidelines followed by the authorities may indenture the income flow of the stakeholders. During this life-threatening situation, the stakeholders of homestay tourism are expecting some sort of financial help from the authorities, but it seems the expectations endure unfulfilled, and this ignorance pulls down the self-assurance level of the respondents in local self-governing authorities as well.

**Table 2**  
**Stakeholders' Receipt of Financial Benefits or Concession Received**

Variable	Particulars	Frequency	Percent
Financial Benefits or Concession Received	No	56	74.67
	Yes	19	25.33



The capability to find supplementary job opportunities displayed in Table 3 which is divergent from normal tourism-linked openings has also been found to be very negligible except 32 percent of the sample respondents who are able to grab new opportunities. The remaining 68 percent of the population were unable to find a substitute job that is different from their natural course of living. This is one of the core issues that must be addressed because the community which is wholly dependent on a specific arena for livelihood may find extreme snags to shift from that line of operations.

**Table 3**

**Community's Susceptibilities with Respect to Find Alternative Job**

Variable	Particulars	Frequency	Percent
Able to Find Substitute Job During Pandemic	No	51	68.0
	Yes	24	32.0

**Hypothesis: 1**

There is no significant difference of opinions between SOPs introduced and their effect on drop in demand for homestay tourism in Fort Kochi.

**Table 4**

**Cross Tab for the Difference in Opinion in the Means of Visible Drop in Demand for Home Stay Tourism and SOPs Introduced in Tourism Sector**

Count		SOPs are beneficial for the revival of home stay tourism					Total
		1.0	2.0	3.0	4.0	5.0	
Observable drop in demand for homestay tourism	0	28	27	2	4	2	63
	1.0	3	4	0	3	2	12
Total		31	31	2	7	4	75



**Table 5**  
**Independent t-Test Result**

Variables	Visible drop in demand for homestay tourism	N	Mean	t-value	P-value
SOPs are beneficial for the revitalisation of homestay tourism	Yes	65	3.138	5.248	0.00
	No	10	2.542		

Table 4 deduced that the employees and homestay management cluster have agreed on the fact about the SOPs are convincing and provides enough flexibility to operate and revive the homestay operations in Fort Kochi. Meanwhile, it produces a contradictory outcome as there is a sound fall in demand for the homestay tourism industry in Fort Kochi as displayed in Table 5. Thus, at a very high significant value of 0.00 i.e.  $<0.05$ , the study reject Hypothesis 1 and concluded that there is a predominant difference of opinion among the dependent and independent variables. It indicates that even though the relaxation policies given were beneficial for the industry but still there is a drop in demand due to other dormant dimensions. This indicates that SOPs are not at all creating any kind of disturbances for the operations of the industry but the limited mass of visitors or the least demand for homestay tourism increases the economic pressure of the local stakeholders and it remains a major challenge for their mere future.

#### **Hypothesis: 2**

There is no significant difference of opinion between different age groups regarding the initiatives taken up by the local self-governing bodies for reviving homestay tourism in Fort Kochi.



**Table 6**  
**ANOVA Test for Assessing the Difference in Opinion on the Activities of the Local Self-Governing Bodies among Different Age Groups**

Variables	Particulars	Sum of Squares	Df	Mean Square	F-value	P-value
Activities of the local self-governing bodies	Between Groups	12.3	10	3.044	3.344	0.000
	Within Groups	56.528	65	521		
	Total	61.622	75			

The inferential results displayed in Table 6 reject the Hypothesis 2 at a significance level of  $< 0.005$  as the P-value is highly significant which .000 with F-statistics of 3.344. This enlightens that there is a momentous difference of opinion between different age groups regarding the activities and the initiatives taken up by the local self-governing body rather than the steps forwarded by tourism promoting authorities. The result reveals the lack of confidence on the stakeholders towards the operations of their local governing bodies. During the pandemic, it was very difficult and hectic struggle for the cluster who are mainly focusing on tourism for livelihood. The local governing institutions could have adequately these communities by motivating and providing supportive measures for an ancillary source of income that can meet bare subsistence for living.

### Findings

The findings of the study are as follows:

- a. **Visible drop - in homestay tourism market:** The study figures out the comprehensive ultimatum for the homestay tourism market in Fort Kochi. The leading destination in Kerala's circuit is facing an in-depth set back is explained by the study inferences.



- b. **Existence of anxiety created by rumours:** Misleading information spread in and around destinations is one of the key elements which with-draws the demand of the market for homestay.
- c. **Covid-19 protocols and SOPs are not creating much complexity:** For the operations of the homestay tourism industry in Fort Kochi, the formulated guidelines by the authorities were not creating any visible disturbance, as proved by the study outcomes.
- d. **Poor level of confidence in the operations of local self-governing institutions:** While assessing the satisfaction level from the management and other stakeholders regarding the activities and measures put forward by the authorities in connection to the revival of the industry, it is interpreted to have poor confidence level with respect to the mentioned ones.
- e. **Severely affected by the stake holders:** The downfall of the level of visitors to the destination itself indicates the contractions of earning sources. This may adversely affect and hit hard their economic status and growth.
- f. **Increase in debt level of both management and allied stakeholders:** Both the sections of the society are affected painstakingly by the pause in the flow of income. The study indicates that whereas the management has to keep the maintenance of cost while the allied stakeholders have to maintain their requirements for subsistence with the pause of flow in income during the pandemic. This would probably raise their debt burdens.

### Suggestions

The following entails the list of suggestions.

- a. **Promote domestic tourism:** Every sub-sector of tourism is witnessing challenges in connection with the non-availability of tourists to avail various and services. The study result clearly suggests that there is a huge drop in demand which has to be addressed for the survival of stakeholders who are completely dependent on homestay tourism as means for their livelihood. Hence, it is advisable to shift the focus from



only on foreign tourist visits in Fort Kochi to focus to domestic tourists from nearby destinations, as the subsequent wave of the pandemic is still contemplating. Many potential tourists are unable to explore the destination due to the non-availability of proper information and the significance of Fort Kochi region. Proper promotional activities and the implementation of innovative marketing strategies by targeting domestic tourists may help the revival process of tourism activities in Fort Kochi.

- b. **Issue pandemic friendly packages:** The confidence level of both guest and host community is another major challenge and its increasing as pandemic prolongs. The only option is to create unique packages which can be entitled as Covid -19 pandemic friendly packages. Such packages can provide a better experience to the travellers, but efficient marketing initiatives and strategies should be taken by both public and private authorities. Arrival of tourists might help to improve the confidence level of the host.
- c. **Awareness programs for destination promoters and potential tourist:** There are many rumours which are spreading across regarding the safety aspect in various tourist destinations. Homestays also follow Covid-19 protocols in Fort Kochi. There is a significant difference in the conduct of homestay tourism and other types of tourism activities. Because there are only a limited number of people gathering at a time. Maximum public contact can be ignored, if the domestic tourists are traveling by their car and reach the destination and directly embark into the homestay. Staff members of the home stay also should take extra care and precautions when they are mingling with the public. It is necessary to create a set of guidelines regarding the safety procedures and social distancing among both parties. The special team can be appointed by the homestay owners to monitor the above-mentioned.
- d. **Expand tax exemptions for the management & stakeholders:** The majority of the local community responded that their debt level increased during lockdown and pandemic. It could be the responsibility of the government tourism department and finance department to intrude in this issue. Homestay owners and management are also facing issues about debt. This will affect the growth of homestay tourism



activities in the region. Unless and until the pandemic gets settled, extended support from the government is inevitable for the survival of tourism in Fort Kochi.

- e. **Improve the effectiveness of local self-governing institutions and authorities:** The local administrative system in Fort Kochi is always supporting the homestay tourism sector and beach tourism as beaches are the key attractions of Fort Kochi region. Local administrative bodies are involved in the supervision of home stay operations at various levels, and they might be aware of the challenges faced by the local community during the lockdown. If they can prepare an elaborate report on the problems faced by the stakeholders of home stay tourism in the mentioned region. Such reports will be helpful for the higher authorities to understand the situation of the home stay tourism and dependents sector. According to the report few from the stakeholders received minor aids from the local self-government authorities but it was just for the namesake. It is the responsibility of government authorities to understand the significance of the industry and to involve by providing maximum support in all possible ways.

### **Conclusion**

This study and discussion are mainly about the revitalisation of the tourism market in Fort Kochi along with addressing the major cataclysm experienced by the community of those who are explicitly relying on homestay tourism. The empirical tools adopted for the study are significant enough to generate reliable results and infers genuine findings. The core revelations are provided by the independent t-test which does not point at the Covid-19 protocols issued by the authorities, but highlights the general bias that drop in demand is mainly because of stringent regulations. At the same time, it shows the visible flop in demand for home stay tourism as well. There is scope for further investigations regarding the hidden factors responsible for the existing friction in the market. The study aims to provide convincing and considerable suggestions which can empower the market and are beneficial for all the stakeholders irrespective of certain sections of the society.



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# Resilience and OCB among Employees of Information Technology Sector in Kerala: An Empirical Study

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**Abstract:** Today, business wide acknowledges the importance of positive scientific discipline, there is a bigger accent on exploring human resource strengths to modify the work defies and augments organizational performance. Previous studies suggest that resilience absolutely relates to desired employee behavior, and performance like Organization Citizenship Behavior (OCB) among industrial employees. However, no study has been found in Information Technology (IT) sector and it would be intriguing to understand resilience - OCB relationship. The study sample comprised workers (N = 362) operating in distinguished IT corporations of Technopark and adjacent areas, Thiruvananthapuram, Kerala, India. Data were collected with the assistance of self-administered questionnaires through systematic sampling. A model was developed and tested in which the effect of resilience on OCB was hypothesized and tested using SPSS. The results offer empirical proof for the positive relationship between resilience and OCB.

**Keywords:** Resilience, OCB, Positive psychology

## Introduction

Organizational Citizenship Behavior (OCB) is one among the researched areas in organizational behavioral studies. OCB has gained vital research attention which is evident from the growing variety of studies on the subject. OCB literature reveals that researchers have mostly targeted on two areas: (a) understanding the predecessors of OCB and (b) highlighting the positive outcomes of OCB for organizations. The influence of cumulative OCB exhibited by employees on organizational effectiveness. Therefore, researchers and organizations perpetually seek new ways to reinforce employee OCB.

Researchers have targeted on exploring positive constructs influencing OCB. One such positive construct is resilience which is a psychological resource capability. It has been defined resilience

as the capability of an individual to withstand hardship and, while facing adversity, continue to lead a functional and healthy life. Luthans (2002) opined resilience as the positive psychological capability to rebound, 'to bounce back' from adversity, uncertainty, conflict, failure or perhaps positive modification, progress, and increased responsibility. Resilience is commonly thought-about as a crisis or emergency management issue. The link between a resilient workforce and its impact on organizational outcomes is still not well understood by organizations. It is asserted that a resilient perspective is helpful in every aspect of ordinary living as it provides the strength to tackle routine challenges and sudden problems. Crisis or adversity for an employee can be any problem at a personal level related to work or family. It may be a non-congenial environment or an unsupportive manager. Similarly, a female worker



may face problems such as sexual harassment, glass ceiling, and lack of family support, which she might be unable to express. These seemingly small but significant problems not only affect the efficiency of the worker but also change the attitude of the employee towards the corporate.

While the arguments in favor of positive psychology and its applications in the organizational context are considered promising, empirical evidence particularly relating to resilience and OCB in the Indian context is scarce (Paul & Garg, 2012). Exploring the link between resilience and OCB is very important given the rationality for a major association of OCB with structure performance (Podsakoff & MacKenzie, 1997). Insights into resilience-OCB relationship may shed some light-weight on how workers sustain their motivation levels to have interaction in OCB even within the face of adversity. There are studies (Shahnawaz & Jafri, 2009; Vohra & Goel, 2009; Gupta & Singh, 2014) indicating the link between resilience and OCB, however the results area unit mixed. Also no such studies are found within the context of Kerala, India. This study explores the suggestion of future research of resilience-OCB relationship by Paul, Bamel, Garg (2016) on generalization of finding by examination with a richer sample considering completely different industries. Despite the respectable growth of IT sector, until currently no studies of this nature is found. While IT provides more employment, work setting it offers doesn't seem to be as moneymaking. To show extra-role behaviors whereas operating amidst such riotous challenges, the work force needs the power to reply effectively and recover quickly. The above reasons necessitated a study seeks that to examine and verify the relationship between resilience and OCB among employees of IT sector in Kerala, India.

### **Review of Literature**

For any study, it's essential to conduct an intensive theoretical understanding by reviewing the past studies and evidences on the area. The

objective of this section is to appraise gettable literature on resilience and OCB.

Even though the term resilience is commonly related to psychological science since 1970, Caverley (2005) explored resilience within the context of the operating population because it relates to how employees handle the challenges of the business world. However, in an organizational context, it still remains an emerging thought. Resilience is the ability to mentally or emotionally cope with a crisis or to return to pre-crisis status quickly (de Terte, & Stephens, 2014).

Resilience exists once the person uses "mental processes and behaviors in promoting personal assets and protective self from the potential negative effects of stressors" (Robertson, Cooper, Sarkar & Curran, 2015). In less complicated terms, psychological resilience exists in those who develop psychological and behavioral capabilities that enable them to stay calm throughout crises/chaos and to maneuver on from the incident without long-term negative consequences. Resilience is mostly thought of as a "positive adaptation" when a trying or adverse state of affairs. When someone is "bombarded by daily stress, it disrupts their internal and external sense of balance, presenting challenges similarly as opportunities." However, the routine stressors of existence will have positive impacts that promote resilience. It is still unknown what the right level of stress is for every individual.

Some folks will handle bigger amount of stress than others. Resilience is that the integrated adaptation of physical, mental and non secular aspects in a very set of "good or bad" circumstances, a coherent sense of self that is ready to maintain normative organic process tasks that occur at numerous stages of life (Richardson, 2002). It is necessary to notice that resilience isn't solely regarding overcoming a deeply trying state of affairs, however additionally starting of the same state of affairs with "competent functioning". Resiliency permits someone to rebound from adversity as a

reinforced and a lot of capable person (Richardson, 2002)

Campbell-Sills, Cohan. and Stein (2006) opined that majority of the studies on resilience has been conducted with a younger and treatment-seeking population the applying of positive psychology at the geographic point as positive organizational behavior (Youssef & Luthans, 2007). Considering Hofstede's dimensions of national culture (Hofstede, 2001), Indian culture (demonstrating high power distance, collectivism, medium uncertainty rejection, masculinity, long-term orientation, and restraint) seems quite totally different from western culture and so, the findings of studies on white populations might not be relevant within the Indian context.

The early studies of OCB were guided by the construct of altruism (Bateman and Organ, 1983). This was reiterated by Smith, Organ and Near (1983), who described the dimensions of OCB as altruism and generalized compliance. In the mid-1980s, Graham (1986) suggested that the political dimension of the word 'citizenship' be added to the investigations of OCB. Organ (1988) subsequently included 'civic virtue' as a form of OCB in his book on the same subject, but continued to define the overall OCB construct as organizationally functional extra-role behavior. Organ (1988) points out five specific categories of discretionary behavior and explains how each behavior helps to improve efficiency in the organization:

- a. Altruism is a behavior that is typically directed toward other individuals but contributes to group efficiency by enhancing individuals' performance (e.g., helping new colleagues and freely giving time to others).
- b. Conscientiousness enhances the efficiency of both an individual and the group (e.g., efficient use of time and going beyond minimum expectations).
- c. Sportsmanship improves the amount of time spent on constructive endeavors in the organization (e.g., avoids complaining and whining).

d. Courtesy helps to prevent problems and facilitates constructive use of time (e.g., advance notices, reminders, and communicating appropriate information).

e. Civic virtue promotes the interests of the organization (e.g., serving on committees and voluntarily attending functions).

Shapiro, Kessler and Purcell (2004), have two explanations for why employees engage in OCB. The primary explanation views OCB as a form of reciprocation where employees in OCB to reciprocate fair or sensible treatment from the organization. The second view is that employees engage in OCB because they define those behaviors as a part of their job. A variety of employee, job, organizational and leadership characteristics are consistently found to predict differing types of OCB across employment (Podsakoff, MacKenzie, Paine, & Bachrach, 2000).

## Method of Study

### Objectives

The specific objectives of the study are:

1. To establish the relationship between resilience and OCB.
2. To inspect the extent to which the resilience dimensions influences overall OCB.

### Hypotheses

The hypothesis of the study is as follows:

H0: There exists no significant relationship between resilience and OCB.

