

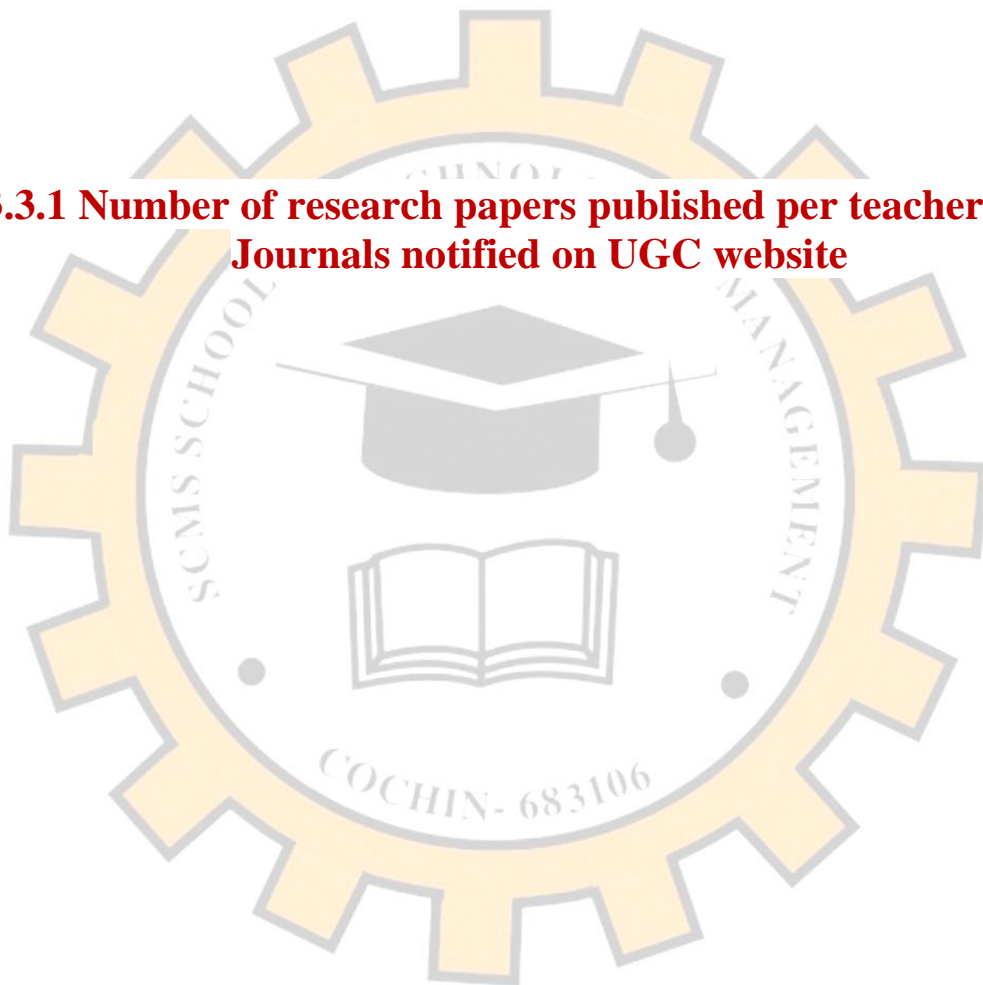


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CRITERIA 3

RESEARCH, INNOVATIONS AND EXTENSION

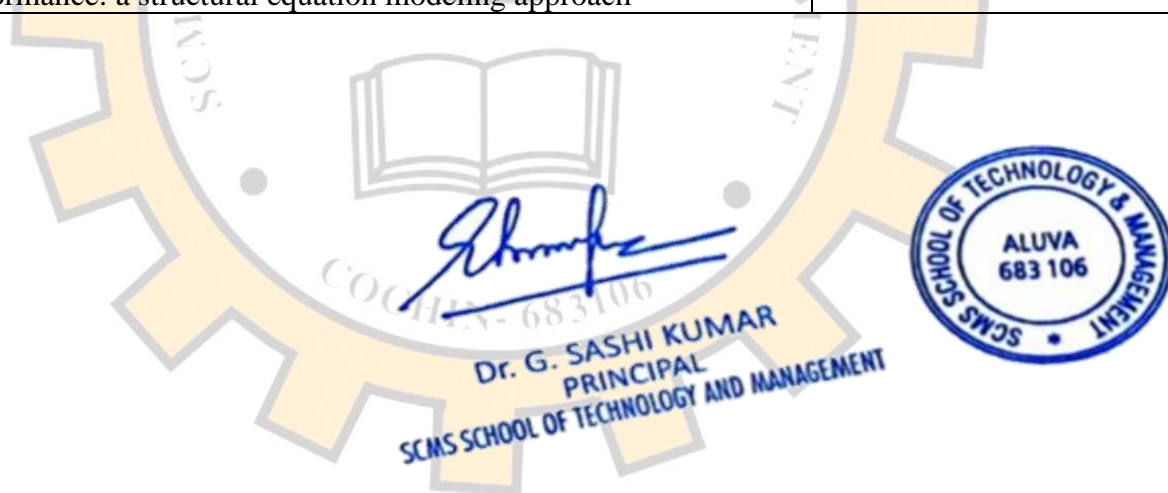
3.3.1 Number of research papers published per teacher in the Journals notified on UGC website



3.3.1 Number of research papers published per teacher in the Journals notified on UGC website during the last five years

2019-20

SL No	Title of Paper	Name of Author
1	A study of perceived service quality, perceived economic value and customer satisfaction with special references to bsnl mobile services.	Sari P.S, Gifi Felix
2	Consumer decision making styles and gender differences – An empirical study on young Indian consumers	Dr Deepak Ashok Kumar
3	A conceptual Model of Employee Work habits for learning organisations	Dr. Rajeswari. R and Dr. DeepaPillai
4	Application Of Random Forest For Robust Prediction Of Social Media Comments: A Case Approach	Vignsh Karthik
5	Assessing Impact of Demonetization on digital literacy of elderly people Assessing Impact of Demonetization on digital literacy of elderly people	Dr. Radha P. Thevanoor Dr. Praveena K RinuJayaprakash
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7	An Efficient Citrus Canker Detection Method Based On Contrast Limited Adaptive Histogram Equalization Enhancement	Ms Shoby Sunny
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A STUDY ON CUSTOMER PERCEPTION OF PAYTM APP - COMPARATIVE STUDY ON RURAL AND URBAN USERS IN ERNAKULAM DISTRICT OF KERALA.

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Abstract

The emergence of E-commerce has created new financial needs that in many cases cannot be effectively fulfilled by the traditional payments systems like cash and cheque..As payment is integral part of mercantile process ,electronic payment is an integral part of E-commerce.So the study focused on the customer perception of PAYTM APP among rural and urban users in Ernakulam District. 300 samples were taken from 7 taluks of Ernakulam District and Simple Percentage and Garretts ranking method was applied for data analysis.

I. INTRODUCTION

Electronic payment is a financial exchange that takes place online between buyers and sellers.The content of this exchange is usually some form of digital financial instrument such as encrypted credit card numbers ,digital cash or electronic cheques that is backed by a bank or intermediary like payment gateways.

Digital or electronic wallet is the digital form of conventional wallet.It has a software component that allows a user to make payment with a financial instrument and an encrypted storage medium that can store user's payment information, a digital certificate to identify the user ,and shipping information to speed transactions. Customers prefer a particular app depends upon its quality, multiple purposes and functions, security, speed, accuracy, convenience etc. So the study focused on comparative study of rural and urban consumers regarding the perception of PAYTM APP in Ernakulam district of Kerala.

II. STATEMENT OF THE PROBLEM

PAYTM APP is one of the most important digital payment app used by the common people. people use the PAYTM APP for various uses like bill payment, shopping, recharge etc. The 24*7 availability of the app helps the people for saving time and ensures security.

There is no need to wait for the opening bank or recharge counter whenever required for them.

Customer perception of PAYTM APP among urban and rural peoples may differ. Some users are totally aware about the uses ,but some people have not awareness These reasons made the researches to take up the research study entitled “A Study on Customer Perception of PAYTM APP– Comparative Study of Rural and Urban Users in Ernakulam District”.

III. OBJECTIVES OF THE STUDY

The main objectives of the present study is as follows.

- To analyze the Socio-Economic status of Rural and Urban respondents of Ernakulam District.
- To study the users perception towards PAYTM app among rural and urban respondents.

IV. METHODOLOGY

The study is based on both primary and secondary data. For the collection of primary data Questionnaire cum interview schedule method were used. Secondary data were collected from books, journals, articles, newspapers and websites.

V. SAMPLE DESIGN

The Ernakulam District consisted of 7 taluks. From these 7 taluks total of 300 samples were taken. 150 respondents from rural areas and 150 respondents from urban areas. Convenient method of sampling were used to choose samples.

VI. FRAMEWORK OF ANALYSIS

The collected data were processed with the help of appropriate statistical tools in order to fulfil the objectives of the study. For the present study simple percentage analysis and Garrett’s Ranking Technique were adopted.

VII. ANALYSIS INTERPRETATION

This part analyses the socio-economic profile, level of satisfaction, reasons for the selection of PAYTM digital payment among rural and urban users in Ernakulam District of Kerala in various aspects.

1. GENDER OF THE RESPONDENTS

The following table shows the gender wise distribution of respondents.

Table 1
Gender of the respondents

Gender	Rural		Urban		Total	
	No. of Respondents	Percent	No. of Respondents	Percent	No. of Respondents	Percent
Male	85	56.67	105	70.00	190	63.33
Female	65	43.33	45	30.00	110	36.67
Total	150	100	150	100	300	100

Source: Primary data.

It is clear from the table that out of 150 rural users 85 (56.67%) are male and 65 (43.33%) users are female. Thus majority of the PAYTM users are from male in rural area.

Among the 150 urban users 105 (70.00%) users are male and 45 (30.00%) users are female. Thus majority of the PAYTM users are male in urban area.

Among the total 300 users 190 (63.33%) users are male and 110 (36.67%) users are female. Thus majority of the PAYTM users are male.

2. AGE OF THE RESPONDENTS

The following table shows the age wise distribution of respondents.