H1: There exists a significant relationship between resilience and OCB.

### Participants

The study sample comprised of employees (N = 362) working with well-known Information Technology (IT) firms of Technopark and adjacent areas, Thiruvananthapuram, Kerala, India. Data were collected with the help of self-administered questionnaire through systematic random sampling. Of the 130 employees who



participated in the study, 256 (70.7 per cent) were male and 106 (29.3 per cent) were female. The age of participants ranged from 25 years to 48 years with a median age of roughly 34 years. Further, 102 (28.2 per cent) participants were married and 260 (71.2 per cent) were single. The highest educational qualifications of respondents were conjointly recorded: 270 (74.6 per cent) participants were found to be graduates and 92 (15.4 per cent) respondents were postgraduates. Further, 238 (65.7 per cent) participants had less than 10 years of work experience whereas 124 (34.3 per cent) had experience above 10 years.

## **Measures Used**

### **Resilience**

To measure resilience, the Resilience Scale (RS-14) by Wagnild and Young (2009) was used. It comprised fourteen things measured on a 7-point Likert scale. The 15 items in the scale are designed to measure the four dimensions of resilience: self-reliance, perseverance, ability to see the reality, and self efficacy. The scores in the scale ranged from 1 = strongly disagree to seven = strongly agree. The reliability alpha has been reportable to be 0.84 supported pilot study of 30 numbers.

### **OCB**

To measure OCB, the scale developed by Khalid, Shaiful, Annuar., Ali, Hassan., Ismail, Mohammad., Kassim, Kamsol. Mohamed., & Zain, Rozihana. Shekh. (2009) (Self Rating) was used. The 24 items in the scale are designed to measure the six dimensions of OCB: courtesy, altruism, effort expended, conscientiousness, civic virtue, and sportsmanship. The items are rated on a 5 - point scale with the score ranged from 1 = strongly disagree to 5 = strongly agree. The reliability coefficient of the scale based on the pilot study was found to be 0.86.

### **Sampling**

A three-tier sampling was used after identifying the appropriate sector / industry for the study. At the first level, Information Technology (IT)

parks were hand-picked through random sampling by means of the lottery system. At the second level, a lottery system was again used to select organizations from the IT parks obtained in the first level. At the third level, systematic sampling was opted to reduce bias. Representatives (HR managers / project managers / unit heads) from the selected organizations were asked to distribute the survey instrument to employee of their respective organizations as per the given guidelines. They were inculcated to use either employee list or the list of email-ids and hand over the survey to each fourth employee on the list with a random starting point, thus ensuring that a random sample was obtained for further analysis.

## **Analysis and Discussions**

To analyze the quantitative data, the investigator explored the interior structure, measurement qualities of the study variables, and the proposed hypothetical model of relationship between the variables. The data was analyzed using statistical tools like correlation analysis and multiple regression analysis. Correlation analysis was carried out to test the relationship between the study variables. Multiple regression analysis was also done to determine how each of the four elements of resilience and OCB are related.

### **Relationship between Resilience and OCB**

Table 1 presents the results of correlations analysis regarding to the inter-relationship among resilience and OCB. Karl Pearson's Coefficient of Correlation was used for the purpose. The results indicate that, there exists significant positive relationship between resilience and OCB ( $r = .508$ ). This finding is in line with the opinion of previous studies (Shahnawaz & Jafri, 2009; Vohra & Goel, 2009; Gupta & Singh, 2014) that identified OCB as one among the positive outcomes enhanced by resilience that may perhaps contribute to organizational performance and success. It can be observed that all variables were having significant correlation. Significant positive correlation among the variables of resilience

presents a desirable scenario wherein an increase in any one of the variable would positively influence other variables. This can be true for the OCB variables too. Based on the above results, hypothesis 1 is rejected, i.e., The relationship between resilience and OCB is statistically significant.

**Table 1: Correlations between Resilience and OCB**

	6	7	8	9	10	11	12
1	.873**	.302**	.369**	.317**	.426**	.464**	.500*
2	.680**	.229*	.210**	.452**	.396**	.437**	.468**
3	.733**	.260**	.339**	.461**	.363**	.409**	.416**
4	.580**	.234**	.440**	.403**	.464**	.480**	.521**
5	.580**	.229**	.364**	.586**	.439**	.428**	.508**

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

**Note:**

- 1 - Self - reliance
- 2 - Perseverance
- 3 - Ability to see the reality
- 4 - Self efficacy
- 5 - Resilience
- 6 - Courtesy
- 7 - Altruism
- 8 - Effort Expended
- 9 - Conscientiousness
- 10 - Civic Virtue
- 11 -Sportsmanship
- 12 - OCB

**Impact of OCB Dimensions on ME**

The results of multiple regression presented in Table 2 revealed that there exists multiple correlations between resilience and OCB (.523). The coefficient of multiple determination (R Square) was found to be .250. This implies that 25 per cent of variance in OCB is explained by resilience (self-reliance, perseverance, ability to see the reality, and self efficacy). Significant F-value denotes the availability of evidence to conclude that at least one of the predictors is useful for predicting ME.

**Table 2: Multiple Regression for ME as a Function of OCB**

Multiple R	.523
R Square	.250
Adjusted R Square	.244
Standard Error of Estimate	15.308
F-value	15.564**
Level of Significance	.000

\*\*Significant at  $p < .01$  level



To know about the components of resilience that influences OCB, beta values were considered. From the output displayed in Table 3, the regression equation is arrived as under:  $OCB = 252.247 + 1.127 \text{ self-reliance} + .424 \text{ perseverance}$

$+ 1.326 \text{ ability to see the reality} - 2.783 \text{ self efficacy}$

The t-value in Table 3 revealed that self-reliance, perseverance, ability to see the reality, self efficacy emerged as significant predictors of OCB.

**Table 3: Beta Table of Multiple Regression for OCB as a Function of Resilience**

Particulars	Unstandardized coefficients		Standardized coefficients	t-value	Level of Significance
	B	Standard Error	Beta		
(Constant)	252.247	12.763		22.364	.000
Self – reliance	1.127	.388	.319	3.816**	.000
Perseverance	.424	.312	.094	1.833*	.034
Ability to see the reality	1.326	.634	.159	1.760*	.049
Self efficacy	-2.783	.685	-.270	-3.747**	.000

\*\*Significant at  $p < .01$  level

\*Significant at  $p < .05$  level

The above results indicate that self-reliance, perseverance, ability to see the reality, and self efficacy contributes to OCB. It is obvious that self-reliance, perseverance, ability to see the reality, and self efficacy of employees can contribute an effect on their OCB. Higher levels of OCB contribute to higher performance outcome with predetermined standards of performance.

### Conclusion

As employees form the foundation for almost all organizational results; an increased consideration is required towards new measures to develop organizational outcomes like OCB. This study highlights the importance of resilience to encourage OCB. Resilience may be a comparatively distinctive positive psychological capability relevant to the work which might be measured, developed, and effectively managed for obtaining desired outcomes. While hardly any studies have talked concerning resilience (as an individual construct and not as a part of any other higher order construct) in the context of working population in IT sector, this study provides higher insights into the relevance and implications of

resilience at the work for predicting positive outcomes.

### Limitations and Scope for Future Research

Like any other study, the current research has a few limitations. The findings solely suggest the extent of relationship between resilience and OCB. However, generalizability of the findings won't be established because the study depends exclusively on cross-sectional data. Future studies of an experimental nature may be conducted to ascertain the causality and establish the direction of causality. Also, the mediation and moderation model may well be enriched by studying the impact of demographic variables like gender, nature of job, working condition, etc.

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# A Study on the Customer Satisfaction towards Customer Relationship Management (Crm) Practices Adopted By Supermarkets/Hyper Markets in Palakkad District

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## ABSTRACT

Customer Relationship Management (CRM) is to create a competitive advantage by understanding, communicating, delivering, and developing existing customer relationships, in addition to create new customers. It has emerged as one of the recent management buzzword. Merchants and traders have been practicing customer relationships to build their business. They could customize their products and all aspects of delivery system and payment to suit the needs and preferences of their customers. They give personal attention to their customers, knew tastes and preferences regarding their customer's, and had a personal relation with most of them. In many cases, the interaction goes beyond the commercial transaction and involved social interactions also. This kind of a relationship also exists between customers and retailers, craftsmen, artisans – essentially in traditional, small and classified as pre-industries markets. The study was conducted in retail shops in Palakkad district. A structured questionnaire was used to collect data from customers of supermarkets. 269 customers from supermarkets and hypermarkets were used for the study. Collected data was analysed with the help of SPSS.

**Key words:** Customer Relationship Management, traders, customers, merchants, retailers

## INTRODUCTION

In today's Economic system, not all manufacturers and producers sell their output directly to the final users or industrial users. That is goods do not flow of their own directly to the owners or consumers. The producers and final users are linked by a bridge of intermediaries that make possible and profitable movement of goods and services from producers to users. Retailer is one whose business is to sell to consumers a wide variety of goods which are assembled at his premises as per the needs of final consumers.

The term retail implies sale for final consumption rather than for resale or for further processing. A retailer is the last link between the final user and the wholesaler or manufacturers. There are different types of retailers functioning in Kerala. However, small scale and large scale are the mostly classified group of retailers. Small scale retailers include hawkers and peddlers, market traders, street traders, unit stores etc. Large scale retailers include supermarkets, multiple shops, consumer co operatives, fair price shops etc.

A super market is a retail store which generally sells food products and household items, properly placed and arranged in specific places. It is an advanced form of the small grocery stores and caters to the needs of the consumer. The various products of food that is meat, vegetables, dairy products, juices etc are all properly displayed at their respective places to catch the attention of the customers and for them to pick any merchandise depending on their choice and need. Retail management refers to the various processes which helps the customers to procure the desired merchandise from the retail stores for their end use.

It includes all the steps required to bring the customers into the store and fulfill their needs. An efficient system of retail management makes shopping a pleasurable experience and ensures the customers leave the store with happy. Retailing now faces many challenges like service quality, customer satisfaction, customer retention, customer loyalty etc. Retailers started to concentrate more on customer satisfaction and they have changed the outlook by adding new innovations in their transactions. Maintenance of service quality is inevitable for existence of the retail business. The customers' expectations about the supermarket is different from actually they avail.

## REVIEW OF LITERATURE

Katriina Mattsson (2009), in his paper titled, Customer satisfaction in the retail market service quality and customer satisfaction studies it is clear that with basic service it is not enough to compete with the competitors. He opined that averages of the respondents are satisfied with services provided by retailers.

Phuc Hong Lu and Ian Grace B Lukoma (2011), in their paper, “Customer Satisfaction towards Retailers”, found that most of the customers get only medium satisfaction. They prefer nearby supermarket to purchase their goods. The customers are least satisfied with the additional services provided by the retailers.

U Dineshkumar and P Vikkraman (2012), in their article, “Customers’ Satisfaction towards Organised Retail Outlets”, found that the customers are highly satisfied with the quality of service provided by the retail outlets in Erode and they are highly dissatisfied with the variety of mode of payment. There also a positive correlation between the income of the customers and the average monthly purchases.

Shruti Sharma and Atul Dhingra (2012), in their work stated that implementation of a CRM solution is not sufficient to create a true learning organisation. Rather the organisations need to think the benefits of CRM. They also suggest that if properly implemented CRM system is act a knowledge management tool and able to serve as a value creating interface between firm and its customers.

Ajmer Singh (2013), in his paper relationship between service quality and customer satisfaction in organised retail outlets, found that there were three dimensions namely policy, problem solving and reliability has an important role in customer satisfaction. He also suggests that in retailing perceived service quality is having a significant influence on purchasing and repurchasing decisions.

### Statement of the problem

In the point of view of marketer, providing a high level satisfaction to their customers is a crucial aspect. Most of the customers depends retail outlets in their nearby locality to satisfy their needs. Needs of human beings are unlimited. so whenever there are several service providers, only the one who gives their best is going to survive in the long run. This is applicable to the retail industry also. Retailing now faces many challenges like service quality, customer satisfaction, customer retention, customer loyalty etc. Customer satisfaction is the most important challenge faced by them in the current scenario.

### Objectives

- To study about the Customer Satisfaction towards CRM practices of leading Super Markets/ Hyper Markets in Palakkad Dt
- To study about the factors contributing to the satisfaction of customers towards CRM practices of supermarkets/ Hyper Markets
- To study whether there exists significant difference between Male and Female Customers with regards to Satisfaction towards CRM practices
- To study whether there exists significant difference between different Income Group people with regards to Customer Satisfaction towards CRM practices
- To study whether there exists significant difference between different Components of CRM Practices with regards to Satisfaction level of Customers of Supermarkets/ Hypermarkets of Palakkad.

### Hypothesis

- There exists no significant difference between different Income Group people with regards to Customer Satisfaction towards CRM practices
- There exists no significant difference between Male and Female Customers with regards to Satisfaction towards CRM practices
- There exists no significant difference between different Components of CRM Practices with regards to Satisfaction level of Customers of Supermarkets/ Hypermarkets

Sample size: 269 customers of Big Bazaar, Joby’s Mall, Bismi and A to Z Mall of Palakkad District

### Methodology and Data

Both primary and secondary data has been used for the study. Primary data regarding the Satisfaction of Customers towards Customer Relationship Management practices has been collected from 269 customers of various malls in Palakkad districts which comprises of different genders and income groups. Secondary data has been collected from various reference books, web sites, journals, etc. The collected data has been analysed by using the following statistical tools:

- Mean
- Standard Deviation



- T-Test
- Analysis of Variance

### RESULTS AND DISCUSSION

**Table 1: Descriptive statistics (Components wise)**

Sl no	Components	Sample	Mean	SD	N	Max	Min
1	Service Facilities	Male	9.63	2.03	128	20	0
		Female	7.86	3.61	141	20	0
		Monthly Income below Rs.10,000	10.56	2.11	81	20	0
		Monthly Income between 10,000 and 50,000	9.39	1.11	109	20	0
		Monthly Income above Rs. 50,000	7.46	1.89	79	20	0
		Total	8.98	2.15	269	20	0
2	Customer-staff Relationship	Male	7.56	2.03	128	20	0
		Female	8.14	3.36	141	20	0
		Monthly Income below Rs.10,000	11.06	2.29	81	20	0
		Monthly Income between 10,000 and 50,000	10.11	1.46	109	20	0
		Monthly Income above Rs. 50,000	8.17	2.22	79	20	0
		Total	9.01	2.27	269	20	0
3	Customer Retention Practices	Male	9.14	2.42	128	20	0
		Female	8.64	3.07	141	20	0
		Monthly Income below Rs.10,000	10.10	2.56	81	20	0
		Monthly Income between 10,000 and 50,000	10.06	1.63	109	20	0
		Monthly Income above Rs. 50,000	7.57	2.50	79	20	0
		Total	9.10	2.44	269	20	0
4	Customer Convenience	Male	8.72	2.13	128	20	0
		Female	8.07	2.36	141	20	0
		Monthly Income below Rs.10,000	11.21	2.18	81	20	0
		Monthly Income between 10,000 and 50,000	9.81	1.94	109	20	0
		Monthly Income above Rs. 50,000	7.41	1.40	79	20	0
		Total	9.05	2.00	269	20	0

Source: Primary Data

**Table 2: Descriptive statistics (Total)**

Sample	Mean	SD	N	Max	Min
Male	35.03	8.60	128	80	0
Female	32.70	12.45	141	80	0
Monthly Income below Rs.10,000	42.94	9.14	81	80	0
Monthly Income between 10,000 and 50,000	39.36	6.14	109	80	0
Monthly Income above Rs. 50,000	30.61	8.00	79	80	0
Total	36.13	8.67		80	0

Source: Primary Data

**Test of Significance of Difference between the Mean Score of Level of Satisfaction of Male and Female Customers towards Customer Relationship Management practices in Supermarkets/ Hyper markets using T-Test**

**Table 3:**

Sample	Mean	Standard Deviation	n	Level of Significance	t-value
Male Customers	35.03	8.60	128	0.05	-1.80
Female Customers	32.70	12.45	141		

Source: Primary Data

Calculated value of t-test is 1.80 (without sign), which is less than the table value at 5% Level of Significance, i.e., 1.96. Therefore, the null hypothesis is accepted and concluded that *there exists no significant difference between Male and Female customers with regard to Level of Satisfaction towards Customer Relationship Management practices in Supermarkets/ Hyper markets at Palakkad.*

**Test of Significance of Difference between the Satisfaction Level of Customers belonging to Different Income Group (Less than 10000, between 10,000 and 50,000 and Above 50,000) using ANOVA Table**

**Table 4: ANOVA**

	SS	df	MS	F-value
Between	1284.01	2	642.00	32.82
Within	5203.99	266	19.56	

Source: Primary Data

Calculated F Value is 32.82 which is higher than the table value obtained from F-Distribution table for *df* 2, 266, ie, that is 3.03. So the null hypothesis is rejected and concluded that *there exists significant difference between Customers belonging to different income groups with regard to Satisfaction towards Customer Relationship Management practices of Supermarkets/ Hyper markets in Palakkad.*

**Test of Significance of Difference between different Components of CRM practices with regard to Satisfaction Level of Customers using ANOVA Table**

**Table 5: ANOVA**

	SS	df	MS	F-value
Between	28.68	3	9.56	1.57
Within	6459.99	1061	6.09	

Source: Primary Data

Calculated F Value is 1.57 which is lower than the table value obtained from F-Distribution table for *df* 3, 1061, ie, that is 2.61. So the null hypothesis is accepted and concluded that *there exists no significant difference between different Components of CRM practices with regard to Satisfaction Level of Customers of Supermarkets/ Hyper markets in Palakkad.*

**MAJOR FINDINGS**

1. Male and female customers show no significant differences in the satisfaction level towards the Customer Relationship Management practices adopted by Super Markets/Hyper Markets of Palakkad district.
2. Customers belonging to different income groups show significant difference in the satisfaction level towards the Customer Relationship Management practices adopted by Super Markets/Hyper Markets of Palakkad district.
3. Customers belonging to Higher income groups (monthly income more than Rs.50,000) has less satisfaction level as compared to customers belonging to Lower income group (monthly income less than Rs.10,000).
4. Different components of Customer Relationship Management practices show no significant difference in Satisfaction Level of customers of Supermarkets/ Hypermarkets of Palakkad district.

**CONCLUSION**

In the current scenario, provide satisfaction to customer is a tough job of a marketer. Now we see a retail revolution and several types of retail stores are emerging. The change in the retail industry is due to various factors such as





liberalization, changes in regulation, globalization and customer preferences. The modern types of retail stores developed to cater to different target markets. The retailer is an expert and specialist in the distribution of consumer goods. From this study it concludes that Customers belonging to different income groups show significant difference in the satisfaction level towards the Customer Relationship Management practices adopted by Super Markets/Hyper Markets of Palakkad district. Different components of Customer Relationship Management practices show no significant difference in Satisfaction Level of customers of Supermarkets/ Hypermarkets of Palakkad district.

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## OPPORTUNITIES OF BLUE ECONOMY IN INDIAN OCEAN: A CONCEPTUAL APPROACH

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### Abstract

Blue economies are gifted with specific resources which could determine their way of development in future. For centuries, marine resources have provided human settlements in different ways by providing food, energy, biodiversity, and recreation. All the coastal nations in the World are reliant on oceans for fishing, minerals, oil & gas, rare earth metals, renewable energy and other living and non-living resources for earning livelihood, achieving holistic growth, empowering native coastal communities and attaining greater social and economic inclusion. The role of blue economy aims at optimum and sustainable use of oceanic resources for growth and development is critical for the coastal nations. Since a large portion of marine resources is believed to have remained untapped or unexplored in different marine zones of the World, there is a widespread belief that the future source of growth is probably dependent upon the efficient utilization of rich ocean resources. Its importance is realized prominently after the unprecedented reduction of global output and employment affecting the livelihoods of millions of people in different regions of the World. The countries in the Indian Ocean region had very strong civilization linkages evident in maritime trade, cultural exchanges, tourism, diplomatic relations etc. This article is purely a conceptual approach on the opportunities of blue economy in Indian Ocean.

**Keywords:** Blue Economy, Resources, Economic Issues, Indian Ocean.

### Introduction

Indian Ocean region covers varied areas of rich ocean scattering over three continents and serves as a major link for trade, investment and technology cooperation between the littoral countries. Indian Ocean is a key sea route for the world connecting India, China, Far East, East Africa, South Asia and the Middle East. Given the immeasurable bequest of oceanic resources, the littoral countries representing the Indian Ocean Rim Association (IORA), countries consider the significance of exploiting blue economy for economic and social development in the region. With progression in exploration technology, deep-sea mining could let loose huge potential for exploration of hydrocarbons, petroleum, natural gas, and rare earth metals. In addition, the demand for ports and shipping services would flourish as seaborne trade grows in the future. The rich flora and fauna attracts a large number of tourists from different parts of the World. With a focussed approach, coastal tourism and other marine services sectors may endow with ample opportunities for occupational diversification and comprehensive development.

There has been a continuous discussion in the academic and policy circles about substitute discourses on development policies particularly after the collapse of dirigisme and greater



acceptance of market mechanisms since the mid-1980<sup>s</sup> in all important spheres of social and economic life in different communities Worldwide. While the brightest minds of the global development community tended to fear, further maintenance of income inequality and social deficiency in the market-led economic systems, they seem to have helplessly sanctioned the current development model even though the spin sides of resource-intensive high-energy development strategies are often noticed. In this line of thinking, the costs of high growth are manifested in rapid exhaustion of living and non-living resource stock, severe environmental degradation, marginalization of rural and landless families, new forms of social discrimination, distorted access to social security provisions such as health and education, increasing dislocation of communities due to racial and religious civil wars, and so on. A new set of terminologies were coined to reorient the conventional development model to be more people-centric and equitable which include ‘sustainable development’, ‘green economy’, ‘human development’, ‘inclusive growth’, etc. Moreover, greater concerns are articulated in support of sustainable use of natural resources especially the rejuvenation of stocks as resource use is perceived to be irreversible in the context of growth-centric development models. Following that philosophy, the oceans and the ocean-related activities are viewed as the greatest sources of growth in the post-recession period. The concept of ‘blue economy’ is considered as one of those epochs of development thinking.

Essentially, the doctrine of blue economy are similar to the kind of economic processes and activities envisaged in the ‘marine economy’, ‘ocean economy’, ‘coastal economy’ among others except the emphasis that it attaches to the best possible use of marine resources. Unlike green economy that proliferate prevention of environmental dilapidation and ecological unevenness, blue economy aims at productive employment of precious oceanic resources in the development process. To a great extent, blue economy largely corresponds to the intrinsic worth of the alternative development strategies mentioned above. However, blue economy as such does not appear to be a development model itself rather it could serve as a crucial component of any other mainstream development models. Fisheries, sea-minerals such as oil & gas, ports & shipping, marine tourism, marine biotechnology, deep-sea mining, transport & logistics are some of the important sectors of blue economy. It is believed that by undertaking blue economy initiatives, countries would be able to achieve high economic growth and maintain healthy balance between resource use and its renewability.

### **Definitions of Blue Economy**

The concept of blue economy is still at an evolving stage where there is yet to be any all-inclusive definition which would be suitable from the operational point of view. In the literature, blue economy has been used synonymous to ‘marine economy’, ‘coastal economy’, ‘ocean economy’, ‘green economy’ and so on. While the basic view and goals of these competing paradigms are more or less similar, there are basic differences in the approaches and treatment of various elements such as resource management, growth objectives, sustainability and social equality. At the United Nations Conference on Sustainable Development held in Rio de Janeiro in 2012, blue economy was viewed as ocean economy that aims at the “improvement of human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. At its core, the ocean economy refers to the decoupling of socio-economic development from environmental degradation. In this regard, efficiency and optimization of natural marine resources within ecological limits becomes paramount” (UNCTAD, 2014). By that definition, ocean economy can be defined as the economic activity which directly or indirectly uses the sea as an input whereas the

coastal economy represents all economic activity which takes place in a specific coastal region (Morrissey, Stephen, Michael & Cathal, 2010).

To understand the 'ocean economy', one has to understand its features as follows. Ocean economy (1) a sub-set of the economy (2) dependent on ocean for inputs to invigorate its production process (3) based on industry and also geographical locations and (4) these industries/activities are located in coastal and non-coastal areas. According to Colgan (2004), "the ocean economy is that proportion of the economy which relies on the ocean as an input to the production process or which, by virtue of geographical location, taking place on or under the ocean. It is a function of both industry and geography. While most of the ocean economy (for example, boat building, seafood retailers and many ocean instrumentation, equipment and surveying industries) may be located in non-coastal region".

In terms of volume of activities, the 'coastal economy' is larger than 'ocean economy'. The basic features of the coastal economy are: (1) a sub-set of the economy (2) concentration of activities on or around the coastal areas and (3) sum of all activities relating to output, employment and wages in the coastal region. Therefore, Colgan (2004) has defined coastal economy as "..... all economic activity in the coastal region, and is thus the sum of employment, wages, and output in the region. Some of the coastal economy is the ocean economy, but the coastal economy incorporates a broader set of economic activities".

The 'marine economy' is a horizontally integrated cluster industries which include sectors meant for a common market for the end products, using common technology or labor force skills, or require similar natural resources (University of Massachusetts, 2006). This sector comprises of five major sectors including commercial seafood, marine transportation, coastal tourism and recreation, marine science and technology, marine-related construction and infrastructure. The marine economy is a sub-set of the coastal economy.

Blue economy conceptualizes ocean economy as development spaces. From this perspective, blue economy should break the mould of business-as-usual 'brown' development model where oceans are perceived as a means of free resource extraction and waste dumping without taking into account the costs of the negative externalities. This thread of thinking signals the intrinsic risks involved in indiscriminate exploitation of marine resources for economic growth. Further, resource accounting should take into cognizance the costs of environmental damage and ecological imbalance caused due to consumption-centric resource use (Pauli, 2010). The European Commission (2012) has defined the concept of blue economy as "all economic activities related to the oceans, seas and coasts. This includes the closest direct and indirect supporting activities necessary for the functioning of these economic sectors, which can be located anywhere, including in landlocked countries". The growing competition among the nations for energy and resources focuses the need for regional cooperation to harness the endowments in a more sustainable manner. Adoption of a comprehensive definition of the blue economy is necessary to understand and to act jointly to harness the existing potential of blue economy in the IORA region.



**Table 1**  
**Taxonomy of Blue Economy Sectors and Activities**

<b>Sector</b>	<b>Activity</b>
Fishing	Capture fishery, aquaculture, seafood processing
Marine Biotechnology	Pharmaceuticals, chemicals, seaweed harvesting, seaweed products, marine derived bio-products
Minerals	Oil and gas, deep-sea mining (exploration of rare earth metals, hydrocarbon)
Marine Renewable Energy	Offshore wind energy production, wave energy production, tidal energy production
Marine Manufacturing	Boat manufacturing, sail making, net manufacturing, boat and ship repair, marine instrumentation, aquaculture technology, water construction, marine industrial engineering
Shipping, Port & Maritime Logistics	Ship building and repairing, ship owners and operators, shipping agents and brokers, ship management, liner and port agents, port companies, ship suppliers, container shipping services, stevedores, roll-on roll-off operators, custom clearance, freight forwarders, safety and training
Marine Tourism & Leisure	Sea angling from boats, sea angling from the shore, sailing at sea, boating at sea, water skiing, jet skiing, surfing, sail boarding, sea kayaking, scuba diving, swimming in the sea, bird watching in coastal areas, whale/dolphin watching, visiting coastal natural reserves, trips to the beach, seaside and islands
Marine Construction	Marine construction and engineering
Marine Commerce	Marine financial services, marine legal services, marine insurance, ship finance & related services, charterers, media & publishing
Marine ICT	Marine engineering consultancy, meteorological consultancy, environmental consultancy, hydro-survey consultancy, project management consultancy, ICT solutions, geo-informatics services, yacht design, submarine telecom
Education and Research	Education and training, research and development

Source: Compiled from Morrissey, Stephen, Michael & Cathal (2010).

### **Importance of Blue Economy: Key Economic Issues**

There are several good reasons to pursue with the regional agenda of blue economy which is gaining ground in the Indian Ocean region. Several regional economies have linked health of their economies with the health of the planet and have understood that their fates are thoroughly linked with the state of health of the ocean. In this regard, the region's economic and strategic interests are intricately linked to ocean economy as the region is dependent on ocean for critical issues including food security, livelihood security, minerals, energy security, industrial activities and various key services activities. Following Rio+20 conference in 2012, it emerged prominently about the independent development thinking

regarding the blue economy without seeing it as a rejoinder to the sustainable development agenda. It becomes a challenge to the member countries to take recourse to immediate policy action in order to take advantage of the opportunities offered by the blue economy. Some of the opportunities provided by the blue economy are briefly discussed below to highlight its relevance.

### **i. Food Security**

Blue economy has a major role in securing food security for the people. The fisheries sector including aquaculture and aquatic plants, contributes sizable proteins, fats and calories supply which supports food security situation in a country. Ensuring food security requires improved access to nutritious food of both animal and non-animal origin, reduction of food wastage, low barriers to trade in food and food products, and provision of efficient distribution of food items in food-deficient regions. In addition to the conventional measures of addressing food insecurity, blue economy offers ample opportunities to meet the growing demand for healthy and safe food by enhancing marine fishing. A good number of finfish and shellfish varieties in raw as well as processed forms are used as seafood worldwide. Fishing areas in the Indian Ocean region represent a rich endowment of fishery resources. Persistence in the decline of catch fish has been a major concern for the world economy. Since capture fish landing faces stagnancy the dependence on marine aquaculture (also termed as mariculture) for fish supply has grown significantly in the recent years. Fishing nations in the region have taken necessary steps to promote aquaculture which helped them meet domestic demand for fish and export to other markets. The contribution of fishery sector to food security can be enhanced by adopting blue economy policies in the regional economies. In the context of blue economy, higher fish production with lower environmental damage is possible through polyculture, specie diversification, optimal feeds and feeding, prevention of diseases and so on. Moreover, countries embracing blue economy would focus more on developing sophisticated technologies for farming, conservation and processing of species. The role of small-scale aquaculture by the native fishing communities is paramount from the perspective of food security. After meeting the household demand for fish for subsistence, the local fishermen would be able to earn their livelihood by selling surplus fish in the urban markets. Further, by having enabling policies on pricing, certification, labelling and marketing, the fishing sector in the context of blue economy can be more organized and regulated.

### **ii. Demand for Protein**

Demand for protein can be effectively addressed by the blue economy. For a healthy life, humans need balanced diet comprising of proteins, fats and other essential ingredients. A minimum amount of protein intake is required in that food basket as it helps maintain the average daily calorie requirements in human body. Fish is a crucial source of animal protein even in countries where the daily average per capita fish consumption is low compared to developed fish-consuming nations. Fish in small quantities can have significant nutritional impact as it is a concentrated source of protein and contains essential fatty acids and micronutrients. Fish and fish products are sources of three different types of animal proteins that are vital to human health. Structural proteins comprising of actin, myosin, tropomyosin and actomyosin constitute 70-80 per cent of the total fish protein. In addition, sarcoplasmic proteins such as myoalbumin, globulin and enzymes and connective tissue proteins account for approximately 25-30 per cent and 3 per cent of total fish protein respectively. It is also the most affordable source of animal protein in absence of any alternative sources of protein. Fish contributes more than 50 per cent of total protein supply in SIDSs and many other



countries of the world. For some IORA countries such as Indonesia, Bangladesh and Sri Lanka the share of fish in total animal protein is 54 per cent, 56 per cent and 57 per cent respectively (FAO, 2014).

Interesting revelations on food consumption habits in different parts of the world indicate that animal protein is no more considered as a luxury food rather it is increasingly being accepted as an essential part of the regular diet. Moreover, consumers in low income countries tend to diversify their food basket towards more protein and fat containing food such as meat and fish (Regmi & Meade, 2013). The statistics mentioned above hint at the importance of adequate and sustained supply of high quality fish in order to meet the average protein requirements. Although increasing fish production has been the underlying policy priority in most countries of the IORA region, the focused approach to deal with the issues of nutrition and health using marine fishery resources in the blue economy paradigm would enhance the contribution of fish to animal protein supply in the regional economies. Both freshwater farming and mariculture of protein-rich species should be encouraged in the countries promoting blue economy in the region. Focused blue economy policies for aquatic sector would not only promote production, trade and food security situation in the economy but also to address the protein requirements of people in the IORA region.