Table 2
Age of the respondents

Particulars Age (in years)	Rural		Urban		Total	
	No. of Respondents	Percent	No. of Respondents	Percent	No. of Respondents	Percent
Less than 20	25	16.67	34	22.67	59	19.67
21 – 40	72	48.00	65	43.33	137	45.67
41 – 60	41	27.33	35	23.33	76	25.33
61 and above	12	8.00	16	10.67	28	9.33
Total	150	100	150	100	300	100

Source: Primary data

It is clear from the table, among the rural users 25(16.67%) users age is less than 20 , 72(48.00%) users age ranges between 21-40,41(27.33%) users age ranges between 41-60 and the remaining 12(8.00%) users age is more than 61 and above. most of the rural PAYTM users age ranges between 41 – 60 years .

The table also shows, among the urban users 34(22.67%) users age is less than 20,65(43.33%) users age ranges between 21-40,35(23.33%) users age ranges between 41-60 and the remaining 16(10.67%) users age is more than 61 and above. Most of the urban PAYTM users' age ranges between 41 – 60 years.

Among the total 300 users, 59 (19.67%) users age ranges less than 20, 137 (45.67%) users age ranges between 21-40, 76 (25.33%) users age ranges between 41-60and the remaining 28(9.33%) users age ranges more than 61 and above. Thus most of the PAYTM users' age ranges between 41 – 60 years.

3. OCCUPATION OF THE RESPONDENTS

The following table shows the occupation of respondents.

Table 3
Occupation of the respondents

Occupation	Rural		Urban		Total	
	No. of Respondents	Percent	No. of Respondents	Percent	No. of Respondents	Per cent
Government Employee	15	10.00	37	24.67	52	17.33
Private Employee	45	30.00	78	52.00	123	41.00
Businessmen	60	40.00	15	10.00	75	25.00
Farmer	7	4.67	8	5.33	15	5.00
Others	23	15.33	12	8.00	35	11.67
Total	150	100	150	100	300	100

Source: Primary data

It is clear from the table 3, among the rural users 15(10.00%) users have Government job, 45(30.00%) users have private job, 60 (40.00%) users are businessmen, 7(4.67) are farmers and the remaining 23(15.33%) users have other jobs. Thus majority of the rural users are farmers.

Regarding urban users, 37(24.67%) respondents have Government job, 78(51.00%) respondents have private job, 15(10.00%) respondents have own business 8(5.33%) respondents are farmers and the remaining 12(8.00%) respondents have other jobs. Thus, majority of the urban users are private employees.

Among the total 300 users, 52(17.33) users have Government job,123 (41.00) users have private job, 75 (25.00) users have own business, 15 (5.00%) users are farmers and the remaining 35 (11.67%) users have others jobs. Thus most of the consumers are private employees.

4. Monthly Income of the Respondents

The following table depicts monthly income of respondents.

Table 4
Monthly Income of the Respondents

Monthly Income	Rural		Urban		Total	
	No. of Respondents	Per cent	No. of Respondents	Per cent	No. of Respondents	Per cent
Below 5000	14	9.33	4	2.67	18	6.00
5001 – 10000	64	42.67	50	33.33	114	38.00
10001 – 15000	39	26.00	48	32.00	87	29.00
15001 – 20000	20	13.33	32	21.33	52	17.33
Above Rs. 20000	13	8.67	16	10.67	29	9.67
Total	150	100	150	100	300	100

Source: Primary data

It is clear from table 4 that, among the rural PAYTM users 14(9.33%) users have monthly income less than Rs.5000, 64(42.67%) users' income ranges between Rs.5001-10000, 39(26.00%) users have income ranges between 10001-15000, 20(13.33%) users have income between Rs. 15001-20000 and the remaining 13(8.67%) users have income more than Rs.20000 per month.

Among the urban PAYTM users 4(2.67%) users have monthly income less than Rs.5000, 50(33.33%) users' income ranges between Rs. 5001-10000, 48(32.00%) users have income ranges between Rs.10001-15000, 32(21.33%) users have income between Rs.15001-20000 and the remaining 16(10.67%) respondents have income more than Rs.20000 per month.

Among the total PAYTM users 18(6.00%) users have monthly income less than Rs.5000, 114(38.00%) users' income ranges between Rs. 5001-10000, 87(29.00%) users have income ranges between Rs.10001-15000, 52(17.33%) users have income between Rs.15001-20000 and the remaining 29(9.67%) respondents have income more than Rs.20000 per month. Thus, most of the consumers earn between Rs. 10,001 – 15,000.

5. PURPOSE OF USING PAYTM

Table 5
Purpose of using PAYTM

PURPOSE	Rural		Urban		Total	
	No. of Respondents	Percent	No. of Respondents	Percent	No. of Respondents	Per cent
RECHARGE	72	48.00	48	32.00	120	40.00
BILL	38	25.33	34	22.67	72	24.00

PAYMENT						
TICKET BOOKING	26	17.33	35	23.33	61	20.33
SHOPPING	10	6.67	20	13.33	30	10.00
OTHERS	4	2.67	13	8.67	17	5.67
Total	150	100	150	100	300	100

Source: Primary data

It is clear from the Table No. 5, among the rural users seventy two (48.00%) users are choose PAYTM for recharge, 38(25.33%) users use for make bill payment ,26 (17.33%) users use for ticket booking, 10(6.67) users use for shopping and the remaining 4(2.67%) users use for other purposes. Thus, majority of the rural respondents use PAYTM for recharge purpose.

Among the urban users forty eight (32.00%) users are choose PAYTM for recharge, 34 (22.67%) users use for make bill payment, 35 (23.33%) users use for ticket booking, 20(13.33%) users use for shopping and the remaining 13(8.67%) users use for other purposes. Thus, majority of the urban respondents use PAYTM for recharge purpose.

Among the total 300 users one twenty (40.00%) users are choose PAYTM for recharge, 72(24.00%) users use for make bill payment, 61 (20.33%) users use for ticket booking, 30 (10.00%) users use for shopping and the remaining 17(5.67%) users use for other purposes. Thus, majority of the users use PAYTM for recharge, bill payment and shopping purpose.

6. FREQUENCY OF PAYTM USE

Usage	Rural		Urban		Total	
	Number of Resp.	Percent	Number of Resp.	Percent	Number of Resp.	Percent
Daily	30	20	72	48	102	34
Weekly	68	45.33	49	32.67	117	39
Monthly	52	34.67	29	19.33	81	27
Total	150	100	150	100	300	100

Source: Primary data

Among the total 300 members majority of the respondents use PAYTM weekly.

7. Reasons for choosing PAYTM among Rural users.

Table 7
Reasons for choosing PAYTM among Rural Users.

Sl. No.	Reasons	Garrett's Mean	Rank
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		score	
1	Fast service	52.47	III
2	Convenience	60.84	II
3	Simple to use	61.75	I
4	Secured	43.25	V
5	Multiple purpose	48.33	IV
6	Promotional offers	40.48	VI
7	Any time available	38.47	VII

Source: Primary data

It is clear from the table number 7, that majority of the rural respondents prefer PAYTM because of simple to use with mean score 61.75 (ranked first), followed by convenience with mean score 60.84 (ranked 2nd), fast service with mean score 52.47 (ranked 3rd), multiple purpose with mean score 48.33 (ranked 4th), secured transaction with mean score 43.25 (ranked 5th), promotional offers with mean score 40.48 (ranked 6th) and any time availability with mean score of 38.47 (ranked 7th).

Thus, majority of the rural users prefer PAYTM APP because of its simple to use feature.

8. Reasons for choosing PAYTM among Urban users.

Table 7
Reasons for choosing PAYTM among Urban users

Sl. No.	Reasons	Garrett's Mean score	Rank
1	Fast service	64.58	I
2	convenience	58.47	III
3	Simple to use	48.43	V
4	secured	57.43	IV
5	Multiple purpose	59.84	II
6	Promotional offers	34.80	VII
7	Any time available	42.84	VI

Source: Primary data

It is clear from Table No. 8 most of the urban respondents prefer PAYTM because of fast service with a mean score of 64.58 (rank 1st) followed by Multiple purpose 59.84 (ranked 2nd), convenience with a mean score 58.47 (ranked 3rd), Secured with mean score 57.43 (ranked 4th), Simple to use with a mean score 48.43 (ranked 5th) any time available with a mean score 42.84 (ranked 6th) and Promotional offers with a mean score 34.80 (ranked 7th).

Thus, majority of the urban consumers choose PAYTM because of its Fastservice, Multiplepurposes, Convenience.

VIII. FINDINGS

Following are the results of the study.

1. Thus majority of the consumers are male.
2. Most of the respondentss age ranges between 21 – 40 years.
3. Most of the respondents are private employees.
4. Most of the respondents earns between 5001 – 10,000.
5. Majority of the rural respondents use PAYTM for recharge and bill payment purposes.
6. Majority of the urban respondents use PAYTM for recharge purpose.
7. Majority of the rural respondents prefer PAYTM because of simple to use, convenience and fast service.
8. Majority of the urban consumers choose PAYTM because of its Fast service, Multiplepurposes, Convenience.

XI. SUGGESTIONS

Following are the suggestions.

1. The digital payment companies should create awareness among their users regarding the multiple uses of apps through various sales promotion techniques and advertisements.
2. Provide more facilities and add more features will engance the utilization of PAYTM app among more peoples.

XI. CONCLUSION

PAYTM APP makes their users to transfer their payments with the help of mobile phone. The study reveals that majority of the people uses the PAYTM app for mobile phone recharge, DTH recharge, making payment to Electicity bill, hotel bill, water bill and shopping.majority of the respondents prefer PAYTM because of simple to use ,secured, convenient and its fast service.

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Consumer decision making styles and gender differences – An empirical study on young Indian Consumers

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Abstract

Consumer decision making styles can be defined as the basic consumer personality which is similar to the concept of personality in psychology (Sproles and Kendall, 1986). This paper attempts to explore the differences between male and female decision making styles with special reference to young Indian consumers. The study focusses upon consumption behaviour towards organized fast food outlets. Previous researchers have highlighted the importance of studying the influence of gender on consumer decision making styles (Mitchell and Walsh ,2004). The present paper has focused upon young Indian consumers due to their sizeable proportion in the nation's demographic profile. The study was conducted on a sample of 678 respondents from the Indian state of Maharashtra. Results of the present study indicated significant differences among male and female consumer decision making styles. The study also attempts to compare the results with that of previous research findings.