### **iii. Rising Coastal Tourism**

Coastal tourism, a major sector of blue economy, presents huge potential for job creation and economic growth. Experiences of littoral countries indicate that coastal tourism goes hand in hand with global tourism. UNEP (2009) observes that growth of coastal tourism has reached its peak in recent decades. It is the biggest maritime sector in terms of gross value added and employment generation. Sea angling, bird watching, boating at sea, dolphin watching, scuba diving, swimming in the sea and other related activities around the sea are some of those emerging segments of coastal tourism (Morrissey, Stephen, Michael & Cathal, 2010). Hotels, motels, water sport, cruise and restaurants are potential segments for expansion and growth in the coastal tourism sector. The flora and fauna spreading over the littoral states of the Indian Ocean provides biggest opportunities for investment in the tourism sector which in turn would contribute to more robust blue economy in the region. At the same time, the adverse effects of expanded tourism activities have to be monitored regularly to optimize welfare effects stemming from the coastal tourism sector.

### **iv. Surging of Seaborne Trade**

Sea is a cost-effective and carbon friendly mode of transportation for global trade. About 90 per cent of world trade is conducted through the sea routes. Advances in technology improved efficiency of shipping and contributed to the sustained rise in the world seaborne trade. About 50,000 merchant ships including container ships, bulk carriers, ferries and cruise ships are engaged in international trade. International seaborne trade continued to grow at a steady rate over the past few years after a sharp contraction in activities during the global economic recession. Since recovery from recession in major economies is fragile, seaborne trade may take time to bounce back in the next few years (UNCTAD, 2014). Dry cargo accounts for more than 70 per cent of the total volume of seaborne trade in the world. These include trade in bulk commodities such as iron ore, coal, grain, bauxite, alumina, phosphate rock, containerized trade and general cargo.

Although large part of the growth in trade by sea is explained by rapid industrialization and liberalization of trade policies in most countries of the world, the main triggers for seaborne

trade has come from increasing demand for imports of raw materials, resources, etc by China, India and other Asian economies. In addition, the pace of urbanization and competitive international ore prices would support growth in the major dry bulk cargo sector. Potential for additional capacity creation and demand for refined petroleum products will be triggered by the increasing requirements in developing Asia and America. Likewise, additional supply capacity in the Asia-Pacific and the United States and new fields in the Caspian region would help LNG shipments to rise in the coming years. Coal trade is also expected to grow in the future. These developments signal a great potential for blue economy to deliver in the Indian Ocean region. More than two thirds of global seaborne trades are routed through the Indian Ocean. The IORA states are not only the active participants of this flourishing segment of world trade but also the major suppliers of port and shipping services in the region. Some of the IORA countries are major producers, users and exporters of iron ore, coal, steel and grain in the world. As emphasized before, in the blue economy framework, ocean-based activities get relatively higher attention than its absence. The priorities and policy measures towards promoting trade by sea route may be more systematic, target-oriented and futuristic. For example, the demand for imports of resources from Africa would facilitate two-way mutually beneficial trade between China, India, the African countries and others as both the parties would be keen to invest in blue economy sectors.

#### **v. Demand for Alternative Sources of Energy**

Blue economy could be a major source of clean energy, where large renewable energy is not tapped. Where world economy is aspiring for clean, renewable and affordable energy supply, the blue economy is emerging as a large reservoir of such energy. The ever-increasing demand for energy for the purposes of household and industrial consumption in most parts of the world especially in India, China, Brazil and other emerging markets necessitates alternative sources of energy, most importantly the renewable energy. As per the estimates by the International Energy Agency, in the next 15 years the global primary energy demand would grow by 40 per cent; a substantial chunk of that would come from developing Asia and the Middle East. Resources under the blue economy initiatives can be suitably employed for development and promotion of renewable energy technologies. For instance, solar and wind in India; non-hydro renewables in Brazil, Egypt, Thailand and the Middle East; hydropower in Asian countries and others indicate the achievements in the renewable energy sector (IEA, 2015).

Ocean renewable energy in the form of wave energy, solar energy, tidal energy, hydroelectric energy would reduce the burden on finite conventional sources of energy production. Renewables account for the net additions to power capacity in many developing countries. In this context, the role of fossil fuel would remain crucial for China, India, Brazil and other developing countries for expansion of the renewable energy sector. The Government of India has set measurable targets for four key sectors of renewable energy such as wind power, solar power, biomass power and small hydro power in its Strategic Plan for New and Renewable Energy Sector 2011-17 (Government of India (2011). Interestingly, the global average cost of energy production for wind and solar PV has fallen considerably in the recent years. Further, with projected fall in the cost of production in the future, renewable energy would meet a lion's share of energy demand in the IORA region. In fact, many littoral countries are dependent on blue economy for the supply of hydrocarbon including India. However, by using the cleaner and environment friendly ocean energy technologies larger goals of the blue economy paradigm could be achieved.



**vi. Managing Coastal Urbanization**

In several littoral countries, fast growth of urbanization along the coast line is the contribution of the blue economy paradigm. However, uncontrolled climb of urbanization has detrimental impact on the economy. From different perspectives, urbanization should be considered as a positive logical conversion for a country along the development path. However, unplanned urbanization in different parts of the world have caused serious damage to the living habitat, land use pattern, spatial congestion due to migration from rural areas, spread of slums, health risks arising from poor solid waste management and a variety of governance challenges. As a result, urbanization invites more negative implication than positive ones in the contemporary literature for the developing and less developed countries.

However, blue economy policies seem to have more positive propositions in favour of urbanization. In specific terms, promoting coastal urbanization by subscribing to the core principles of sustainable, low-carbon and eco- friendly processes and technologies would eliminate the established fears associated with the business-as-usual approach toward city planning. There is a need to switch from production-led urbanization to tourism-led urbanization in which a city would rather serve as a space for consumption and leisure than for production (Qian, Dan & Hong 2012). In the blue economy framework, coastal cities can be viewed as a source of economic dynamism, agglomeration of blue activities, social empowerment of resource-dependent local communities and pollution-free built-in environment (Beall, Basudev & Ravi 2008). IORA countries must seize the opportunities in the coastal cities by investing in new blue cities or revamping the old coastal cities.

**vii. Improving Ocean Health**

With very little dispute, it is a fact that the oceans and the oceanic resources face the risk of extinction and secular depletion due to the rapid industrialization, unplanned and poorly governed urbanization, sea encroachments, water pollution, soil degradation, climate change and many other factors. As a result, the quality of marine biodiversity is getting eroded day-by-day without appropriate compensating mechanisms in place. Oceans serve as the biggest sink whereas the importance of its resources for the very sustenance of the mankind is undermined. Greenhouse gases would raise the temperature, chemistry, structure and height of the oceans which in turn would affect the ability of marine organisms to survive, the ability of the populations to persist, the evolution of species and the interaction between species. It may require calibrated policy initiatives representing a mix of identification of vulnerable species, marine protected areas, ecosystem based management, effective fisheries regulations and so on (Pinsky, Kristy, Daniel, & Cheryl, 2013).

Likewise, other pollutants deteriorate ecological balance and lower the degree of natural and biological resilience to such environmental threats. As envisaged in its principles, blue economy approach would contribute to the process of restoring the ocean health and its precious resources. It is observed that investment in coastal habitat restoration projects stimulates job creation, rebuilds fisheries, revives coastal tourism, raises property values, and improves water quality (Edwards, Sutton-Grier & Coyle, 2013). This has greater relevance for the IORA countries as the marine space covered under its jurisdiction is quite large for blue economy to show tangible gains. It is likely that countries adopting blue economy would have elaborate schemes for conservation and protection of the living and nonliving resources.

**viii. Providing Marine Governance**

The potential of marine resources for socio-economic development depends on the effectiveness of marine governance both at the national and the global level. It refers to the provisions, regulations and mechanisms surrounding access, management and control of oceans, ocean resources and the ocean-related activities. Marine governance is an integral component of a plethora of international and multilateral conventions on sea. In addition, some regional mechanisms such as regional fishery management organisations, regional inter-governmental maritime cooperation organisations and others also cater to various aspects of marine resource governance. Among the international organisations, the United Nations Convention on Law of the Sea which came into force in 1994 has been viewed as the most comprehensive single piece of legislation with membership of more than 150 countries of the world. In addition, a number of mechanisms in the form of conventions and agreements on fisheries are facilitated by the Food and Agriculture Organization and other sister United Nations bodies. While provisions and mandates of some of those mechanisms, national as well as international, are binding, most of them are advisory in nature, thereby no penalty for violations. Although many of those difficulties would continue to complicate marine governance in countries adopting blue economy, one could hope for a much better and compliant governance regime once measures towards blue economy gather momentum. Moreover, coastal countries may require formalization of certain regional and global governance and regulatory practices for the success of blue economy in the future.

**ix. Ocean Technologies**

Ocean technologies converse to technologies used for renewable energy production, deep-sea mining, freshwater production from sea, offshore structural components, ocean acoustics, seabed classification, modeling of oceanic processes, ocean electronics, marine biotechnology, aquaculture, coastal and environmental engineering, among others. The potential of those technologies are immense in terms of their future contribution to energy supply, production process, drug development, seabed management, and so on. The development of ocean technologies may get more consideration in coastal economies pursuing blue economy. In conventional policies for oceans, the nature of resource allocation and the mindset delay the process of implementation, sometimes leading to project closure. Since technology and innovation are key drivers of blue growth, the countries following blue economy may devote more resources to develop those technologies and institute mechanisms for long-term pursuit of scientific knowledge in those areas. Since energy demand is growing in most of the IORA countries, the search for innovative technologies for renewable energy production would remain superlative. At the same time, marine biotechnology has better prospects in the IORA region. Blue economy in the IORA region would need ocean technologies, and therefore will undertake necessary steps to develop such technologies in the emerging sectors.

**Conclusion**

Blue economy takes in a extensive array of sectors that could speak to key developmental challenges facing the coastal economies. By exploiting blue resources, the topic of poverty, food insecurity, unemployment and ecological imbalance can be effectively tackled. Research and innovations in marine biotechnology, higher access to seabed resources, investment in Marine Information and Communication Technology and proper integration of coastal tourism and other services could play a decisive role in injecting stimulus for creating additional economic activities in the IORA region.



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ISSN: 2456-0057

IJPNE 2020; 5(1): 16-21

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www.journalofsports.com

Received: 13-11-2019

Accepted: 15-12-2019

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## Effect of endurance training on body composition blood glucose and insulin among college boys

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### Abstract

Identifying potential risk factors associated with the development of hypo kinetic diseases among teen age population and finding out preventive strategies is vital in today scenario as early intervention can prevent the onset of such diseases including coronary heart disease and Diabetes mellitus. The effects of an endurance training program on body composition fasting blood sugar and insulin was examined among forty male under graduate students (Age:  $19.63 \pm 1.27$ ; Height:  $1.70 \pm 0.06$ , Weight:  $66.20 \pm 13.35$ , BMI:  $22.99 \pm 4.38$ ) who were randomly assigned either to an experimental group (N =20) or a Control Group (N = 20). The experimental group underwent an endurance training program for twelve weeks while the control group maintained their regular routine. The experimental group trained three to five sessions in a week and 25 to 50 min per session with a gradual increase in the number of sessions and duration as the program progresses. Height, Weight, and BMI were measured before (Pre) and after (Post) the training program. Fasting blood samples were collected 24 hours before, and 48 hours after the training period and analyzed for blood glucose and insulin levels. The obtained data were statistically analyzed using ANACOVA to find out significant difference if any. The result shows a significant reduction in Body Weight, BMI, Fasting blood sugar and Insulin in the experimental group when compared with the control group.

**Keywords:** Endurance training, glucose, insulin

### 1. Introduction

Diabetes is fast becoming the epidemic of the 21st century. Type 2 diabetes which accounts for 90% of all diabetes cases affects 5.9% of the world's adult population out of which 80% live in developing countries (Sicree *et al.* 2006) [20]. According to the World Health Organization (WHO) report, diabetes epidemic is more pronounced in India with 32 million people affected in the year 2000 (Wild *et al.* 2004) [30]. The International Diabetes Federation (IDF) estimates the total number of diabetic subjects to be around 40.9 million in India and this is further set to rise to 69.9 million by the year 2025 (Sicree *et al.* 2006) [20] and studies has shown that Indians have a younger age of onset of diabetes compared to other ethnic groups (Viswanathan, 1985) [27-28]. Another report shows that India has more than 69 million people with T2DM, and these numbers are expected to rise to 140 million by 2040, and an almost half of them remain undiagnosed (The World Bank Human Development Network, 2016). It is noticed that in the last two decades, there has been a marked increase in the prevalence of diabetes among urban south Indians. A similar though slower trend is also shown among peri urban population and rural residents as well (Ramachandran *et al.* 1999) [17]. Rapid increase in risk factors in young adulthood identifies the target group for interventions and this facture has to be considered with at most importance in our country as it is apparent that type 2 diabetes has become prevalent even among younger age groups, which could have long lasting effects on the health of the nation and its economy. It has been found that exercise plays a vital role in prevention or slowing of CAD process by controlling various cardiovascular risk factor such as hypertension, diabetes, dyslipidemia, obesity. (Thompson *et al.* 2003) [26]. The American Heart Association and other governing bodies have continued to emphasize the importance of exercise in childhood as a means of preventing CHD later in life (Kavey *et al.* 2003) [10]. Traditionally, it has been promulgated that physical activity improves health by means of an



increase in physical fitness especially cardio respiratory fitness. One of the many outcomes of exercise and training is to cause changes in the body composition. The regular physical exercise has a favourable effect on body composition for individuals of all ages. Substrate utilization during exercise is dependent on the exercise intensity and duration and that both training and diet may affect the relative importance of carbohydrate (CHO) and fat as a fuel. As exercise duration progresses, total CHO oxidation decreases while the contribution of plasma glucose and fatty acids to total energy metabolism increases (Wagenmakers et al, 1993)<sup>[29]</sup>. Prolonged exercise at moderate exercise intensities (60-70% maximum O<sub>2</sub> uptake) results in muscle glycogen depletion and decreased blood glucose concentrations as a result of decreased hepatic glucose production (Starkie *et al.* 1994 and McConell *et al.* 1994). The increase in fat oxidation in the trained muscle during exercise reduces both the oxidation of muscle glycogen and of blood glucose. The regular physical exercise has a favorable effect on body composition for individuals of all ages. Unfortunately, unlike studies involving adults, the role regular exercise has on body composition and glucose metabolism among younger population especially undergraduate students remains unclear. Keeping this in mind this study was conducted to assess the effect of endurance training on body composition, blood glucose and insulin among college students.

## 2. Materials and methods

The experimental design adopted in the study was similar to a random group design involving forty male students out of 817 students from Sreekrishnapuram VT Bhattathiripad College

doing under graduate course in arts and science who volunteered for the study. A written explanation of the experimental procedure and potential risk factors were given to each member. The age of the subjects were ranging from 18 to 20. The 40 subjects were randomly assigned to either Control group ('CON', No: 20) or Experimental group, ('EXP', No: 20). Physical examination and medical check up at the initiation of the study yielded normal results in all the subjects and none of the subjects received any medication during the period of the study. The selected variables were tested 24 hours prior (Pre) and 48 hours after (Post) the training program. The experimental group underwent endurance training for a period of 12 weeks, whereas the control group maintained their regular routine activities.

### 2.1 Training Program

Endurance training program included 8 to 12 minutes warm-up with stretching motions, walking, running, and then continuous running at a self set constant pace for 25 to 40 minutes with three to five sessions per week for twelve weeks (Total 46 sessions; Average training duration per Session (Mean  $\pm$  SD= 35.04  $\pm$  5.40)) and a warm down for 10 minutes. The initial load was started at 50 to 60% of maximum heart rate (220-age) so as to improve their self confidence (Owens and Gutin, 1999)<sup>[15]</sup> and there after they were instructed to complete the set duration of the sessions with their own set pace. The intensity and duration of the training sessions were gradually and progressively increased to induce a training effect throughout the 12-week period. All participants of the experimental group completed at least 41 sessions (Total sessions 46) with the progressive load applied.

Training Schedule with Weekly Load of Training

Week	No. of Training Sessions	Training duration of the sessions(min.)	Weekly Load of Training (WLT)(min.)
1	3	25	75
2	3	25	75
3	3	30	90
4	3	30	90
5	3	35	105
6	4	35	140
7	4	35	140
8	4	40	160
9	4	40	160
10	5	40	200
11	5	40	200
12	5	40	200
Total	46		1535 min.

Average training duration per Session (Mean  $\pm$  SD)  
= 35.04  $\pm$  5.40 (Minutes)

### 2.2 Assessment and Estimation

Body weight was measured with a platform beam balance (accuracy of 0.01 kg) and standing height was measured with a stadiometre (accuracy of 0.1 cm). BMI was estimated using the formula of body weight (kgs)/height in meter<sup>2</sup>.