Keywords –consumer decision making styles, Gender differences, Youth, Young consumers, fast food

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Introduction

An individual undergoes major transformation during his/her young age which goes on to influence their future life stages. It is during this stage that his / her consumption oriented knowledge and skills begin to take a shape. The young consumer segment of India is characterized by its huge size, product/service consumption, peer power, trend setting capability and attitude towards modern technology. The term 'youth' refers to individuals falling in the age group of 15-24 years; inclusive of both age limits (United Nations Habitat, 2012). In the current era, young consumers consider shopping as an experience rather than a mere act of purchasing a product. These youngsters possess lesser commitments and they purchase or use products/services at will. The youth are also highly capable of influencing the consumption behavior at household level. Hence, the marketers and retailers have a challenging task ahead of them in targeting these young consumers for selling their products and services. The researcher therefore attempts to investigate the decision making styles of these young consumers. The study focused upon consumption orientation towards organized fast food outlets. An organized fast food outlet is characterised by fast food cuisine, minimal table service and a fixed menu. These outlets are usually part of a restaurant chain or a franchise operation. (Crisil, 2013).

According to Sproles and Kendall (1986), 'consumer decision making style' refers to a mental orientation characterizing a consumer's approach to making choices. These decision making styles comprise of cognitive and affective characteristics. Previous researchers have used several approaches to describe consumer characteristics and their orientation towards shopping. Out of all these approaches, 'consumer decision making styles' model is the most effective in describing consumer characteristics and their shopping orientation. Sproles and Kendall (1986) developed

an instrument known as ‘Consumer Styles Inventory (CSI)’ to measure these styles among consumers. Previous researchers have rightly pointed out that the ‘Consumer Styles Inventory (CSI)’ is the most tested instrument to measure the consumer decision making styles (Hafstrom et al., 1992; Durvasula et al., 1993; Bakewell and Mitchell, 2006). After thorough research and examination, the following eight styles were identified in the ‘Consumer Styles Inventory (CSI)’ which are as follows – ‘Perfectionist- quality consciousness’, ‘Brand consciousness’, ‘Novelty - fashion consciousness’, ‘Recreational and hedonistic consciousness’, ‘Price consciousness’, ‘Impulsive careless style’, ‘Confused by over choice characteristic’ and ‘Habitual brand-loyal consciousness’.

Campbell (1997) pointed out that males and females can have different behaviors that can originate from different ideologies. This difference in behavior can in turn influence the shopping behavior. Among all the demographic variables, ‘gender’ has been one of the most popular ones used for market segmentation (Mokhlis and Salleh, 2009). Despite of consumers displaying consistent decision making styles, little research has been done on gender differences with respect to these styles (Bakewell and Mitchell, 2006). Hence, this paper attempts to understand the gender differences in consumer decision making styles. Considering the above said facts into account, the researcher has proposed the following hypothesis –

H_0 – There is no significant difference between male and female respondents in terms of their decision making styles.

Review of Literature

Previous researchers have reported gender differences in consumer purchase behavior. According to Bakewell and Mitchell (2003), gender is important in understanding and predicting

shopping behavior. Bakewell and Mitchell (2004) confirmed the following styles for male consumers in United Kingdom – store loyal, low price seeking, time-energy conserving, confused time restricted and store promiscuity. Mitchell and Walsh (2004) reported that male respondents are brand loyal and time-energy conserving whereas female respondents were found to be price conscious and recreational. Mokhlis and Salleh (2009) identified gender differences in decision making styles among young adult consumers of Malaysia. Male respondents were found to be satisfying, enjoyment-variety seeking, fashion sale seeking, time restricted and economy seeking. On the other hand female respondents were found to be novelty- fashion conscious, recreational, quality and time conscious. Hanzae and Aghasibeig (2010) stated that male respondents were time – energy conserving, non-perfectionist and low price seeking whereas female respondents were found to be variety seeking and price seeking. The above research findings clearly indicate that male and female consumers from different countries differ in terms of their decision making styles. This further confirms the gender specific nature of consumer decision making styles. Mokhlis and Salleh (2009) identified the research gap and stated that future research could include data from customer groups belonging to different countries and regions. The main purpose was to understand the extent to which decision making styles are valid and generalizable.

Methodology

Multistage sampling technique was used to collect a sample of 678 respondents. The required sample size was calculated by using Krejcie and Morgan's (1970) formula. The sample size of 678 was derived from the total number of footfalls (population) occurring within the fast food outlets under consideration. The study was conducted in the Indian state of Maharashtra. The state of Maharashtra was purposively selected for conducting the study due to higher number of

organized fast food outlets and increased share of income from services sector. In the second stage, four Maharashtrian cities namely – Mumbai, Pune, Navi –Mumbai and Thane were selected since majority of fast food outlets were located in these places (375 out of total 390 outlets). Further, the number of fast food outlets to be considered, was calculated in proportion to the total number of organised fast food outlets (Mc Donald's, KFC, Subway, Dominos, Pizza Hut, Barista and Café coffee day) operating in these cities. In the final stage, number of respondents visiting each of the selected outlets was calculated in proportion to the total footfalls occurring within these outlets in a month. Mall intercept technique was used to collect data from the respondents. A structured questionnaire adopted from Sproles and Kendall's (1986) 'Consumer Style Inventory' was used in the present study.

Results and Discussions

This section focusses upon the factor solution underlying 'consumer decision making styles'. The researcher also attempts to test the hypothesis relevant to difference between male and female respondents in terms of 'consumer decision making styles'. Table 1 highlights the Exploratory factor analysis solution relevant to decision making styles. The reliability coefficients for the factor solution were found to be satisfactory.

Consumer decision making styles

The exploratory factor analysis confirms six different factors namely – Recreational hedonistic consciousness, Perfectionist quality consciousness, Price consciousness, Brand consciousness, Novelty consciousness and Confused by over choice. The confirmation of factor 'recreational – hedonistic consciousness' indicates that youngsters visit fast food outlets seeking for fun and enjoyment.

Table 1 Exploratory factor analysis solution (Consumer decision making styles)

Factors and Items	Rotated factor loadings
Factor 1 : Recreational – Hedonistic	
Visits to fast food outlets are enjoyable	0.88
I visit fast food outlets for fun	0.87
I try to exit from fast food outlets as soon as possible	-0.74
Visiting fast food outlets wastes my time	-0.73
Factor 2 : Perfectionist –Quality conscious	
I often make careless purchases at outlets	-0.79
I try to get best/perfect choice	0.79
I take time to choose carefully for best buys	0.77
I am impulsive when purchasing	-0.76
I try to buy from outlet with best overall quality	0.74
Factor 3: Price Consciousness	
I compare to buy low priced items	0.79
Low priced food items are my choice	0.77

I try to find best value for money	0.85
Factors and Items	Rotated factor loadings
Factor 4 : Brand Consciousness	
Higher the price, better is the quality	0.78
I buy from branded fast food outlet	0.79
Most advertised fast food outlets are good choices	0.76
Outlets with good ambience offer best food	0.74
Factor 5 : Novelty consciousness	
I buy new fast food items in the menu	0.78
It is fun to buy new fast food cuisine	0.88
I eat fast food since it is fashionable & stylish	0.88
I keep myself informed about new fast food cuisines	0.67
Factor 6: Confused by Over choice	
It is hard to choose from different fast food items	0.81
It is hard to choose between different outlets	0.91
Information on fast food cuisines confuses me	0.82
There are so many fast food varieties that I get confused	0.90

The factor 'perfectionist quality consciousness' confirms the preference for high quality food items among the respondents. The factor 'price consciousness' shows that youngsters keep a watch on the amount of money spent during their visits to fast food outlets. Brand conscious youth are very particular about purchasing and consuming fast food from branded fast food outlets. Novelty conscious youth always look forward to purchase and consume products which have newly arrived in the market. The factor 'confused by over choice' highlights the prevailing confusion among youngsters while choosing their preferred product/service from a large variety of options.

Gender differences in consumer decision making styles

This section discusses about the gender differences in consumer decision making styles. Multi-variate analysis of variance was used to test the difference. Six hypotheses were framed, which are mentioned below –

H₀₁ - There is no significant difference between male and female respondents in terms of recreational –hedonistic consciousness.

H₀₂ - There is no significant difference between male and female respondents in terms of Perfectionist - quality consciousness.

H₀₃ - There is no significant difference between male and female respondents in terms of price consciousness.

H₀₄ - There is no significant difference between male and female respondents in terms of brand consciousness.

H₀₅ - There is no significant difference between male and female respondents in terms of novelty consciousness.

H₀₆ - There is no significant difference between male and female respondents in terms of confused by over choice style.

Table 2 highlights the multivariate tests analyzing ‘gender of respondents’ and ‘consumer decision making styles’.

Table 2: Multivariate tests – Gender and decision making styles

	Factor	Value	F	Hypothesis df	Error df	Sig. (p value)
Gender (Pillai's Trace)	Recreational – Hedonistic	0.057	10.206	4.000	673.000	0.042*
	Perfectionist Quality	0.345	70.760	5.000	672.000	0.000*
	Price Consciousness	0.60	14.237	3.000	674.000	0.018*
	Brand Consciousness	0.006	1.037	4.000	673.000	0.387
	Novelty Consciousness	0.103	19.372	4.000	673.000	0.10*
	Confused by Over choice	0.544	13.224	3.000	674.000	0.014*

**Significant at 0.05 level*

From Table 2, it is clear that there is significant difference between male and female youngsters in terms of ‘recreational – hedonistic consciousness’, ‘perfectionist – quality consciousness’, ‘price consciousness’, ‘novelty consciousness’ and ‘confused by over choice style’. However, it has been found that male and female respondents do not differ in terms of ‘brand consciousness’.

When compared to their male counterparts, female respondents were found to be more recreational, hedonistic, perfection –quality conscious, price conscious, novelty conscious and confused. Hence, hypothesis H_{04} was accepted and remaining were rejected. The researcher also attempts to compare these results with previous research findings. According to Mitchell and Walsh (2004), the factor ‘novelty consciousness’ was exclusively confirmed for female respondents. Similarly, Mokhlis and Salleh (2009) confirmed the presence of ‘recreational consciousness’ exclusively for female respondents. Previous research findings had also reported that females were more perfection oriented when compared to their male counterparts (Mangleburg et al., 1997; Mueller 1989). The factor ‘price consciousness’ was exclusively confirmed for female consumers (Mokhlis and Salleh (2009)). The present research findings related to ‘brand consciousness’ were similar to the ones reported by Hanzaee and Aghasibeig (2008). Both male and female respondents were found to be ‘brand conscious’.

Conclusions

India being one of the youngest consumer markets in the world cannot afford to underestimate the power of this particular segment. The youth segment is highly consumption oriented with respect to their tastes and shopping preferences. Hence, there is a strong need for researchers to understand the young consumer segment. Segmenting the young consumers based on demographic variables such as Gender would help in targeting them with greater effectiveness. The present research work is an attempt in this direction. Future research works may focus upon consumer decision making styles towards diverse products and services other than fast food. Future studies may be conducted in other geographical territories as well.

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A Conceptual Model of Employee Work Habits for learning organisations

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Abstract

Man is the only active element in the factors of production compared to the other 4M's like Money, Materials, Machines and Methods. Hence organizations focus more on employee training and development which helps to improve employee performance and organizational effectiveness. Learning organizations focus on continuous improvement in employee performance and development (Jeffrey & Christopher (2005)). Covey's seven habits (Stephen R. Covey (1989)) explain the seven habits of highly effective people. This gave an insight into developing a conceptual model for nurturing work habits for employee performance. An attempt is made to create a model based on the result of the exploratory study on the relevance of these habits on employee performance. Peter Senge who popularized learning organisations by describing it as the place where a) employees continuously expand their capacity to create the results, which they aim, b) new and expansive patterns of thinking are nurtured, c) where collective aspirations are set and d) people continuously learn how to learn as a team. In this paper the covey's habits are linked with the characteristics of a learning organization and arrived at the conceptual model which leads for further scope of research in its applicability in the real time situation.

Key Words:- 4M's, Learning organizations, Organizational effectiveness, Seven habits, work habits, Employee performance,

Words Count:- 200

Introduction

Learning organisations created a bench mark for organisations' development by improving its learning curves on a continuous and systematic manner. The major activities of a learning organisations (LO) described are systematic problem solving, experimentation with new approaches, learning from their own experience and past history, learning from the experiences and best practices of others, and transferring knowledge quickly and efficiently throughout the organization. Each of these activities are connected with a distinctive mined-set, tool kit and a pattern of behavior. In this context an attempt is made to link the behavior patterns of performing employees with Covey's 7 habits and the characteristics of learning organisation.

The concept of Learning Organisation (LO) has been justified an organizational development strategy to acquire competitiveness and superior performance in a dynamic and challenging business environment. LO can be viewed as a social system whose organizational members have acquired the processes for continually generating, retaining and leveraging individual and collective learning, .

Objectives of the Study

- To identify the relevance of Covey's 7 habits in the employee performance based on an exploratory study
- To construct an Employee Work habit Model for learning organisations.

Literature Review

The literatures related to the seven habits and their influences in employee performance are depicted in this section.

, in their study investigated comparative relationships among focal proactive constructs and key organizational variables (i.e., job performance), personality traits (i.e., the Big Five), and individual variables (i.e., work experience). Results reveal significant correlations between proactivity and performance, satisfaction, affective organizational commitment, and social networking. (Sullo, 2009) Dr. Dweck's philosophy says, having a growth mindset means one is internally motivated. Being proactive denotes internal motivation.

Explored the complete performance improvement solutions by adopting new performance related vision, and a learning and performance strategy to improve employee performance improvement process. It also depicts the new roles, competencies and approaches to develop performance improvement expertise which are required in any organization. The habits of Begin with end in mind, put first things first are considered for performance improvement solutions.

Found the insights into ways that senior leaders can adjust their hiring and training strategies so positive workplace habits are enabled and negative ones are contained and minimalized so greater productivity can be engaged in the workplace.

Covey explains win-win based on the idea that one person's success is not achieved at the expense of other person's failure. He explains Win-win is about finding agreements and solutions that are mutually beneficial and satisfying (Covey, 2013). Covey's win-win philosophy is similar to Mary Parker Follett's early work in conflict resolution. For example, her integrated approach forms the basis of what is now commonly referred to as "win-win" (Tonn,2003).

Researchers identify listening with a different perspective apart from the dictionary meaning. "Listening is no longer considered a peripheral aspect of the communicative process" (Duker, 1964), Listening is the foundation of critical thinking" and understanding (Thompson & Lientz, 2004), Furthermore, a study by the U.S. Department of Labor identified listening, as an important skill people must learn along with their academic education in mathematics, reading, writing, and speaking, in order to be competent in the work place (U.S. Department of Labor, 1991).

Covey describes it as "two heads are better than one" (Covey, 2013), which is similar to the Henri Fayol's 14th principle, Esprit de Corps, which says individuals must work together to gain synergy (Laal & Laal, 2012), depicted in their research that "cooperative teams achieve at higher levels of thought and retain information longer than learners who work quietly as individuals.

"Sharpen the saw" is about exercising what Covey calls the four dimensions of our nature: physical, social/emotional, spiritual, and mental (Covey, 2013).

Methodology

Initially an exploratory study was conducted to explore the basic contextual background and the model was developed based on the theoretical link between the concepts. Convenience sampling method was used to collect the opinion from 25 HR managers who gave their response in the semi-structured questionnaire framed to know the relationship between employee performance and Covey's seven habits through the presence and absence of seven habits in performers and non-performers respectively. The opinion of HR managers was considered to verify the influence of employee's work behaviors and performance. Analysis of Variance is used to test the significant difference in opinion of HR managers in employee work behavior influencing their performance based on the nature of industry. And the model was developed based on the findings of the exploratory study the model was constructed leaving the scope for testing the same for future study.

Rationale Behind the Study:- The link between Covey's seven habits and Employee Performance

1. To be Proactive:- The proactive behaviors will help the employees in preparing themselves for any adverse and challenging conditions in the organization and this will help the employees to overcome the bottle necks which hinder their productivity. It also increases the speed and the employees will be able to complete their tasks on time.
2. Begin with the end in Mind:- This helps in visualizing the goal in a holistic manner and will support the organization in framing the right action plans to achieve the objectives. Employees who can visualize the end can easily meet their targets and will be able to be more productive.
3. Put first things first:- Employees who work systematically always are the winners. Where they plan their activities and put the first things first and also consider the priority by comparing urgent and important works.
4. Think Win-Win:- Team performance is the order of the day. Employees who have the habit of doing things in a Win-Win situation will be helpful for the organization to be

more productive. As Stephen Covey states in his book, “Win/Win is a belief in the Third Alternative. It’s not your way or my way; it’s a better way, a higher way.”

5. First understand and then be understood:- Learning organizations continuously provide training and these training will help potential employees to learn better. However the employees should have the attitude to learn and they need to understand before they pretend to be understood. Listening skills can be considered as a trait for performing employees.
6. Synergise:- The team performance will help the organisations more effective and the synergy will also create a motivation among the employees to have a healthy competition. The team performance will help in increasing the overall productivity of the organization in a win-win situation.
7. Sharpen the Saw:- As per the old wood cutter story, it is very important that the employees should keep their resources alive, and ready for their effective performance and the skills and knowledge are to sharpened for effective performance

Findings of the Exploratory Study

Table 1

Frequency and Percentage of HR managers’ opinion on the influence of the seven habits in better performance of employees

Opinion		Habit 1	Habit 2	Habit 3	Habit 4	Habit 5	Habit 6	Habit 7
Strongly Agree	Frequency	7	6	8	6	11	6	5
	Percentage	28%	24%	32%	24%	44%	24%	20%
Agree	Frequency	18	18	13	17	11	17	20
	Percentage	72%	72%	52%	68%	44%	68%	80%
Neither Agree Nor Disagree	Frequency	0	1	4	2	3	2	0
	Percentage	0	4%	16%	8%	12%	8%	0
Disagree	Frequency	0	0	0	0	0	0	0
	Percentage	0	0	0	0	0	0	0
Strongly Disagree	Frequency	0	0	0	0	0	0	0
	Percentage	0	0	0	0	0	0	0

Source: Primary Data

It is interpreted from table 1 that the HR managers agree that all the seven habits depicted by Covey helps to increase the employee performance in their organization and it is opined that the performers have these habits when compared to the poor performers.

Table 2

ANOVA based on type of industry and opinion of HR managers on habits as a predictor of performance					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.696	2	5.348	.511	.607
Within Groups	230.264	22	10.467		
Total	240.960	24			

Source: Primary Data

The above table 2 shows that there is no significant difference in opinion of HR managers on habits as a predictor of performance based on the nature of the industry, as the $F = 0.511$ is not significant ($0.607 > 0.05$).

Covey's 7 Habits

Stephen Covey explained the seven habits of human beings which make them more effective. Learning organisations continuously try to improve employee performance through training and development. The seven habits and its role in employee performance are explained as follows.

1. Be Proactive
2. Begin with the end in mind
3. Put First things first
4. Think Win-Win
5. First understand and then be understood
6. Synergize
7. Sharpen the saw