### 2.3 Blood Sampling and Assessment

Blood sampling was done 24 hours before the exercise and 48 hours after the last session in both groups. For the first time of blood sampling, the subjects were asked to avoid any strenuous activity from two days before the trial. Ten ml of blood was taken from the right brachial artery after at least 10 hours of fasting. The second stage of blood sampling was done 48 hours after the last training session with the same conditions. Plasma glucose concentrations were measured using the glucose oxidase method with an semi-automated

biochemistry analyzer (ERBA chem 5 plus; coefficient of variation for glucose oxidase method  $\leq$  1.8%). Serum insulin was measured by ELISA method (Monobind Inc Lake Forest, CA 92630 USA; coefficient of variation for glucose oxidise method  $\leq$  5.6%).

### 2.4 Statistical Analysis

The data collected from the experimental and control groups prior to and after completion of the training period on selected variables were statistically examined for significant differences if any, by applying analysis of covariance (ANCOVA). Data were presented as mean  $\pm$  SD. The pre-test and post test means of experimental and control groups were tested for significance by applying ANOVA. As both the groups (RT and CON) were selected from the same population and no attempt was made to equate the groups on

the selected dependent variables or any other common variables, initial differences may exist, and there is a possibility of affecting the post test mean. For eliminating any possible influence of pre test means the adjusted post test means of experimental and control group were tested for significance by using ANCOVA. Data were analysed using the Statistical Package for the Social Sciences (SPSS, version 12.0) software. The level of confidence was fixed at 0.05

level of significance as the number of subjects was limited and also as the selected variables might fluctuate due to various extraneous factors.

### 3. Results

The general baseline characteristics of the 40 subjects who participated in the study are shown in Table I.

**Table 1:** Baseline characteristics of the Experimental and control groups

	Control group (N=20)		Experimental group (N=20)		Total (N=40)	
Age Mean ± SD	19.1 ± 1.21		20.15 ± 1.14		19.63 ± 1.27	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	18	22	18	22	18	22
Height Mean ± SD	1.70 ± 0.06		1.69 ± 0.07		1.70 ± 0.06	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	1.60	1.80	1.58	1.84	1.58	1.84
Weight Mean ± SD	62.95 ± 16.92		69.45 ± 7.56		66.20 ± 13.35	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	44.00	110.00	52.00	84.00	44	110
BMI Mean ± SD	21.80 ± 5.82		24.17 ± 1.63		22.99 ± 4.38	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	15.37	35.92	17.99	25.93	15.37	35.92

**Table 2:** Analysis of Covariance for the Selected Variables among Experimental Group & Control Groups.

Variable	Test	Experimental Group	Control Group	F-Ratio
Body Weight Mean (SD)	Pre test	69.45(7.56)	62.95(16.9 2)	2.46
	Post test	66.50(7.20)	63.50(16.9 3)	0.53
	Ad Po test	63.28	66.72	131.21*
BMI Mean (SD)	Pre test	24.17(1.63)	21.80(5.82)	3.08
	Post test	23.14(1.48)	21.99(5.83)	0.726
	Ad Po test	21.97	23.17	136.68*
Blood Sugar Mean (SD)	Pre test	83.97(15.82)	83.48(16.2 7)	0.009
	Post test	83.99(15.91)	78.92(13.1 1)	1.209
	Ad Po test	83.77	79.14	38.26*
Insulin Mean (SD)	Pre test	6.69(3.01)	7.05(3.23)	0.128
	Post test	5.899(2.08)	7.24(2.89)	2.819
	Ad Po test	6.02	7.12	6.36*

**Table 3:** The Pre and Post Test Means of Experimental (EXP) and Control (CON) Groups with Percentage of Gain

Variable	Group	Pre Test	Post Test	Gain	Percentage of Gain
Body Weight Mean (SD)	Experimental	69.45(7.56)	66.50(7.20)	2.95	4.25%↓
	Control	62.95(16.92)	63.50(16.93)	0.55	0.87%↑
BMI Mean (SD)	Experimental	24.17(1.63)	23.14(1.48)	1.03	4.26%↓
	Control	21.80(5.82)	21.99(5.83)	0.19	0.87%↑
Blood Sugar Mean (SD)	Experimental	83.48(16.27)	78.92(13.11)	4.56	5.46%↓
	Control	83.97(15.82)	83.99(15.91)	0.02	0.02%↑
Insulin Mean (SD)	Experimental	6.69(3.01)	5.89(2.08)	0.8	11.96%↓
	Control	7.05(3.23)	7.24(2.89)	0.19	2.70%↑

#### 3.1 Body Weight and BMI

No significant difference was observed among the pre test and post test values of body weight and BMI of the Experimental Group and the Control Group, whereas the adjusted post test means of the Experimental Group and the Control Group shows a significant difference in body weight and BMI ( $P \leq 0.05$ ). The pre test and post test means of body weight for the experimental group ( $69.45 \pm 7.56$  vs  $66.50 \pm 7.20$ ) shows a

reduction of 2.95 (4.25%) whereas the pre test and post test means of control group ( $62.95 \pm 16.92$  vs  $63.50 \pm 16.93$ ) shows an increase of 0.55 (0.87%). For BMI in the experimental group, the pre test and post test means ( $24.17 \pm 1.63$  vs  $23.14 \pm 1.48$ ) shows a reduction of 1.03 (4.26%) whereas the pre test and post test means of control group ( $21.80 \pm 5.82$  vs  $21.99 \pm 5.83$ ) shows an increase of 0.19 (0.87%).



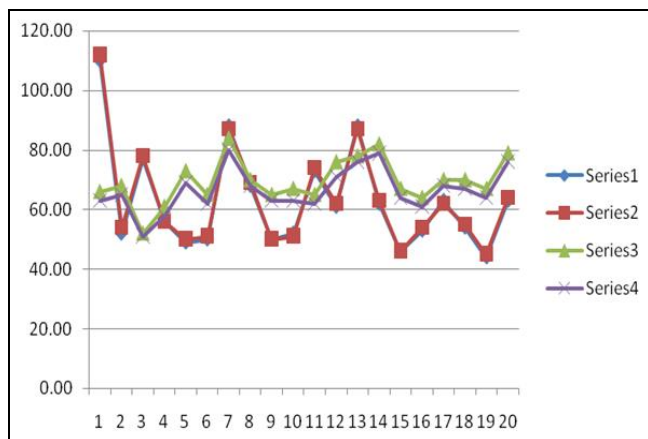


Fig 1: Body Weight

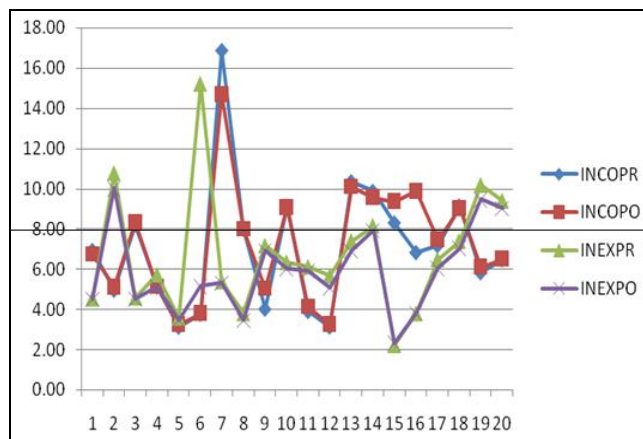


Fig 4: Insulin

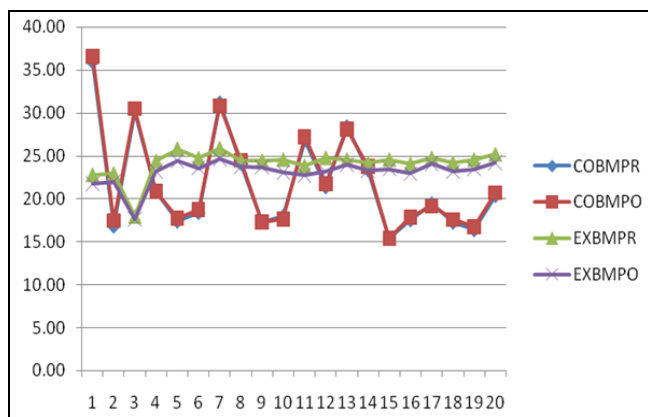


Fig 2: BMI

**3.2 Blood sugar and Insulin**

No significant difference was observed among the pre test and post test values of fasting blood sugar and insulin of the Experimental Group and the Control Group, whereas the adjusted post test means of the Experimental Group and the Control Group shows a significant difference in fasting blood sugar and insulin ( $P \leq 0.05$ ). The pre test and post test means of fasting blood sugar for the experimental group ( $83.48 \pm 16.27$  vs  $78.92 \pm 13.11$ ) shows a reduction of 4.56 (5.46%) whereas the pre test and post test means of control group ( $83.97 \pm 15.82$  vs  $83.99 \pm 15.91$ ) shows an increase of 0.02. The insulin levels in the experimental group, the pre test and post test means ( $6.69 \pm 3.01$  vs  $5.89 \pm 2.08$ ) shows a reduction of 0.8 (11.76%) whereas the pre test and post test means of control group ( $7.05 \pm 3.23$  vs  $7.24 \pm 2.89$ ) shows an increase of 0.19 (2.70%).

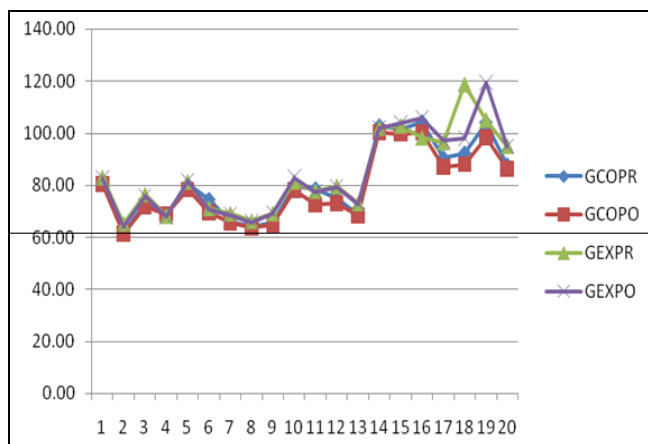


Fig 3: Blood Glucose

**4. Discussion**

Previous studies done among younger population on factors related to functional abilities, body composition metabolic variables due to exercise training involving endurance type of activities in obese/non obese, gives positive health related changes but there is lack of clarity on the type, intensity and duration of the training. Endurance exercise training results in adaptive changes in muscle metabolic function characterized by a decrease in carbohydrate utilization and an increase in lipid oxidation (Hurley *et al.* 1986; Mendenhall *et al.* 1994; Phillips *et al.* 1996) [8, 13, 16] and the findings of other studies shows a reduction in the reliance on carbohydrate oxidation during exercise includes a sparing of muscle glycogen (McKenzie *et al.* 2000; Tarnopolsky *et al.* 1995; Phillips *et al.* 1996) [12, 23, 16]; a decrease in the rates of appearance and oxidation (Nishida *et al.* 2001; Friedlander *et al.* 1997; Mendenhall *et al.* 1994; Phillips *et al.* 1996) [14, 4, 13, 16] of plasma glucose. The effect of exercise training on insulin action has been well documented (Kahn *et al.* 1990; Houmard *et al.* 1993) [9, 7], and published evidence shows that an acute bout of sub-maximal exercise can lower blood glucose concentration (Albright *et al.* 2000; Sigal *et al.* 2007; ACSM, 2009; Ekkekakis *et al.* 2004; Hawley and Lessard, 2008) [2, 21, 1, 3, 6] and improve insulin sensitivity for up to 72 h after cessation of any given exercise bout. Endurance training reduces visceral fat (Schwartz., *et al.* 1991) [19] and which in turn results in higher levels of insulin sensitivity and better metabolic capabilities (Goodpaster *et al.* 2003; Goodpaster *et al.* 1999; Kirwan *et al.* 1993; Ross *et al.* 2004; Després *et al.* 1991) [5]. The findings of our study shows a reduction in body weight and blood glucose level which can be attributed to the reduction of body fat and previous results demonstrate that a reduction in body fat is a prerequisite to improve glucose disposal (Segal *et al.* 1991:). Although Houmard *et al.* (1993) [7] did not show the results of integrated area of insulin after the glucose load. Kahn *et al.* (1990) [9] found a significant decrease in the acute insulin response to glucose after exercise training.

**5. Conclusions**

In this study we have adopted a training programme for twelve weeks which involves a progressive increase in training load/duration and also in the number of occasions the subjects of the experimental group trained (3-5 sessions per week), which is not adopted in many studies. More over an control group was in place and the training induced gains were compared with the data of the control group. In this study a small but significant positive gain in body

composition was observed, which may be attributed to the longer duration of the training. The reduction in blood sugar and insulin observed is due to the metabolic demand placed on the system due to the regular and progressive training. More studies needed to be done on younger population to get a clear understanding on the reason for the insulin level.

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## Effect of Endurance Training Program on BMI and Lipid Profiles among College Boys

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Received: 27 Oct 2019

Revised: 29 Nov 2019

Accepted: 02 Jan 2020

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### ABSTRACT

The risk factors associated with major non communicable diseases often develop during the adolescent and teenage period. Identifying those factors which could be modified through effective life style modifications including physical training is most vital. The effects of an endurance training program on body composition and lipid profiles were examined among Forty male under graduate students (Age:  $19.63 \pm 1.27$ ; Height:  $1.70 \pm 0.06$ , Weight:  $66.20 \pm 13.35$ , BMI:  $22.99 \pm 4.38$ ), who were randomly assigned either to an experimental group (N =20) or a Control Group (N = 20). The experimental group underwent an endurance training program for twelve weeks while the control group maintained their regular routine. The experimental group trained three to five sessions in a week and 25 to 50 min per session with a gradual increase in the number of sessions and duration as the program progresses. Height, Weight, and BMI were measured before (Pre) and after (Post) the training program. Fasting blood samples were collected 24 hours before, and 48 hours after the training period and analyzed for lipid levels. The obtained data were statistically analyzed using ANACOVA to find out significant difference if any. We





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observed a significant reduction in Body Weight, BMI. In conclusion the endurance training brings about positive changes in Lipid profiles among college boys.

**Key Words:** Endurance Training, HDL Cholesterol, LDL Cholesterol, Total Cholesterol, Triglycerides.

## INTRODUCTION

Non communicable diseases are on the rise in the developing countries where four-fifths of the world people lives. The prevalence of coronary artery disease (CAD) is rising rapidly in urban as well as rural India. Marked increases in both CHD prevalence and risk factors is observed in urban India compared with rural settings. Sedentary lifestyle is identified as the major risk factor for the development of coronary heart disease in adults (1-3). Conscious effort in lifestyle modification along with control of risk factors are needed to prevent the development of coronary heart disease among Indian population. In adults, overweight and low levels of aerobic fitness are independently associated with immature mortality caused by coronary heart disease(4) and research findings suggests that the atherosclerotic process begins during childhood and carried on to adulthood(5,6). In addition, children of parents diagnosed with CVD are known to exhibit a higher probability of developing CVD at a much earlier age compared to others(7). Fatty streaks in the aorta associated with atherosclerotic process can form even at three years of age and during adolescence. In response to the rising incidence of CHD in adults, the American Heart Association and other governing bodies have continued to emphasize the importance of exercise in childhood as a means of preventing CHD later in life(8).

Since previous studies have illustrated that a considerable number of school-age children have risk factors that are predictive of CHD in adults(9), the early years of life may be a critical time period to reduce the risk of CHD(10,11). Several longitudinal studies, beginning from childhood, show that serum lipids and lipoproteins are important indicators of CHD development in adulthood (12,13). Low prevalence of risk factors associated with cardiovascular disease like smoking, hypertension, lipid abnormalities and diabetes was noticed among adolescents in an Indian urban population but an increase was noted on these risk factors during the period of 20–29 years with an exponential increase in age group 30–39 years (14) while others reported high prevalence of these risk factors for the young aged population (15). Previous studies have identified increased concentrations of LDL-C, decreased concentrations of HDL-cholesterol (HDL-C), hypertension, and hyperglycemia among other factors as the modifiable risk factors to prevent cardiovascular disease in the general population (16) which is applicable to young population as well.