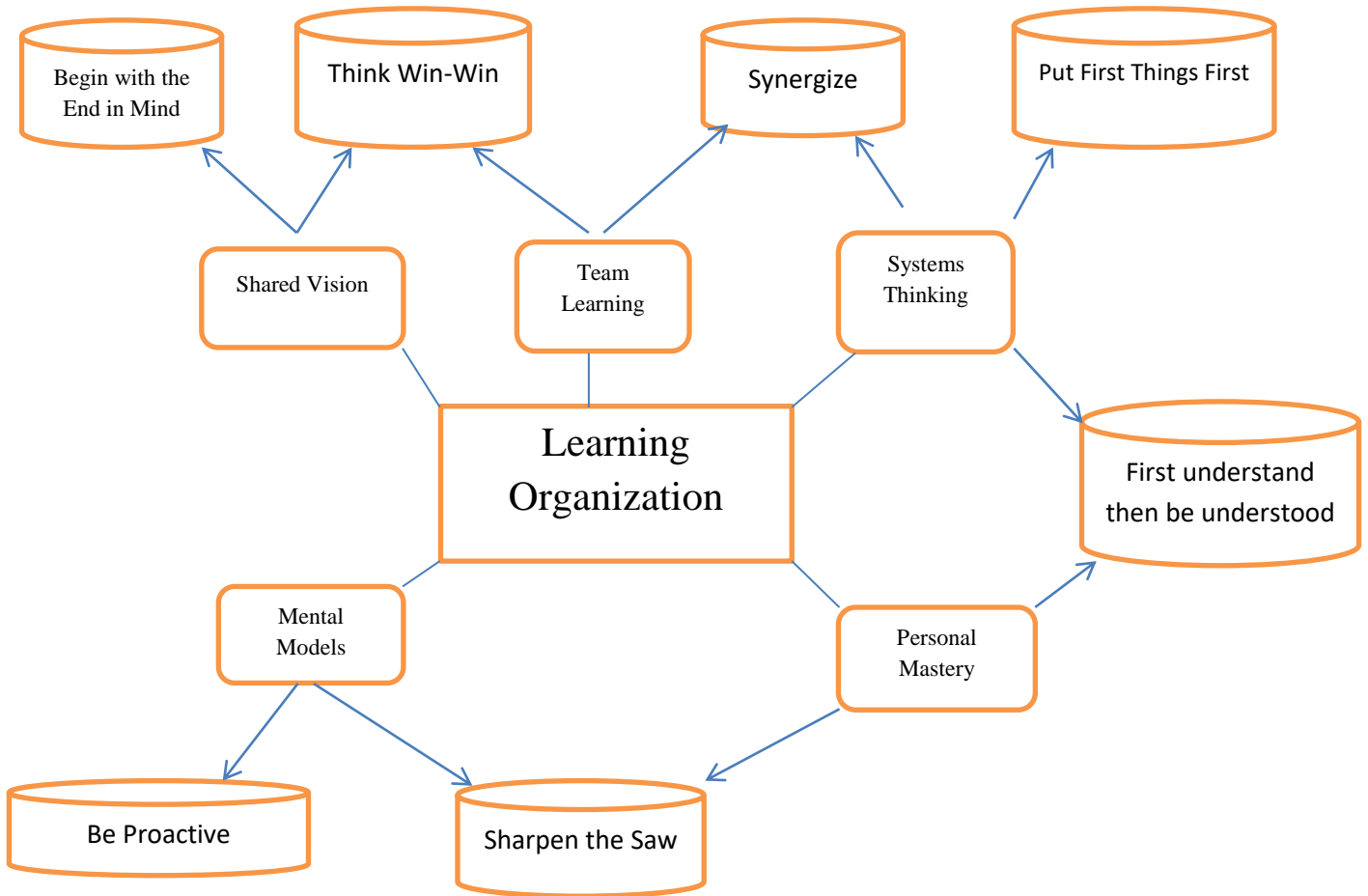
The features of learning organization

- A. Shared Vision
- B. Systems Thinking

- C. Personal Mastery
- D. Team Learning
- E. Mental Models

Employee Work Habits model for learning organizations

Figure 1



Developed by Dr. Rajeswari.R and Dr. Deepa Pillai 2019

Figure 1 depicts the relationship between the variables and its influential path. This model is created based on the conceptual relevance and the link between the variable in Covey’s seven habits and the features of the learning organisations. It is said that the five features of learning organisations required the seven habits of people in the way it is linked.

The organisations who aspire for continuous improvement and effectiveness should try to cultivate these seven habits in their employees for better work habits and behaviours which will intern help the organization to achieve its goals. The success of the model depends on the result of the future research by collecting the data to test the relationships among the variables.

Scope for further Research

There is a scope for further research in this area to implement the Employee Work Habit Model in a learning organization and measure the outcome of performance to validate the model.

Conclusion

The opinion of HR managers is considered as basic information to explore the relevance of the Covey's seven habits in employee performance. It is found that the performing employees possess these habits and cultivating these habits in employees helps them to perform better. And based on the literature review inputs a conceptual model is framed linking the features of learning organisations with the seven habits. Hence it concluded with a remark that the seven habits can be considered as a predictor of employee performance as well as the features of learning organisations and companies can develop strategies to cultivate these work habits in their employees which make the organization effective with high employee performance and organizational effectiveness.

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Application of Random Forest For Robust Prediction Of Social Media Comments: A Case Approach

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Abstract

The measure of information that gets added to the system builds step by step and it is a gold mine of analysts who need to comprehend the complexities of client conduct and client commitment. Right now, we examine one such issue where we make a stride towards understanding the profoundly unique conduct of clients towards Social media platform posts. The objective is to anticipate what number of comments a client created present is normal on get in the given arrangement of hours. We have to show the client comments design over a lot of factors which are given and get to the correct number of comments for each post with least blunder conceivable. The assessment has revealed that a noteworthy piece of the comment volume of a post is directed by the features of that post's Social media platform page and is respectably arbitrary to inherent features of the post. Overall, this examination would assist the associations with understanding the clients conduct on posting remarks in social media platform in different days and different timings just as the factors affecting their remarking design. With these data, they can foresee the perceivability of their notice. To maintain a strategic distance from an inappropriate planning for causing commercial with the goal that cost to can be spared. Greatest reach can be accomplished.

Key words: Random forest, Social Media marketing, predictive model.

Aim of the study

Based on the problem statement, the objectives of the study to understand data in order to predict the patterns, insights and information and build a model to predict the volume of comments a post is expected to receive in the given set of hours.

1. Introduction

For both independent companies and enormous partnerships, social media is assuming a key job in brand building and customer correspondence. Social media platform is the social networking site important for firms to make themselves genuine for customers. Just to place things in setting, the promoting income of Social media platform in the United States in 2018 confronts 14.89 billion US dollars. The publicizing income outside the United States boils down to 18.95 billion US dollars. Most recent research reports have shown that client produced content on Social media platform drives higher commitment than promotions. The measure of information that gets added to the system builds step by step and it is a gold mine of analysts who need to comprehend the complexities of client conduct and client commitment. Right now, we examine one such issue where we make a stride towards understanding the profoundly unique conduct of clients towards Social media platform posts.

The objective is to anticipate what number of comments a client created present is normal on get in the given arrangement of hours. We have to show the client comments design over a lot of factors which are given and get to the correct number of comments for each post with least blunder conceivable.

2. Problem Statement

In light of the dataset gave the objective is to anticipate what number of comments client created presents are normal on get in the given arrangement of hours. We have to demonstrate the user comments generated over a lot of factors which are given and get to the correct number of comments for each post with least mistake conceivable and determine business bits of knowledge for powerful advertising procedures through Social media platform Posts.

3. Data Preparation and analytics

3.1. Data Description

For this study a the social media platform comments and variables have been collected form an open source platform (Kaggle). The dataset used is ‘Social media platform Comment Volume Prediction’ has Total 32749 observations and 43 variables in which 42 are Independent variables (40 — Numerical Variables and 2 — Categorical Variables) and 1 Dependent Variable (Numerical Variable)

3.2. Summary of the data:

In order to study the data better, we performed a preliminary variable reduction in the beginning itself. At this stage, we reduced the variable on the following criteria:

- Redundant Variables
- Business relevance
- Correlated Variables
- Target Variable

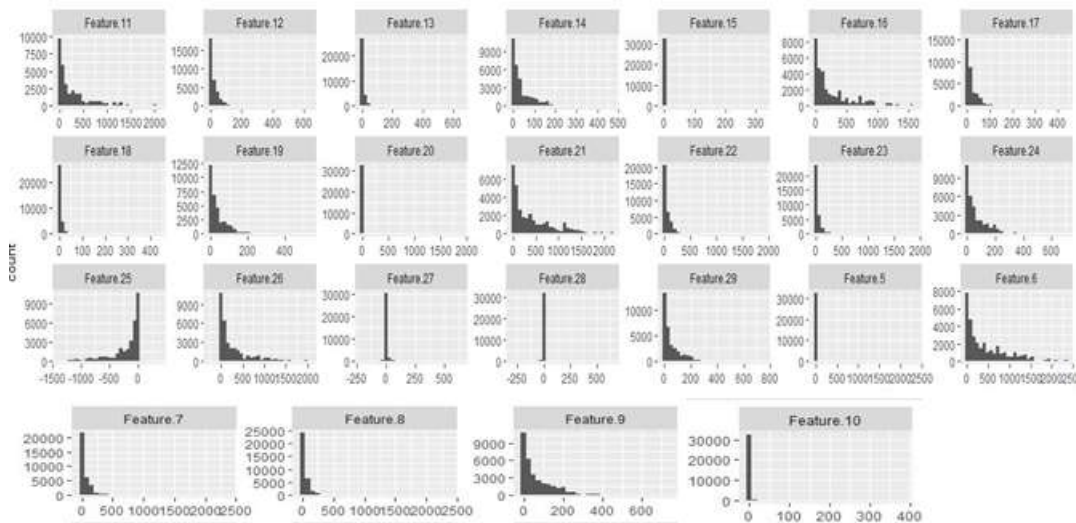


Figure 1: Histogram of the variables

Feature 5 to Feature 29 are aggregated by page, by calculating min, max, average, median and standard deviation of essential features. In our whole dataset only variables for which negative values present are for Feature 25, Feature 26, Feature 27, Feature 28 & Feature 29. None of the above-mentioned features is normally distributed and highly skewed to the right.

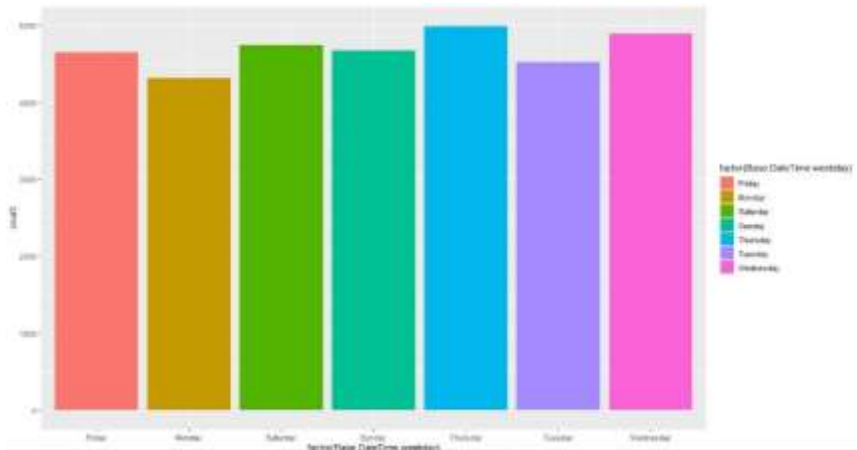


Figure 2. Distribution of Base Date and Time weekday

From the figure 3, It is understood that the characteristics of length of the post. With the count and mean mentioned, we can clearly understand how the data is distributed.

From the above graph, we can understand that frequency of post increases on daily basis and it reaches its maximum point at Wednesday and then it declines gradually. Now we must understand how the comments are coming for these posts when compared to base time.