Physical activity and aerobic capacity are significantly related to the risk of cardio vascular disease and individuals with low physical fitness or aerobic capacity has an elevated chance of being at high risk of coronary heart disease. The cardiovascular benefits and physiological reactions to physical activity with a direct relationship to coronary heart disease risk factors reduction are similar among diverse population subgroups including youth and adolescents. Physical Exercise especially endurance type of activities enhances lipid metabolism leading to alteration of plasma lipase activity and hepatic lipase resulting in decrease cholesterol concentrations and has been shown to increase the intravenous fat clearance. One of the outcomes of exercise and physical training is to cause changes in the body composition and regular physical exercise has a favorable effect on body composition for individuals of all ages. Unfortunately, unlike studies involving adults, the role regular exercise has on CHD risk factors in younger population remains unclear especially among Indian population. Although the specific cardio protective benefits of aerobic training are well known there is very little literature available on these effects among young Indian population. In view of this the present study was taken up to investigate the effect of endurance training program on body composition, and lipid profiles among college boys.





## MATERIALS AND METHODS

The experimental design adopted in the study was similar to a random group design involving forty male students out of 812 students from Sreekrishnapuram VT Bhattathiripad College doing under graduate course in arts and science who volunteered for the study (Age:  $19.63 \pm 1.27$ ; Height:  $1.70 \pm 0.06$ , Weight:  $66.20 \pm 13.35$ , BMI:  $22.99 \pm 4.38$ ). A written explanation of the experimental procedure and potential risk factors were given to each member. The age of the subjects were ranging from 18 to 20. The 40 subjects were randomly assigned to either Control group ('CON', No: 20) or Experimental group, ('EXP', No: 20). Physical examination and medical check up at the initiation of the study yielded normal results in all the subjects and none of the subjects received any medication during the period of the study. The selected variables were tested 24 hours prior (Pre) and 48 hours after (Post) the training program. The experimental group underwent endurance training for a period of 12 weeks, whereas the control group maintained their regular routine activities. The general baseline characteristics of the 40 subjects who agreed to participate in the study are shown in Table 1.

### Training Program

Endurance training program included 15 minutes warm-up with stretching motions, walking, running, and then continuous running at a constant self set pace for 25 to 40 minutes with three to five sessions per week for twelve weeks (Average training duration per Session (Mean  $\pm$  SD)=  $35.04 \pm 5.40$ ) and a warm down for 10 minutes. The initial load was fixed at 60% of maximum heart rate (220-age) and their after they were instructed to complete the set duration of the sessions with their own set pace. All participants of the experimental group completed 41 sessions (Total sessions: 46) in accordance to the progressive load applied. Body weight was measured with a platform beam balance (accuracy of 0.01 kg) and standing height was measured with a stadiometer (accuracy of 0.1 cm). BMI was estimated using the formula of body weight (kgs)/height in meter<sup>2</sup>. (Table 2.)

### Blood Sampling and Assessment

Blood tests were performed by certified medical personnel at a reputed clinical lab. Blood samples (5 mL), taken by a venepuncture, were then analysed for concentrations of total cholesterol and sub fractions. Blood sampling was done 24 hours before the exercise and 48 hours after the last session in all three studied groups. For the first time of blood sampling, the subjects were asked to avoid any strenuous activity from two days before the trial. Ten ml of blood was taken from the right brachial artery after at least 10 hours of fasting (Pre test). The blood sampling for the Post test was done 48 hours after the last training session with the same conditions. The resulting serums were kept in a freezer at a temperature of -80°C. Plasma triglyceride was measured by enzymatic colorimetric method using a kit made by Dia Sys Diagnostic Systems GmbH Alte Strasse 965558 Holzheim, Germany (Sensitivity: 1 mg / dl, Intra-assay CV%: 1.6). Total cholesterol was also measured by enzymatic colorimetric method using reagent kit ( DiaSys Diagnostic Systems GmbH Alte Strasse 965558 Holzheim, Germany; Sensitivity: 3 mg/dl, Intra-assay CV%: 1.4). To measure HDL-C, enzymatic photometric method using reagent kit (Dia Sys Diagnostic Systems GmbH Alte Strasse 965558 Holzheim, Germany: Sensitivity: 1 mg/dl, Intra-assay CV%: 1.5) were used. LDL-C was determined by the equation proposed by Friedewald, Levy, and Fredrickson (1972)(17) as follows:  $LDL = TC - HDL - TG/0.5$

The data collected from the experimental and control groups prior to and after completion of the training period on selected variables were statistically examined for significant differences if any, by applying analysis of covariance (ANCOVA). The pre test and posttest means of experimental and control groups were tested for significance by applying ANOVA. As both the groups (RT and CON) were selected from the same population and no attempt was made to equate the groups on the selected dependent variables or any other common variables, initial differences may exist, and there is a possibility of affecting the post test mean. For eliminating any possible influence of pre test means the adjusted posttest means of experimental and control group were tested for significance by using





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ANCOVA. All the data were analyzed using SPSS statistical package. The level of confidence was fixed at 0.05 level of significance as the number of subjects was limited and also as the selected variables might fluctuate due to various extraneous factors.

## RESULTS AND DISCUSSION

### BMI

No significant difference was observed among the pre test and post test values of BMI of the Experimental Group and the Control Group, whereas the adjusted post test means of the Experimental Group and the Control Group shows a significant difference ( $P \leq 0.05$ ). For BMI in the experimental group, the pre test and post test means ( $24.17 \pm 1.63$  vs  $23.14 \pm 1.48$ ) shows a reduction of 1.03 (4.26%) whereas the pre test and post test means of control group ( $21.80 \pm 5.82$  vs  $21.99 \pm 5.83$ ) shows an increase of 0.19 (0.87%). Table 3, Table 4 and Figure 1

### Total Cholesterol (TC)

No significant difference was observed among the pre test and post test values of TC of the Experimental Group and the Control Group, whereas the adjusted post test means of the Experimental Group and the Control Group shows a significant difference in TC ( $P \leq 0.05$ ). The pre test and post test means of TC for the experimental group ( $147.70 \pm 17.04$  vs  $139.60 \pm 13.37$ ) shows a reduction of 8.10 (5.48%) whereas the pre test and post test means of control group ( $145.90 \pm 19.80$  vs  $147.15 \pm 18.92$ ) shows an increase of 1.25 (0.86%). Although the mechanism of exercise-induced lipid changes is unclear, exercise itself may increase blood lipid consumption hence to decrease lipids levels (18). Previous studies have found that moderately active subjects had lower TC and increased HDL-C. These findings are similar to this study where BMI had reduced, and HDL increased after moderate intensity training (19,20). Figure 2.

### High Density Lipoprotein Cholesterol (HDL-C)

No significant difference was observed among the pre test and post test values of HDL-C of the Experimental Group and the Control Group, whereas the adjusted post test means of the Experimental Group and the Control Group shows a significant difference in TC ( $P \leq 0.05$ ). The pre test and post test means of HDL-C for the experimental group ( $48.81 \pm 2.50$  vs  $51.00 \pm 3.47$ ) shows an increase of 2.19 (4.49%) whereas the pre test and post test means of control group ( $49.09 \pm 4.41$  vs  $49.26 \pm 5.05$ ) shows an increase of 0.12 (0.35%). Studies has demonstrated that endurance athletes have 40–50% higher level of serum high-density lipoprotein cholesterol (HDL-C) concentrations when compared with their sedentary counterparts (21,22) and it is suggested that regular endurance exercise training may be particularly helpful in men with low HDL cholesterol, elevated TGs, and abdominal obesity (23,24). This increase has varied from 4 to 43% in various studies (25-28). These findings are similar to this study where BMI had reduced, and HDL increased after moderate intensity training. There are several possible reasons why HDL improved indicating a positive effect of short-term aerobic training, firstly improvement could be due to a reduction in BMI, which has shown a high correlation with increase HDL and secondly due to a reduction in TGs. In another study, HDL did not change significantly at the different levels of activity as compared to sedentary phase during 4 weeks of training (29) where as the subjects of our study underwent an endurance training program for twelve weeks. Figure 3.

### Low Density Lipoprotein Cholesterol (LDL-C)

No significant difference was observed among the pre test and post test values of LDL-C of the Experimental Group and the Control Group, whereas the adjusted post test means of the Experimental Group and the Control Group shows a significant difference in TC ( $P \leq 0.05$ ). The pre test and post test means of LDL-C for the experimental group ( $72.09 \pm 10.51$  vs  $68.65 \pm 10.42$ ) shows a reduction of 3.44 (4.77%) whereas the pre test and post test means of control



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group (  $70.42 \pm 10.92$  vs  $70.56 \pm 10.53$  ) shows an increase of  $0.14$  (  $0.20\%$  ). Studies has demonstrated that LDL-C may also acutely decrease 5–8% in hypercholesterolemic men with exercise (26,30,31) though some studies did not show any reduction in TG level even after 4 weeks of training at different level of physical (32). Hepatic lipase enzyme plays a major role in the conversion of LDL-C to HDL-C. The amount of this enzyme is less in active individuals and exercise can decrease it more and maintain HDL-C concentration in larger amounts. These enzymatic changes, which are caused by exercise, improve the lipid profile (33). Previous studies have shown a similar reduction in LDL-C (34,35) and the noticed post training level of LDL-C could be due to a reduction in body weight and BMI, which has shown a high correlation with increase HDL and also due to the reduction in triglycerides. Figure 4.

**Tri glycerines (TG)**

No significant difference was observed among the pre test and post test values of TG of the Experimental Group and the Control Group, whereas the adjusted post test means of the Experimental Group and the Control Group shows a significant difference in TG ( $P \leq 0.05$ ). The pre test and post test means of body weight for the experimental group ( $132.20 \pm 58.48$  vs  $99.78 \pm 43.63$ ) shows a reduction of  $34.42$  (25.65%) whereas the pre test and post test means of control group ( $131.66 \pm 66.40$  vs  $134.93 \pm 65.33$ ) shows an increase of  $3.27$  (2.48%). As far as triglycerides are concerned previous results shows that the reduction in TG after endurance training, consistent with the induction of metabolic changes, persists for up to 72 h (25-27,31,36), and is greatest in those with higher pre exercise TG values. The reduction in TG noted in this study was in conformation of earlier findings (31,37,38). Figure 5.

**CONCLUSIONS**

In our study we have found a small but significant positive alterations in lipid profiles and body composition due to the endurance training of twelve weeks duration. The findings of this study suggests that the twelve weeks of moderate intensity aerobic training has a beneficial effect namely reduced TC, improved HDL, reduced LDL, reduced TG and improved body composition. The effects of exercise training on the blood lipid and lipoprotein levels of normolipidemic younger population are equivocal. Previous studies on adults reveal that exercise training programs lasting longer than four months, are needed to see a positive alteration in blood lipids and lipoprotein levels<sup>39</sup>. In spite of the positive outcomes, one of the possible flaws in our study is that the exercise intervention length is probably not long enough to bring about notable changes even though a systematic training schedule is adopted and a control group is in place. To overcome these shot comings it is suggested that future studies should be taken with larger sample size and with uniform diet code to avoid effect of variable diet on lipid profile. More research with well defined samples and controlled training programmes of longer duration intensity is necessary to clarify the effects of exercise training on body composition and lipid profiles among college boys.

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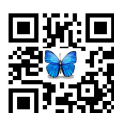
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**Table 1. Baseline Characteristics of the Experimental and Control Groups**

	Control group (N=20)		Experimental group (N=20)		Total (N=40)	
<b>Age</b>	19.1 ± 1.21		20.15 ± 1.14		19.63 ± 1.27	
Mean ± SD	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	18	22	18	22	18	22
<b>Height</b>	1.70 ± 0.06		1.69 ± 0.07		1.70 ± 0.06	
Mean ± SD	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	1.60	1.80	1.58	1.84	1.58	1.84
<b>Weight</b>	62.95 ± 16.92		69.45 ± 7.56		66.20 ± 13.35	
Mean ± SD	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	44.00	110.00	52.00	84.00	44	110
<b>BMI</b>	21.80 ± 5.82		24.17 ± 1.63		22.99 ± 4.38	
Mean ± SD	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
	15.37	35.92	17.99	25.93	15.37	35.92







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Table 2. Training Schedule with Weekly Load of Training

Week	No. of Training Sessions	Training duration of the Sessions(min.)	Weekly Load of Training (WLT)(min.)
1	3	25	75
2	3	25	75
3	3	30	90
4	3	30	90
5	3	35	105
6	4	35	140
7	4	35	140
8	4	40	160
9	4	40	160
10	5	40	200
11	5	40	200
12	5	40	200
Total	46		1535 min.
Average training duration per Session (Mean $\pm$ SD) = 35.04 $\pm$ 5.40			

Table 3. Analysis of Covariance for the Selected Variables among Experimental Group &amp; Control Groups.

		Experimental Group	Control Group	F-Ratio
BODYWEIGHT Mean (SD)	PRE TEST	69.45(7.56)	62.95(16.92)	2.46
	POST TEST	66.50(7.20)	63.50(16.93)	0.53
	AD PO TEST	63.28	66.72	131.21*
BMI Mean (SD)	PRE TEST	24.17(1.63)	21.80(5.82)	3.08
	POST TEST	23.14(1.48)	21.99(5.83)	0.726
	AD PO TEST	21.97	23.17	136.68*
TOTAL CHOLESTEROL Mean (SD)	PRE TEST	147.70(17.04)	145.90(19.80)	0.095
	POST TEST	139.60(13.37)	147.15(18.92)	2.124
	AD PO TEST	138.81	147.94	99.84*
HDL CHOLESTEROL Mean (SD)	PRE TEST	48.81(2.54)	49.09(4.41)	0.064
	POST TEST	51.00(3.47)	49.26(5.05)	1.606
	AD PO TEST	51.15	49.11	9.087*
LDL CHOLESTEROL Mean (SD)	PRE TEST	72.09(10.51)	70.42(10.92)	0.243
	POST TEST	68.65(10.42)	70.56(10.53)	0.332
	AD PO TEST	67.84	71.36	53.97*
TRIGLYCERIDES Mean (SD)	PRE TEST	134.20(58.48)	131.66(66.41)	0.016
	POST TEST	99.78(43.63)	134.93(65.33)	4.004*
	AD PO TEST	98.69	136.01	56.95*





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**Table. 4: The Pre and Post Test Means of Endurance Training (Exp) and Control (Con) Groups with Percentage of Gain**

Variable	Group	Pre Test	Post Test	Gain	Percentage of Gain
<b>BMI</b> Mean (SD)	<b>Experimental</b>	24.17(1.63)	23.14(1.48)	1.03	4.26%↓
	<b>Control</b>	21.80(5.82)	21.99(5.83)	0.19	0.87%↑
<b>Total Cholesterol</b> Mean (SD)	<b>Experimental</b>	147.70(17.04)	139.60(13.37)	8.1	5.48%↓
	<b>Control</b>	145.90(19.80)	147.15(18.92)	1.25	0.86%↑
<b>HDL-Cholesterol</b> Mean (SD)	<b>Experimental</b>	48.81(2.54)	51.00(3.47)	2.19	4.49%↑
	<b>Control</b>	49.09(4.41)	49.26(5.05)	0.17	0.35%↑
<b>LDL-Cholesterol</b> Mean (SD)	<b>Experimental</b>	72.09(10.51)	68.65(10.42)	3.44	4.77%↓
	<b>Control</b>	70.42(10.9 2)	70.56(10.53)	0.14	0.20%↑
<b>Triglycerides</b> Mean (SD)	<b>Experimental</b>	134.20(58.48)	99.78(43.63)	34.42	25.65%↓
	<b>Control</b>	131.66(66.41)	134.93(65.33)	3.27	2.48%↑