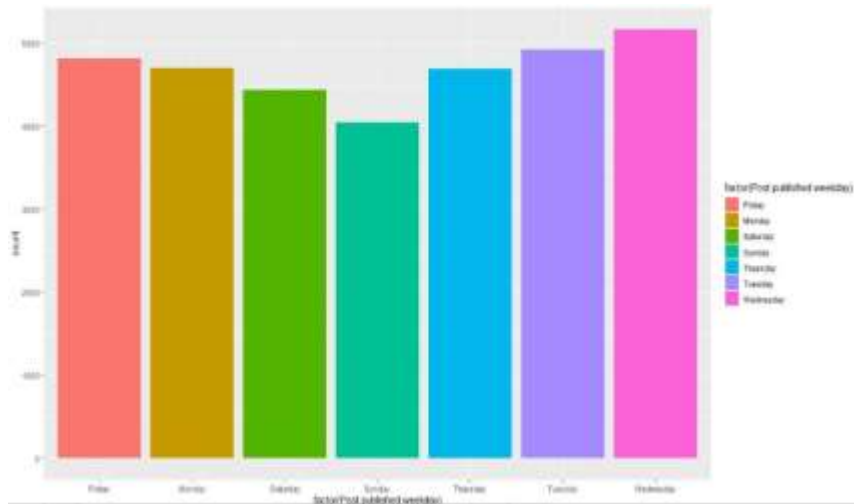


Figure 3. Distribution of Post published weekday

Missing values are present for Feature 27, Feature 29, Feature 25, Feature 20, Feature 22, Feature 18, Feature 10, Feature 13, Feature 7, Feature 15, Page Category, CC4, CC1, CC5, Page Likes, Page talking about, Page Check-ins variables. Post Promotion Status variable has only '0' entries

14.8% missing value found in the dataset. For Page Check-ins, Feature 5, Feature 10, Feature 15, Feature 20, Feature 28, CC2, CC3, Target Variable variables have more than 50% of values are '0'

In the Dataset, Feature 27, Feature 29, Feature 25, Feature 20, Feature 22, Feature 18, Feature 10, Feature 13, Feature 7, Feature 15, Page Category, CC4, CC1, CC5, Page Likes, Page talking about, Page Check-ins variables have missing values.

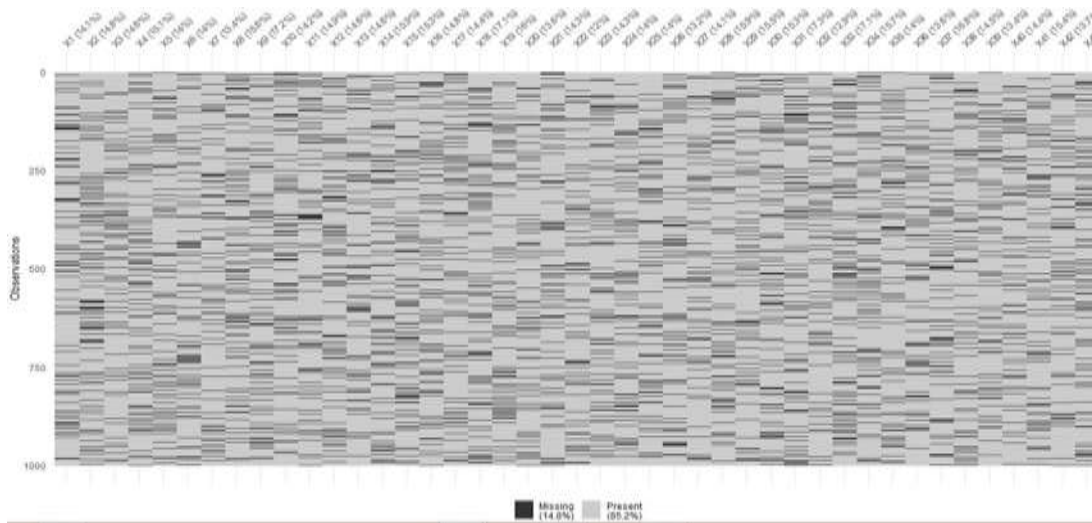


Figure 4: Missing value pattern

Table.1: Model Comparison after Feature Selection:

Models	Dataset	After Feature Selection
		RMSE
Multiple Linear Regression	Train	6.756
	Test	6.681
SVM	Train	7.698
	Test	7.409
Decision Tree	Train	6.253
	Test	6.002
Neural Network	Train	10.537
	Test	10.314
Random Forest	Train	2.60
	Test	5.42
Extreme Gradient Boosting	Train	3.25
	Test	4.36
Bagging	Train	4.61
	Test	5.21

After the Model building with all the features selected by wrapper methods and Embedded methods, we ran a VIF check and noticed 5 variables are having very high VIF values. So, we performed a Dimension Reduction by doing PCA.

Table 2: Variance Inflation Factor for understanding variables

Variable Name	VIF
page likes	1.598809319
feature_9	239.7377926
feature_12	34.74918909
feature_13	10.90980991
feature_18	5.06507191
feature_23	15.4041934
feature_24	252.4623331
feature_27	2.238790971
feature_28	1.199715508
cc1	8.739252957
cc2	3.737948044
cc3	4.204233512
cc4	8.718787229
cc5	4.912841131
base time	1.351266551
post share_count	1.026245992

In the wake of running the PCA we found that lone the primary part has eigen value more prominent than 1 so we have chosen just a single segment after the Dimension decrease which covers around 91% information for the 5 factors.

4. Random forest for predicting comments on the given time

Random forest is a technique which is used to model the data with large number of trees and to identify the best decision tree for the model which best fit for the data. Here in this study, in order to predict the number of comments in the given timing. The Target variable is classified in to three slaps as high, medium and low level of comments.

The data set has been split into two categories as training data and test data which have been assigned with 70% and 30% of data respectively.

Table 3: Initial Model output& Confusion matrix

Type of random forest	: classification			
Number of trees	: 300			
No. of variables tried at each split	: 8			
OOB estimate of error rate	: 5.35%			
Confusion Matrix				Class error
1	1139	15	6	0.018103
2	48	164	1	0.230047
3	7	3	112	0.081967

From the Table, The random forest model is a classification method as the target variable is factor as such. The number of trees is 300. 8 variables tried at each split which shows that mtry is 8. That denotes the number of variables considered for each split. The out of Bag(OOB) error is 5.35% which is good and indicates the 96.65% accuracy. The confusion matrix shows that there is less error in the class one (0.018103), the error is comparatively high in the class two (0.230047) for the predictions.

Table.4: Confusion matrix and prediction: Train data

Prediction	Reference		
	1	2	3
1	1076	1	0
2	1	259	0
3	0	0	158
Model Accuracy : 0.9987 , 95% CI : (0.9952, 0.9998), No Information Rate : 0.7759 , P-Value [Acc> NIR] : < 2.2e-16 , Kappa : 0.9964			
Statistics by class	Class: 1	Class: 2	Class: 3
Sensitivity	0.9991	0.9953	1
Specificity	0.997	0.9992	1
PosPred Value	0.9991	0.9953	1
NegPred Value	0.997	0.9992	1
Prevalence	0.7759	0.1425	0.08161
Detection Rate	0.7753	0.1418	0.08161
Detection Prevalence	0.7759	0.1425	0.08161
Balanced Accuracy	0.9981	0.9973	1

Table 4 depicts the result of the model one prediction. The confusion matrix compares the actual value and the model prediction. The diagonal values denotes the prediction levels. Class 1 has got 1076 actual values and that has been predicted by the model as well. The same comparison for class 2 and class 3 but class 2 has got one wrong prediction. The overall model accuracy is 0.998 which is known as a good prediction model. Sensitivity and specificity shows the level of prediction accuracy as it needs to be predicted. Generally, sensitivity signifies the true positive prediction and specificity signifies the truenegativity of the model. Here the accuracy level (.998) which is deviated from the initial model. This is identified from the out of bag error value (5.35) from Table 3. Which indicates that 94% accuracy was there in initial model.

Table.5: Prediction & Confusion matrix: Test data

Prediction	Reference		
	1	2	3
1	479	17	3
2	14	61	2
3	2	4	49
Accuracy : 0.9334, 95% CI : (0.9111, 0.9516), No Information Rate : 0.7845, P-Value [Acc> NIR] : <2e-16, Kappa : 0.8132, McNemar's Test P-Value : 0.7633			
Statistics by class	Class 1	Class 2	Class 3
Sensitivity	0.9677	0.7439	0.90741
Specificity	0.8529	0.97086	0.9896
PosPred Value	0.9599	0.79221	0.89091
NegPred Value	0.8788	0.96209	0.99132
Prevalence	0.7845	0.12995	0.08558
Detection Rate	0.7591	0.09667	0.07765

Detection Prevalence	0.7908	0.12203	0.08716
Balanced Accuracy	0.9103	0.85738	0.9485

The test data prediction accuracy is slightly lesser than the train data. There are several misclassification error but still the model accuracy is good with 93% accuracy. The sensitivity for class1(.9677) is good comparatively with the other classes class 2 (.74) & class 3 (.907). The next step to measure the level of error in model prediction.

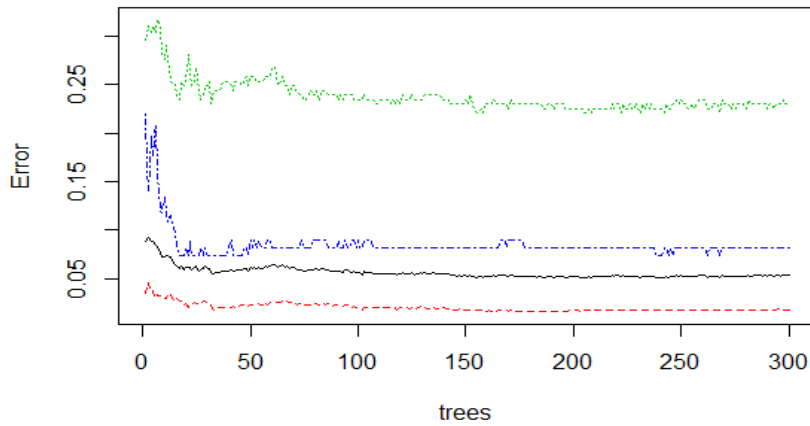


Figure.5: Error rate of random forest model

The figure 5 shows the error rate of OOB error. Initially the error rates drops and at the point of 300 it becomes constant. So optimum level of decision tress would be 300.

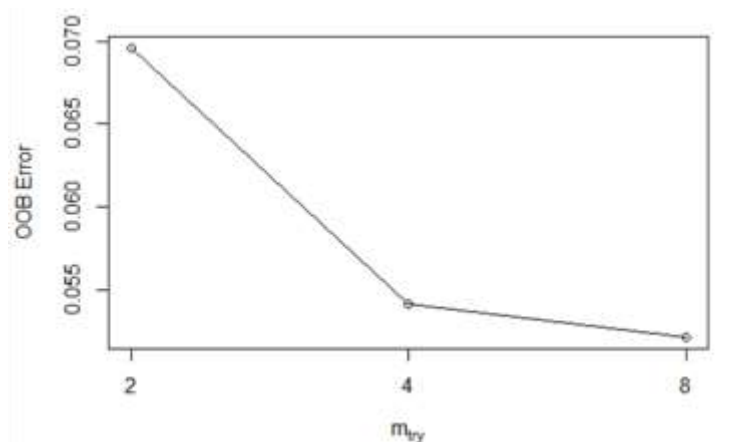


Figure.6: Tuning Random forest

Figure 6 denotes the tuning process of error level of model. Initially the error levels are high with .07 and it has become less at the mtry 8. So optimum model with less error would be 8. From OOB error and mtry values, the classification of 300 tress and the mtry of 8 has fetched a better accuracy for the model.

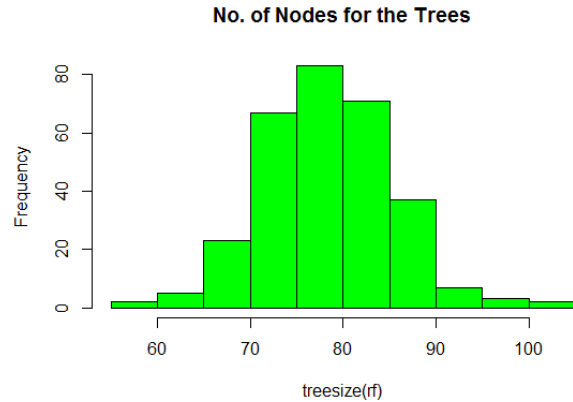


Figure.7: Number of nodes for the trees

From the figure 7, It is revealed that the number of nodes are 80 for 80 tree size. The node ranges from 60 to 100 for the trees. That indicates minimum of 60 branches in the tree and maximum of 100. The highest number of nodes for maximum number of trees are 80.

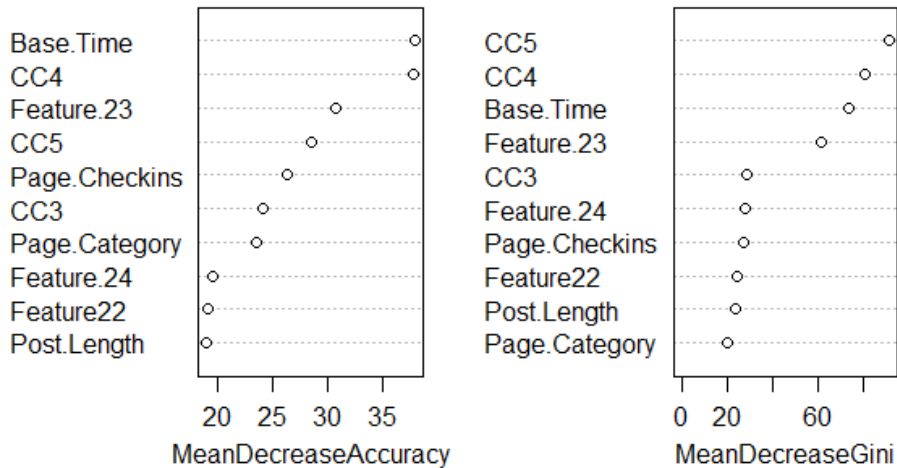


Figure.8: The Graph shows the variable importance in the model

The figure 8 indicates that the graph explains the importance of variables in the random forest model. The mean decrease accuracy denotes that The base.Time. CC4, CC5 are the most importance variables. Removal of these variables would make the model poor. Mean decrease gini measures the pureness of the tree with the variables. CC5, CC4, Base.Time are the importance variables since they occupy the maximum pureness of the model.

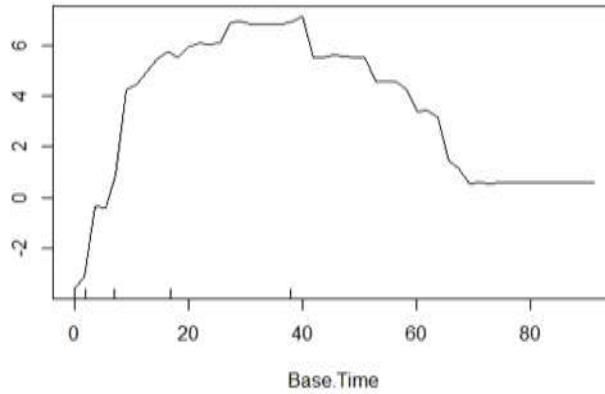


Figure.9: The Partial dependence

From the figure 9, The partial dependence plot provides the marginal effects of a variable on the class probability. In this base time variable, class2 predict moderately and class 3 predict more strongly as per the plot.

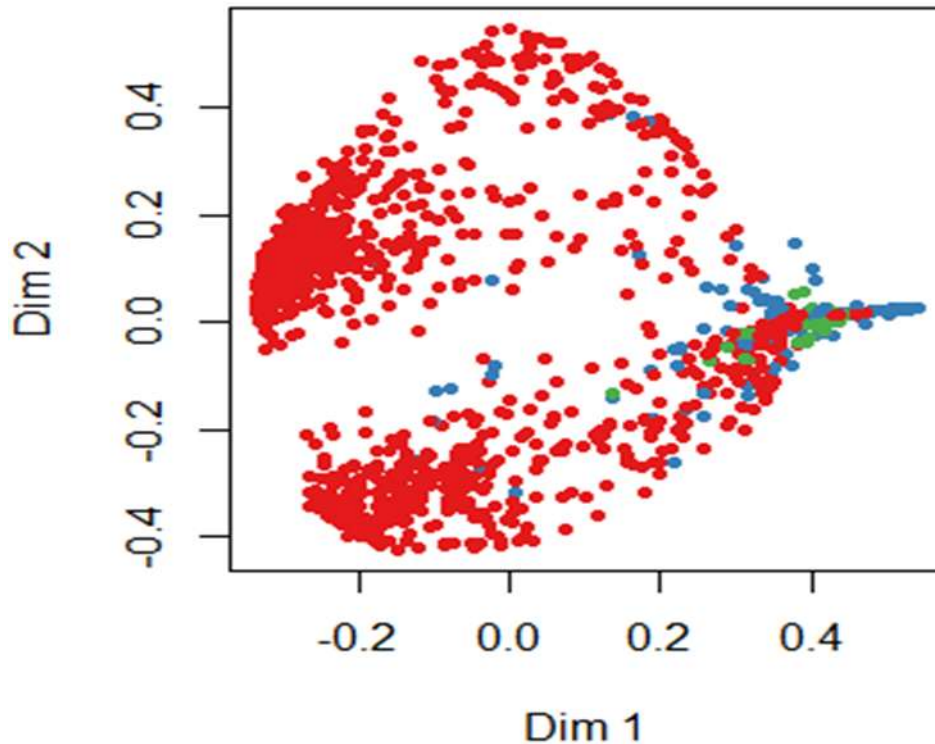


Figure.10: Multidimensional scaling of proximity Matrix

The figure 10 depicts the Multidimensional scaling of proximity Matrix. The three different colors denotes the different classification of the data distribution. The maximum data lies with 1 to 2 that is red colored in the data distribution.

Insights from the Data

Page Category 9 and 24 got most extreme remarks so better focusing on the adjustments in the page 9 category. In the initial 24 hrs. after the Post got distributed more remarks are gotten in the Weekdays, and Wednesday got the most noteworthy number of remarks so Wednesday is the correct decision for new dispatch and suggestions in the online networking.

Focusing on the 16 key factors would be best for foreseeing objective variable. Nonlinear models perform superior to the straight models so receiving the nonlinear systems may get better results. The organizations can use the outcomes for contrasting different models all together with take showcasing choices and speculation choices. Overall, This examination would assist the associations with understanding the clients conduct on posting remarks in social media platform in different days and different timings just as the factors affecting their remarking design. With these data, they can foresee the perceivability of their notice. To maintain a strategic distance from an inappropriate planning for causing commercial with the goal that cost to can be spared. Greatest reach can be accomplished.

5. Conclusion

The assessment has revealed that a noteworthy piece of the comment volume of a post is directed by the features of that post's Social media platform page and is respectably arbitrary to inherent features of the post. In particular, the amount of posts on that page in the past 24 hours and the amount of post offers, all things considered, predicts the proportion of comments a post will get. Among features that can be obliged by the customer, the character length of a post and the day of posting are the most farsighted, anyway their relative importance is little when stood out from the page features. Taking everything into account, future work could be performed to review the effect of hoisting Social media platform presents on check whether such exercises lead to progressively vital comment volume. Such a philosophy would help choose whether Social media platform post progressions are reasonable in extending the introduction of a post.

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Assessing Impact of demonetization on digital literacy of elderly people

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Abstract

In today's digital world "Being Connected" is becoming central to a person's social and economic inclusion and older people are 'missing out' by not being connected to the internet. Society needs to ensure accessibility, affordability and equal participation in the digital economy. There is a decreasing likelihood of using the internet as age increases, but including older people to become internet literate is important not just for themselves but also for the government and wider society; as more products and services are becoming 'online only'. The demonetization imposed in late 2016 has prompted people to turn to online transactions and many of the financial institutions too have paved the way for digital markets. The present study has focused on the digital inclusion and the impact of demonetization on digital inclusion for the elderly people. The study focused on the state of Kerala – the most literate state in India and the results show that demonetization hasn't forced them to do digital transactions. The elderly people are still reluctant to use internet and do online financial transactions. The major use of internet for those who use are for the e-government services and social networking.

Keywords : *Demonetization, digital literacy, elderly people, digital inclusion, internet usage*

Introduction

Information Technology (IT) allows members of the growing elderly population to remain independent longer. However, while technology becomes more and more pervasive, an age-related underutilisation of IT remains observable. For instance, elderly people (60 years of age and older) are significantly less likely to use the internet than the average population. This age-related digital divide prevents many elderly people from using IT to enhance their quality of life through tools, such as Internet-based service delivery. Despite the significance

of this phenomenon, the Information Systems (IS) literature lacks a comprehensive consideration and explanation of technology acceptance in general and more specifically, internet adoption by the elderly. This research thus studies the intentions of the elderly with regard to Internet use and explores the impact of recent phenomenon of demonetization in their digital inclusion in Kerala, India. A report released by the United Nations Population Fund and HelpAge India suggests that India had 90 million elderly persons in 2011, with the number expected to grow to 173 million by 2026. Of the 90 million seniors, 30 million are living alone, and 90 per cent work for livelihood. As a result of this study, a holistic model can be developed to identify ways in which governments, banks and corporates could intervene in ensuring the digital and financial inclusion of elderly people.