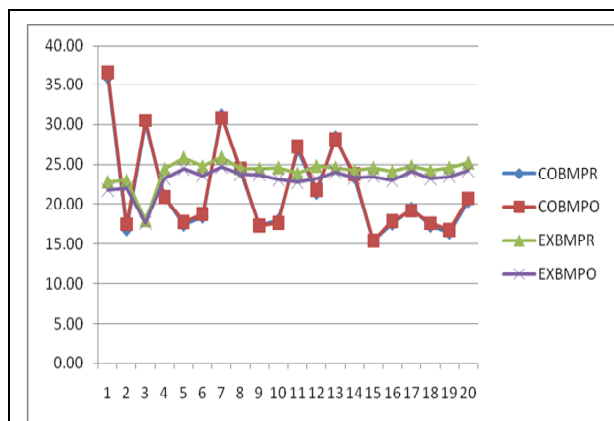


Figure 1. BMI

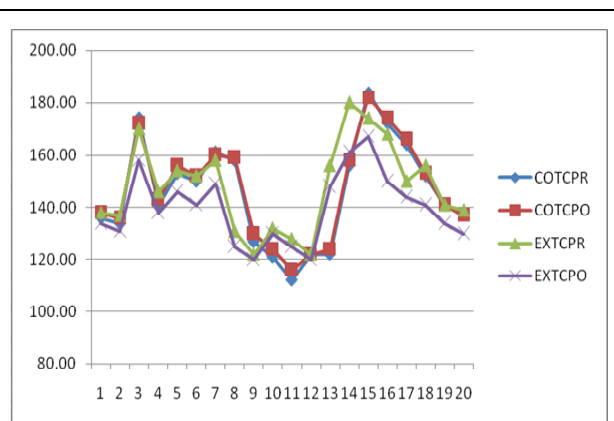


Figure 2. Total Cholesterol

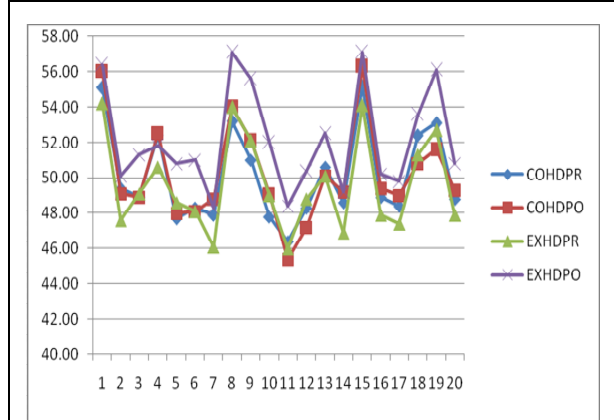


Figure 3. HDL-Cholesterol

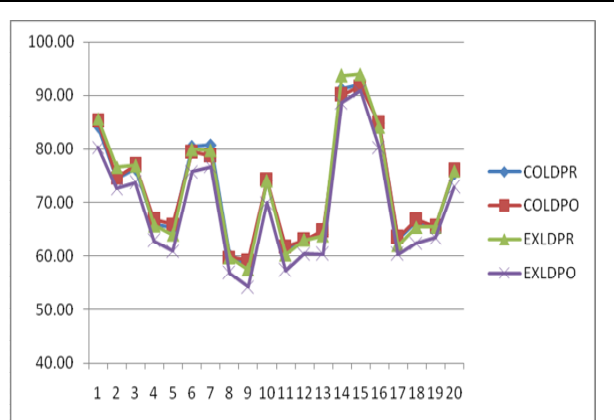
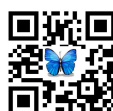


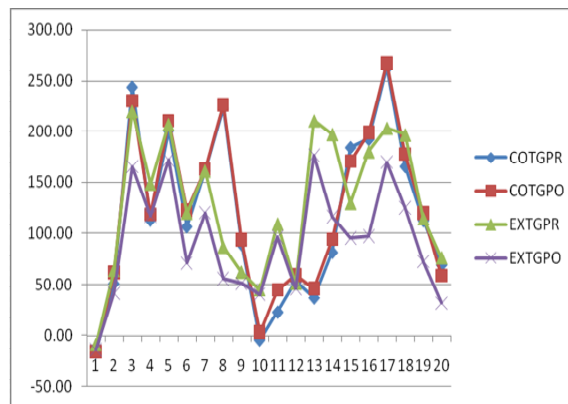
Figure 4. LDL-Cholesterol







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**Figure5. Triglycerides**



# महस्विनी

विद्वन्मण्डलीसमीक्षिता परामृष्टा च शोधपत्रिका

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आचार्यः वि. मुरलीधरशर्मा

कुलपतिः

सम्पादकः

आचार्यः कोराड सूर्यनारायणः



राष्ट्रीयसंस्कृतविद्यापीठम्

(विश्वविद्यालयानुदानायोगस्य १९५६ अधिनियमस्य

तृतीयधारया अनुमोदितः विश्वविद्यालयः)

तिरुपतिः - ५१७५०७, आन्ध्रप्रदेशः

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# MAHASVINĪ

( Peer-reviewed and Refereed Research Journal)

Vol : 13

Year : 2019

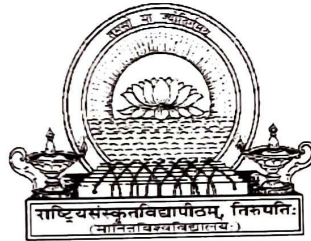
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डा. श्रुतिः पी.ए.\*

संक्षेपः

तार्किकाणां मते प्रत्यक्ष-अनुमान-उपमान-शब्दाः प्रमाणानि । ननु अनुपलब्धिरपि प्रमाणमिति भाट्टाः, अभावप्रत्यक्षं प्रति अनुपलब्धेः कारणत्वात् इति। अनुपलब्धेः प्रमाणान्तरत्वं नास्ति इति तार्किकाः । तत्र तर्कसंग्रहदीपिकायाम् अनुपलब्धिसहकृतेन्द्रियेणैव अभावज्ञानमुत्पद्यते इति। तथा च अनुपलब्धेः अभावप्रमां प्रति कारणत्वमस्ति इति भाट्टमतं निरस्यते तार्किकेण । प्रतियोगिविषयकप्रत्यक्षाभावः अनुपलब्धिः । ‘घटाभाववत् भूतलम्’ इत्यत्र घटरूपप्रतियोगिविषयक-घटाभावरूपप्रत्यक्षाभाववत् भूतलम् इति ज्ञानम् अनुपलब्धिः। एवं घटस्य दर्शनाभावादेव घटो भूतले नास्तीति अभावप्रत्यक्षस्य उत्पत्तिः । अत्र अनुपलब्धिः इन्द्रियसहकृता एव । एवं च अनुपलब्धेः अभावप्रत्यक्षं प्रति साक्षात् न कारणत्वम् । अतः प्रमाणान्तरत्वमपि नास्ति इति ।

प्राक्कथनम्

बुद्धेः द्वैविध्यं सर्वैरपि ज्ञायते, स्मृतिरनुभवश्च इति । अनुभवश्च द्विविधः – यथार्थानुभवः, अयथार्थानुभवश्चेति । यथार्थानुभवः प्रमा इत्युच्यते । प्रमाकरणं प्रमाणम्। यथार्थज्ञानं येन भवति तस्य ज्ञानस्य साधनं प्रमाणमित्युच्यते । प्रमाणस्य भेदविषये विविधैः आचार्यैः विभिन्नानि मतानि उपस्थितानि । यथा सांख्यकारिकायाम् –

“दृष्टमनुमानमाप्तवचनं च सर्वप्रमाणसिद्धत्वात् ।

त्रिविधं प्रमाणमिष्टं प्रमेयसिद्धिः प्रमाणाद्धि ॥” (सांख्यकारिका, कारिका ४)

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## Training at Rural Self Employment Training Institute (Rseti) and Its Influence on the Financial Literacy and Entrepreneurial Intention of Women

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**ABSTRACT:** Financial literacy and good financial decision is very vital in the success of business life. The financial literacy and entrepreneurial intention of rural women of Palakkad district are studied here. The Rural Self Employment Training Institutes are working in almost all the district in India and they are provided with several programmes to develop self employment in rural youth. This study is intended to know the influence of these programmes in the entrepreneurial intention and financial literacy. The research was aimed to know the relationship between the two variables and collected data from sixty two women by using the financial literacy test and entrepreneurial intention questionnaire. The research is hypothesized the significant differences of trained and untrained women in the entrepreneurial intention and financial literacy. The statistical techniques used are correlation, t test and chi square test. The study found there is a significant difference between trained and untrained in their entrepreneurial intention and financial literacy and there is a significant correlation between the entrepreneurial intention and financial literacy.

**KEY WORDS:** Rural Self Employment Training Institute, entrepreneurial intention, financial literacy

Received 25 February, 2019; Accepted 18 March, 2019 © the Author(S) 2019.

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### I. INTRODUCTION

RSETIs are Rural Self Employment Training Institutes, an initiative of Ministry of Rural Development (MoRD) to have dedicated infrastructure in each district of the country to impart training and skill up gradation of rural youth geared towards entrepreneurship development. RSETIs are managed by banks with active co-operation from the Government of India and State Governments. There are RSETIs in all the fourteen district in Kerala which have been operated by the lead banks of the area. They are provided with several skill development trainings, soft skill training for rural youth. The study have conducted at Palakkad and Thrissur districts of Kerala. Financial literacy is defined as “The ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being.” It has gained attention of a wide range of financial services and investment avenues in different sectors. But the rural people in different parts of the country including investors, policy makers and interested groups are lack of knowledge in financial concepts. They also lack in using the tools for taking most appropriate financial decisions and move towards economic wellbeing. Government of India now provided with several policies and initiatives to develop financial literacy and financial inclusiveness in rural India. There are Financial Literacy Centers almost all the districts in Kerala. RSETIs are working with the financial literacy centers for training the rural youth. Entrepreneurship has become much more important in the contemporary world where financial crises have been occurring. In the paper we investigate the relationship between financial literacy as one of the entrepreneurship competencies and entrepreneurial intention. Entrepreneurship is becoming a very relevant instrument to promote economic growth and development in different national economies. Entrepreneurial intention can be defined as an indicator of the will to try something or the effort one is prepared to apply to behave in a particular manner (Ajzen, 1991). The intention is defined as cognitive representation of a person’s willingness to display certain behaviour (Fayolle et al., 2006).

#### Need and significance of the study

Rural self employment training institutes are working in all the fourteen districts in Kerala. The skill development courses and short term courses held at the institute are widely accepted by rural women. In



Palakkad district the institute is situated at Vellinezhi Grama Panchayat managed by Canara bank. The process programmes more demanded are the tailoring, fashion designing; agarbati and soap making are the most demanded product programmes and there is also demand for agricultural programmes like rubber tapping. From the present study the investigator is intended to study the entrepreneurial intention and financial literacy of the women both trained and untrained for the purpose of comparison.

The present study aims to detect the factors affecting entrepreneurial intentions of the trainees of RSETIs and to determine the effect of training on entrepreneurial intention and financial literacy.

### **Reviews**

Wang, Chang, Yoa and Liang (2015) studied on the personality traits and entrepreneurial intention and their result indicated that the entrepreneurial intention have two dimensions named as conviction and preparation and the dimensions of personality included big five personality trait. The study recommended that, in addition to adopting individual personality and enhancing student intention toward rural entrepreneurship, learning activities such as business-plan writing and entrepreneurial competence development should be embedded into agricultural curriculum and placement.

Aleesa(2019) studied the personal attitudes, subjectivity norms and perceived behavioural control on the entrepreneurial intention of Saudi students. The study revealed that students' personal attitude, subjective norm, and perceived behavioural control were significantly associated with each other and it showed that personal attitude, subjective norm, and perceived behaviour alone could explain only a small portion of the variability of the entrepreneurial intention

### **Objectives of the study**

To know the different factors determining financial literacy and entrepreneurial intension

To study the relationship between financial literacy and entrepreneurial intension

To study the difference between the trained and untrained in their financial literacy and entrepreneurial intension

To study the association between the percentage score of financial literacy and chance of settlement

### **Hypotheses**

There is no significant relationship between financial literacy and entrepreneurial intension

There is no significant difference between the trained and untrained in their financial literacy and entrepreneurial intension

There is no significant association between the percentage score of financial literacy and chance of settlement within five years

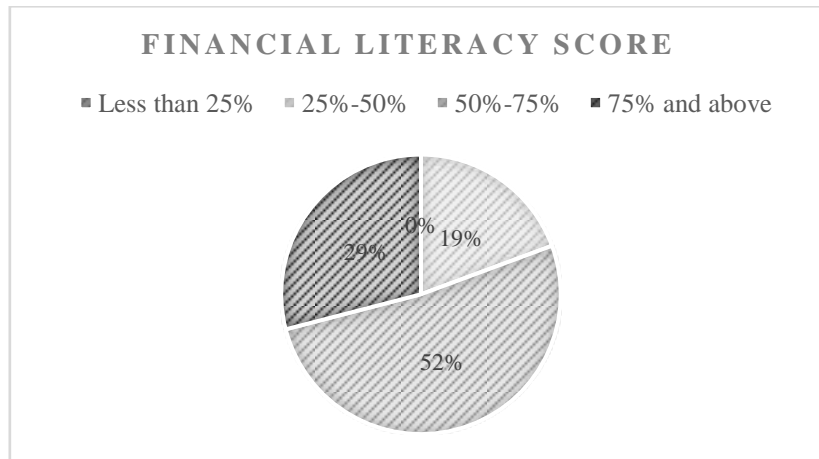
## **II. METHODOLOGY**

The study was conducted as survey from Vellinezhi Grama Panchayat, Kerala and sampling technique used was purposive sample. The self-made financial literacy test and entrepreneurial intention questionnaire were used as too for collecting data. The statistical techniques used for testing hypotheses were correlation, t test and Chi square test.

## **III. RESULTS AND DISCUSSION**

The dimension of financial literacy included the readiness, interest, availability of information, sources of information and ability to take financial decisions. The educational factors, personality factors and demographic factors are considered in entrepreneurial intention.

The rural women population have more than average score of financial literacy. The majority of the sample that is of fifty two percentages are between 50-75% score and twenty nine percentage are included in more than 75% category.



**Table no.1**  
**Correlational analysis**

	Financial Literacy	
<b>Entrepreneurial Intention</b>	Pearson Correlation	.707**
	Sig. (2-tailed)	.000
	N	62

The correlation coefficient is significant at 0.05 level and thus the hypothesis there is no significant relationship between financial literacy and entrepreneurial intension is rejected.

**Table no.2**

**Group Statistics**

	Training	N	Mean	Std. Deviation	Std. Error Mean
Financial Literacy	Not Attended	32	11.06	3.636	.643
	Attended	30	14.87	2.501	.457
Entrepreneurial Intention	Attended	30	73.53	2.609	.476
	Not Attended	32	69.81	3.542	.626

**Table no.3**

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
<b>Financial Literacy</b>	Equal variances assumed	3.984	.050	-4.768	60	.000	-3.804	.798
	Equal variances not assumed			-4.824	55.170	.000	-3.804	.789
<b>Entrepreneurial Intention</b>	Equal variances assumed	2.798	.100	4.684	60	.000	3.721	.794
	Equal variances not assumed			4.729	56.900	.000	3.721	.787

As both the t values are significant at 0.05 level there may be a significant difference between trained and untrained in their financial literacy and entrepreneurial intention. Thus the hypothesis i.e., there is no significant difference between the trained and untrained in their financial literacy and entrepreneurial intension is rejected.



**Table no. 4**

**Chance to settle within 5 years \* percentage of Financial literacy score Cross tabulation**

		percentage of Financial literacy score			Total
		Between 25%-50%	Between 50%-75%	Above 75%	
<b>Chance to settle within 5 years</b>	Below 25%	2	12	5	19
	25-50%	8	11	5	24
	50-75%	4	7	8	19
<b>Total</b>		14	30	18	62

**Table no. 5**

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.606 <sup>a</sup>	4	.231
Likelihood Ratio	5.650	4	.227
Linear-by-Linear Association	.051	1	.822
N of Valid Cases	62		

a. 2 cells (22.2%) have expected count less than 5. The minimum expected count is 4.29.

The chi square value is not significant at 0.05 level and thus the hypothesis is accepted. There is no significant association between the chance of settle within five years and the percentage score in financial literacy is accepted.

#### IV. CONCLUSION

Current study is related to the entrepreneurial intention and financial literacy of women. The training under Rural self employment training institute and its influence on the variables are studied. The study reveals that there is a significant relationship between financial literacy and entrepreneurial intention. As the statistical analysis is evidenced, the women population have more than average financial literacy and they have better entrepreneurial intention. The trained women are more financially literate and their entrepreneurial intention are significantly high than their counter parts. The programmes conducted at Rural Self Employment Training Institute help the women to develop readiness to make financial decisions and entrepreneurial intention. The study concludes that the training under Rural Self Employment Training Institute is helpful for rural female population to make their living by self employment or entrepreneurship.

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#### ACKNOWLEDGEMENT

This research paper is published as part of my minor research project granted by UGC letter No. 2282-MRP/15-16IKLCA050/ucc\_SWRO dated 25 -4- 2016.

Rathi K. N." Training at Rural Self Employment Training Institute (Rseti) and Its Influence on the Financial Literacy and Entrepreneurial Intention of Women" Quest Journals Journal of Research in Business and Management, vol. 07, no. 03, 2019, pp 01-04



**ORIGINAL RESEARCH PAPER**

**Commerce**

**THE EFFECTIVENESS OF TRAINING AT RURAL SELF EMPLOYMENT TRAINING INSTITUTE (RSETI) IN THE ENTREPRENEURIAL PERSONALITY DEVELOPMENT OF RURAL WOMEN**

**KEY WORDS:** Rural Self Employment Training Institute (RSETI), Entrepreneurial Personality, Entrepreneurial intention, Chance of settlement

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**ABSTRACT**

Entrepreneurial personality traits are the personality traits which are influence in the success of the entrepreneurs. The rural women are of several barriers in their entrepreneurial development like personal, social, economic, marketing and psychological barriers. The Rural Self Employment Training Institutes (RSETIs) are the institute which give training for rural youth towards self - employment and entrepreneurship. Here the investigator intended to study the effectiveness of training at RSETI for entrepreneurial personality development of rural women. The data were collected as pre-test post-test single group design at Canara bank RSETI, Vellinezhi of Palakkad district, Kerala. The data were analysed using paired t test, ANOVA and correlation. The study revealed that the training at RSETI is effective in developing entrepreneurial personality among rural women. The entrepreneurial intention and entrepreneurial personality are not related as per the study. The study is a kind of exploratory study and it may throw light in the area of entrepreneurial personality development.

**Introduction**

Entrepreneurship is a process of changing ideas into commercial opportunities and creating value. It is not only creation of business but a dynamic process of vision, change and creation. It requires application of energy and passion towards the creation and implementation of new ideas and creative solution. It is an economic activity which is undertaken by an individual or group of individuals. Women entrepreneurs are the woman or group of women who initiate, organize and operate a business enterprise. The growth and development of women entrepreneurs required to be accelerated because entrepreneurial development is not possible without the participation of women.

Oxford Dictionary (2015) defines personality as "the combination of characteristics or qualities that form an individual's distinctive character". The human characteristics, abilities, motives, attitudes and values which shape the individual person's experiences and actions are together called Personality traits.

Entrepreneurial Personality are defined by different thinkers differently. Here the investigator takes the entrepreneurial Personality as the personality traits include risk taking, locus of control, work related behaviour, motivation, self-confidence, environmental adaptability and communication

The Government of India has been assigning increasing importance to the development of women entrepreneurship in country recent years. There are several institutional arrangements both at centre and state levels like nationalized banks, state financial corporations, state industrial corporations, district industrial centre and voluntary agencies. Rural Self Employment Training Institutes (RSETIs) are bank led institutes in which the Government of India gives a onetime infrastructure fund of rupees one crore, besides reimbursing the cost of training rural BPL members, the State Government gives land free of cost, and the banks run the institutes by providing the manpower and day to day cost of running. The RSETIs' unique training includes short market linked entrepreneurship development training followed by long hand holding supported with bank linkages.

**Need and Significance**

RSETI are provided with entrepreneurial development programme based on the suitability of the activities to the local needs. They are broadly divided into four. They are; general entrepreneurial development programmes, agricultural entrepreneurial development programmes, process entrepreneurial development programmes and product entrepreneurial development programmes. General EDPs takes care of all the aspects of motivation, entrepreneurship, business selection, marketing, management skills and launching formalities. Combining skills of farming with entrepreneurship are included in agricultural based EDPs. The process oriented EDPS are included the training on service and technology and product EDPs trains the creativity and

skill of production. In RSETIs above seventy percentage of the trainees are from rural women population. All the entrepreneurial development programmes must ensure the development of these personality traits among the trainees. There are personality development sessions also included in the programmes conducted by RTSETIs. The investigator interested to know the effect of training in entrepreneurial personality of rural women. This study may contribute towards the curriculum development of entrepreneurial development programmes in the light of entrepreneurial personality development including gender equality.

**Review of related research**

Caliendo and Kritikos. (2011) gave a new insights into the effects that variables, such as risk tolerance, trust and reciprocity, the value for autonomy and also external role models, have on entrepreneurial decision making. And found the linkage between personality, socio-economic factors and entrepreneurial development.

Javer, Ignacio, Eduardo, and Jose (2014) studied about entrepreneurial attitude and personality and they identified nine dimensions on entrepreneurial personality like achievement motivation, risk taking, innovativeness, autonomy, internal locus of control, external locus of control, stress tolerance, self-efficacy and optimism. They confirmed hem after several qualitative and quantitative analysis.

Obschonka and Stuetzer (2017) studied the entrepreneurial personality by applying a person oriented model including the traits like risk-taking, self-efficacy, and internal locus of control and revealed that the effect of intra individual personality traits are more malleable psychological factors.

Marcelino, Javier, Luis, Edurdo, and Jose. (2018). Studied the entrepreneurial personality with general personality traits and more specific traits such as self-efficacy, autonomy, innovation, optimism, and others with the objective to provide for the new instrument called BEPE which measuring eight dimensions of Entrepreneurial personality.

**Objectives of the study**

1. To study the Entrepreneurial personality of the trainees after the training
2. To study the Entrepreneurial intention of the trainees after the training
3. To study the course satisfaction level of the trainees after the training
4. To study is there is any significant difference in the entrepreneurial personality between before and after training at RSETI
5. To study is there is any significant difference among the trainees in their Entrepreneurial personality according to their



- perception of chance of settlement within five years
- To study is there is any significant relationship between entrepreneurial personality and entrepreneurial intention
  - To study is there is any significant difference among the trainees in their Entrepreneurial intention according to their perception of chance of settlement within five years
  - To study is there is any significant relationship between entrepreneurial personality and course satisfaction level

**Hypothesis**

- There is no significant difference in the entrepreneurial personality between before and after training at RSETI
- There is no significant difference among the trainees in their Entrepreneurial personality according to their perception of chance of settlement within five years
- There is no significant relationship between entrepreneurial personality and entrepreneurial intention
- There is no significant difference among the trainees in their Entrepreneurial intention according to their perception of chance of settlement within five years
- There is no significant relationship between entrepreneurial personality and course satisfaction level

**Methodology used**

The investigator studied the entrepreneurial personality of the trainees before and after the training. The design used was pre-test post-test single group design. The data were collected from twenty trainees from the course of ladies tailoring course at Canara Bank Rural Self Employment Training Institute, Vellinezhi.

**Results and discussion**

**Table 1.**

Variable	Mean	Std. deviation
Course Satisfaction level	45.3	4.2932
Entrepreneurial personality	99.7	2.9217
Entrepreneurial intention	69.81	3.542

The course satisfaction level are drawn by using five point scale with eleven questions and out of fifty five the mean value was forty five. Entrepreneurial personality data were collected by five point scale with twenty two statements and out of one hundred and ten the mean value came as ninety nine. Entrepreneurial intention data were collected by five point scale with twenty statements and out of one hundred sixty nine was the mean.

**Table 2.**

Chance of settlement		
Perceived percentage of chance	Frequency	Percent
25%-50%	7	35.0
50%-75%	6	30.0
75%-100%	7	35.0
Total	20	100.0

Out of twenty respondents six are perceived their chance of settlement within five years are fifty to seventy five percentage. The other seven think the chance is above seventy five percentage and all the others are think they have a below fifty percentage of chance for settle.

**Table 3.**

Paired Samples Correlations				
		N	Correlation	Sig.
	Entrepreneur personality Before training & Entrepreneur personality after training	20	.649	.002

The pared t value is significant at 0.05 level and thus the null hypothesis ie. There is no significant difference in the entrepreneurial personality between before and after training at RSETI is rejected.

**Table 4.**

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
	Entrepreneur personality Before course	84.95	20	5.186	1.160
	Entrepreneur personality after course	99.70	20	2.922	.653

The mean value of personality traits after the training is more than that of before training. Thus it can be inferred that the course is effective in the development of entrepreneurial personality traits.

**Table 5.**

**ANOVA – Comparison of Chance of Settlement and Entrepreneurial personality**

Entrepreneur personality after course	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	76.581	2	38.290	7.603	.004
Within Groups	85.619	17	5.036		
Total	162.200	19			

The F value is significant at 0.05 level and thus the null hypothesis ie. There is no significant difference among the trainees in their Entrepreneurial personality according to their perception of chance of settlement within five years is rejected.

**Table 6.**

Multiple Comparisons					
Entrepreneur personality after course Tukey HSD					
(I) chance of settlement	(J) chance of settlement	Mean Difference (I-J)	Std. Error	Sig.	
25%-50%	50%-75%	1.952	1.249	.288	
	75%-100%	-2.857	1.200	.071	
50%-75%	25%-50%	-1.952	1.249	.288	
	75%-100%	-4.810*	1.249	.003	
75%-100%	25%-50%	2.857	1.200	.071	
	50%-75%	4.810*	1.249	.003	

\*. The mean difference is significant at the 0.05 level.

The tukey post hoc test evidenced that the group of trainees who were perceived their settlement between 50 to 75 % and 75-100% are significantly differ in entrepreneurial personality traits.

**Table 7.**

Correlations		
		Entrepreneurial intention
Entrepreneur personality after course	Pearson Correlation	-.033
	Sig. (2-tailed)	.891
	N	20

The correlation value is not significant at 0.05 level and thus the null hypothesis ie. There is no significant relationship between entrepreneurial personality and entrepreneurial intention is accepted.

**Table 8.**

**ANOVA – Comparison Chance of Settlement and Entrepreneurial intention**

Entrepreneurial intention					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34.860	2	17.430	1.236	.315
Within Groups	239.690	17	14.099		
Total	274.550	19			

The F value is not significant at 0.05 level and thus the null

hypothesis ie. There is no significant difference among the trainees in their Entrepreneurial intention according to their perception of chance of settlement within five years is accepted.

**Table 9.**

Correlations		
		Course Satisfaction
Entrepreneur personality after course	Pearson Correlation	.087
	Sig. (2-tailed)	.714
	N	20

The correlation value is not significant at 0.05 level and thus the null hypothesis ie. There is no significant relationship between entrepreneurial personality and course satisfaction level is accepted

**Conclusion**

The training was found effective because of the paired value is significant at five percentage level. Thus he training is effective in developing the entrepreneurial personality traits of rural women. But the entrepreneurial personality traits have no significant relationship with entrepreneurial intention and satisfaction level. The entrepreneurial personality traits are differ for the groups who have different chance of settlement. The study conclude that the Canara Bank RSETI at Vellinezhi is succeeded in the development of entrepreneurial personality in rural women.

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# Looking Into the Binary Interactome of *Enterobacteriaceae* Family of Bacteria

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## ABSTRACT

Protein-protein interactions (PPIs) regulate most of the biological activities within a cell. A set of pairwise PPIs in seven genera of bacterial pathogens (*Salmonella*, *Escherichia*, *Shigella*, *Yersinia*, *Klebsiella*, *Photobacterium*, and *Pantoea*) of *Enterobacteriaceae* family was analysed. At genotypic level, the correlation coefficient analysis of the mutation spectra of the ten sets of directly interacting protein partners in *Escherichia coli* recognised all the ‘interacting partners’ in *Escherichia coli*. Extending the correlation analysis to include strains from the rest of the bacterial genera decreased the recognition efficiency providing quantitative evidence that binary interactome have incomplete superposition across species. At phenotype level, a reliable classification of bacterial pathogens was obtained by measuring PPI variations in terms of between phylogenetic distance correlation distances among ten sets of proteins partners. This forces us to rethink upon the possibility of PPI rewiring with a consequent change in physiological role of the same protein.

## KEYWORDS

Bacterial Classification, *Enterobacteriaceae*, Genotype-Phenotype Relations, Kernel K-Means Clustering, Phylogeny, PPI

## INTRODUCTION

Proteins are tools that carry out most of the biological process in a cell by their very specific interaction with other proteins. Enzymes involved in the same metabolic pathway mutually interact and aggregate to build molecular machines. This specificity in interactions is essential to maintain a viable metabolism. Likewise, signal propagation within tissue micro-environment depends on highly organized cytoskeleton protein in meshes. The presence of an organized ‘interactome’ is thus a key prerequisite for all cellular processes. Consequently, determining the Protein Protein Interaction (PPI) network, discovering associations among proteins involved in metabolic pathways and determining pathway kinetics are of prime importance in understanding how a cell works.

In this work, we examined the pairwise protein interactions within species strains of *Escherichia coli* and between species strains from *Salmonella*, *Yersinia*, *Klebsiella*, *Photobacterium*, *Shigella* and *Pantoea* genera) of *Enterobacteriaceae* family, based on the correlation between the phylogenetic trees of the interacting protein pairs, to elucidate the evolutionary relationships in terms of variations in the PPI patterns. We hypothesis that PPI’s are strictly preserved within species whilst their degree of superposition inversely scale with phylogenetic distance which implies that PPI’s is not conserved across species and that orthologs of proteins have different interacting patterns across species and consequently play a different physiological role.

DOI: [10.4018/IJARB.2019010104](https://doi.org/10.4018/IJARB.2019010104)

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To prove our hypothesis, we took ten set of binary interacting proteins from different strains of *Escherichia coli* and its orthologs from species of *Salmonella*, *Yersinia*, *Klebsiella*, *Photobacterium*, *Shigella* and *Pantoea* genera of *Enterobacteriaceae* family. Global molecular phylogenetic protein profile was constructed based on the distance matrix obtained from Multiple Sequence Alignment of the entire protein set. Scoring of a strong correlation between distance matrices for an interacting protein pair is an indicator that the two proteins interact, given they undergo co-evolution (Goh, Bogan, Joachimiak, Walther & Cohen, 2000). High values of Pearson's Correlation coefficient of Global molecular phylogenetic protein profile of *Escherichia coli* strains were observed indicating strong binary interaction among the ten protein pairs. However the Global molecular phylogenetic protein profile between species strains of *Salmonella*, *Yersinia*, *Klebsiella*, *Photobacterium*, *Shigella* and *Pantoea* genera of *Enterobacteriaceae* family only allows for a partial recognition of binary interactions which led us to conclude that binary protein interactions are preserved within the *Escherichia coli* species whereas it is not seen conserved across species of *Enterobacteriaceae* family. Based on the variation in the correlation between the phylogenetic trees of the interacting protein pairs, we could obtain a reliable classification of the seventy-five strains of bacteria from *Enterobacteriaceae* family that is largely in concordant with the currently accepted phylogenetic theory.

## BACKGROUND

At present, protein–protein interaction studies focus on the combinatorial complexity of functional interactome with an intention to build a viable cell from them. The bewildering combinatorial complexity of possible interactomes raises many questions on development as well as rewiring of PPIs along evolution. Peter Tompa and George Rose sketched a minimalistic combinatorial model ( $7.9 \times 10^{7.9 \times 10^9}$  possible protein-protein interaction patterns) for yeast and concluded that a prior framework of existing interactions is essential, as emergent interactome cannot self-organise spontaneously (Tompa & Rose, 2011). In evolutionary terms, this implies that a particular PPI pattern (an interactome) is highly conserved physical entity and small variations are important phenotypic markers of species separation (Tompa & Rose, 2011; Kyaw, Pawan, Maria & Alessandro, 2006; Goh, Bogan, Joachimiak, Walther & Cohen, 2000). The analysis of eventual variation in the PPI patterns from the orchestrated protein interactions is thus of crucial importance in taxonomy.

The variation of PPI pattern was also analysed by Reuveni E. et al., in terms of species specificity of synonymous and non-synonymous mutation in yeast genome (Reuveni & Giuliani 2012). Mutation in single gene occurs in two manners: synonymous mutation, wherein no change occurs in primary protein sequence; non-synonymous mutation that produces change in the primary sequence of the protein thereby potentially changing its functionality with consequent phenotype variation. The authors observed that, in proteins, that play a crucial role in the cellular process, the ratio of synonymous and non-synonymous mutation (dN/dS) ratio computed on a gene-by gene basis were conserved across proteomes of inter-breeding populations. Strong correlation between two genomes in terms of their dN/dS ratio profiles implies that vital proteins and their interaction are preserved across genomes. However, on changing the focus from a single gene to a genomic scale, it was observed that the dN/dS ratio varied across species. This lack of correlation implies that the same protein changes its physiological role in different species. This led them to propose that proteins interact differently in different species and form different PPI patterns, given that the proteins (with only rare exceptions) do not work in isolation.

Kirill Evlampiev et al. demonstrated that network motifs, unlike individual proteins, cannot be indefinitely conserved under general duplication-divergence evolution, regardless of any network-rewiring dynamics (Kirill & Hervé, 2008). In this light, we looked into the PPI's of *Enterobacteriaceae* family of bacteria. We hypothesis that the binary protein interactions are conserved within the *Escherichia coli* species whereas it is not conserved across the species of *Enterobacteriaceae* family.



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