A survey on ageing scenario in Kerala conducted by the 'Centre for Development Studies' has pointed out that the proportion of aged, in the total population is on the rise. Kerala's total population as per the 2011 census is around 3.36 crore, of which 12.6 per cent are aged above 60 years and is growing at a perpetual rate of 2.3 per cent. The digital inclusion has become a necessity in lieu with the recent developments in the country and the older population needs to adopt to the situation. This research thus studies the internet use of elderly people and explores the impact of recent phenomenon of demonetization in their digital inclusion.

Literature Review

Demonetization

Demonetization is the act of shedding a currency unit of its status as legal tender. Demonetization is necessary whenever there is a change of national currency. The old unit of currency must be retired and replaced with a new currency unit. Every banknote issued by Reserve Bank of India (₹ 2, ₹ 5, ₹ 10, ₹ 20, ₹ 50, ₹ 100, ₹ 500 and ₹ 1000) shall be legal tender at any place in India. The demonetisation of 500 and 1000 rupee banknotes is a step taken by the Government of India in November 2016 to fight corruption and black money issues in the country. In 2000, Anil Bokil, Chairperson of ArthKranti Sansthan, had proposed that the government ban ₹ 500 and ₹ 1,000 notes to curb black money and corruption. Bokil wrote newspapers articles about his proposals and made many presentations to Government officials. Soon to be Prime Minister Dr. Manmohan Singh heard his speech in 2003. In 2013, when Bokil met the then Bharatiya Janata Party Prime Ministerial candidate Narendra Modi, he realised Modi meant business. After that meeting, Bokil met Modi four times to explain how black money can be curbed.

On Tuesday, November 7, Modi announced that the Reserve Bank of India would demonetise ₹ 500 and ₹ 1,000 notes. Starting from midnight of 8 November 2016, all 500 and 1000 rupee notes ceased to be accepted as a form of legal tender in India. The announcement was made by the Prime Minister of India Narendra Modi in a live televised address to the nation at exact 8:15 pm IST the same day. In the announcement, Modi declared circulation of all 500 and 1000 rupee banknotes (approximately \$7.50 and \$15 USD respectively) of the Mahatma Gandhi series as invalid and announced the issuance of 500 and 2000 rupee banknotes (approximately \$7.50 and \$30 USD respectively) in the new Mahatma Gandhi series in exchange for the old banknotes. The demonetisation was done in an effort to stop the counterfeiting of the current banknotes alleged to be used for funding terrorism and for cracking down on black money in the country.

Digital Inclusion

The way we live increasingly relies on access to the internet and the computers/tablets, mobile phones and other equipment that allow us access to the internet. We are expected to perform online transactions such as paying bills, booking appointments and applying for jobs. However, those people who have the greatest needs and are farthest from employment are not benefitting from the internet. Often they lack the basic digital literacy skills and resources to both get online and then complete online transactions. Digital inclusion can be defined as having access to information and communication technologies (ICT), and e-services. The term digital divide encompasses inadequate funding, a lack of necessary computer and internet skills and a lack of English language proficiency that hinder expansion and use of digital information resources. (Dubey.P, 2010). However, increasingly there is recognition that digital inclusion is not only having physical access to the internet, but also having the necessary skills, confidence and capabilities to use the internet.

Originating in the field of psychology, the phenomenon of technology acceptance has been studied widely by applying a range of alternative theories and models. The concept of individual technology acceptance was introduced into the IS literature by Davis (1986, 1989), with his Technology Acceptance Model (TAM) and has since been subject to subsequent theory development (Venkatesh & Davis, 2000). Novel theories that are partially based on TAM have been developed to explain individual technology usage behaviour. The Unified Theory of Acceptance and Use of Technology (UTAUT) is a technology acceptance model derived by Venkatesh and colleagues in "User acceptance of information technology: Toward a

unified view" and it unifies constructs from eight competing theoretical models, including TAM (2003). The authors provide evidence that, in the case of IT adoption, their model has the greatest explanatory power compared with other models, including the theory of reasoned action (Fishbein, 1967; Fishbein & Ajzen, 1975), the TAM (Davis, 1989) and the theory of planned behaviour (Ajzen, 1985, 1991; Taylor & Todd, 1995).

Given that IT is developing rapidly, theories that are robust to the particular technology specifics and that account for general factors of the elderly's technology adoption are becoming essential. While contemporary research often emphasizes physical disabilities, such as low vision, cognitive disabilities, and motor skill limitations (Kraner, 2004; Becker, 2005; Kurniawan & Zaphiris, 2005), and studies their impact in the context of specific technologies, we adopt a broader perspective that draws upon information systems (IS) technology acceptance theories. As internet has rapidly grown to underline almost every aspect of the global economy, the term "Digital divide" has often been referred to internet access as a divide that affects and reinforces fundamental economic and social divides between and within countries and is threatening to further exacerbate these inequalities (Singh.K, 2012). Effective digital inclusion requires six elements: access to internet, device usage, attitude, activities, awareness and support. Affordability, knowledge of internet equipment, basic IT skills and a desire to get online are all important factors in effective internet access. Digital inclusion initiatives can help people gain access to online services, support them in using these services, and provide training in digital literacy skills.

Objectives of the study

The primary objective of the study is to assess the impact of demonetization on digital inclusion of elderly people.

The secondary objectives are to assess the attitude of elderly people towards technology and to understand the internet and device usage by elderly people.

Methodology

The study intended to assess the impact of demonetization on digital inclusion of elderly people with special reference to Kerala, a southern state in India. The sampling process adopted was Simple random sampling and the data were collected from elderly people from rural and urban areas in Kerala who are above the age of 60. The data were collected by means of questionnaire. The questionnaire had seven sections. The first section measured the

general opinion of the respondents regarding the impact of demonetization on curbing black money and corruption. The second section measured the internet usage of the respondents and the impact of demonetization on internet usage. The third section measured the device usage of the respondents and the impact of demonetization on device usage. The fourth section measured the usage of internet for financial transactions and the impact of demonetization on the internet usage for financial transactions. The fifth section measured the attitude of the respondents towards technology. The sixth section measured attitude towards e-banking services and banking apps. The seventh section sought suggestions from the respondents regarding awareness programmes, Self Help Group's etc. The questionnaire comprised of 35 questions. The sample size was fixed at 250.

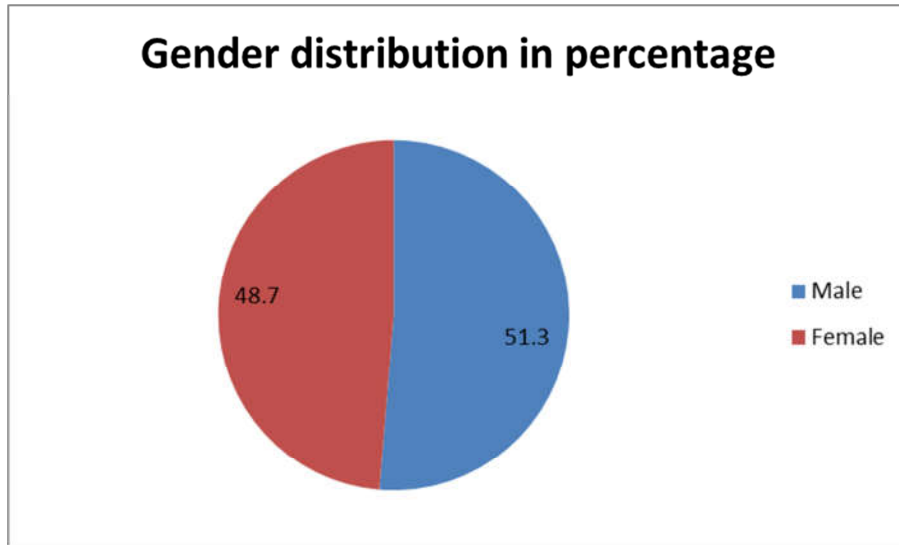
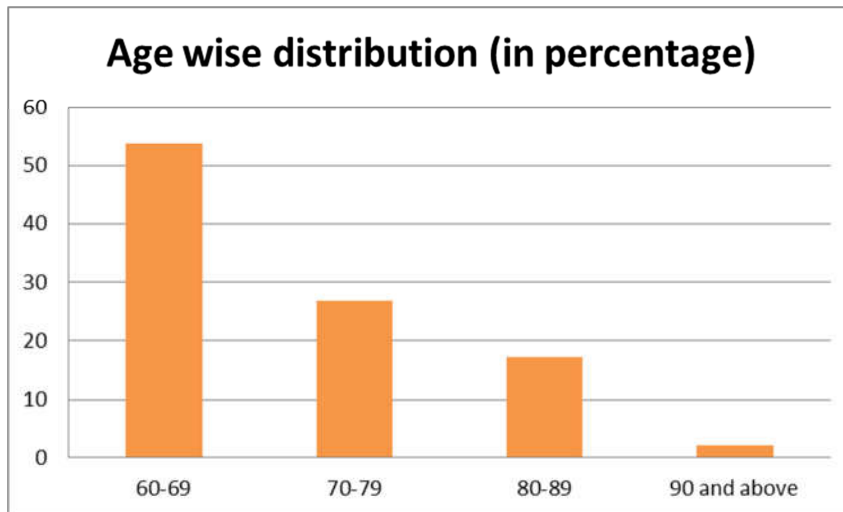
The content validity of the questionnaire was established by getting it scrutinized by experts and academicians and certain items were reworded.

Analysis

Out of the 250 questionnaires distributed, 197 usable questionnaires were used for analysis. The rest of the questionnaires were discarded due to missing entries and validation problems. The statistical software SPSS was used for analysis.

Descriptive Statistics

Descriptive statistics based on gender, age, education and occupation are given below: Figure 1 shows the gender distribution; figure 2 shows the age wise classification; figure 3 shows the classification based on the education of respondents and figure 4 shows data about their present occupation.

Gender wise classification**Figure 1** *Gender distribution***Age wise classification****Figure 2** *Age wise distribution*

Since we had limited the minimum age of samples at 60 years, the age wise classification was done into 4 groups as seen in the above figure. It is evident that the majority of the respondents were from the age group 60-69.

Education wise classification

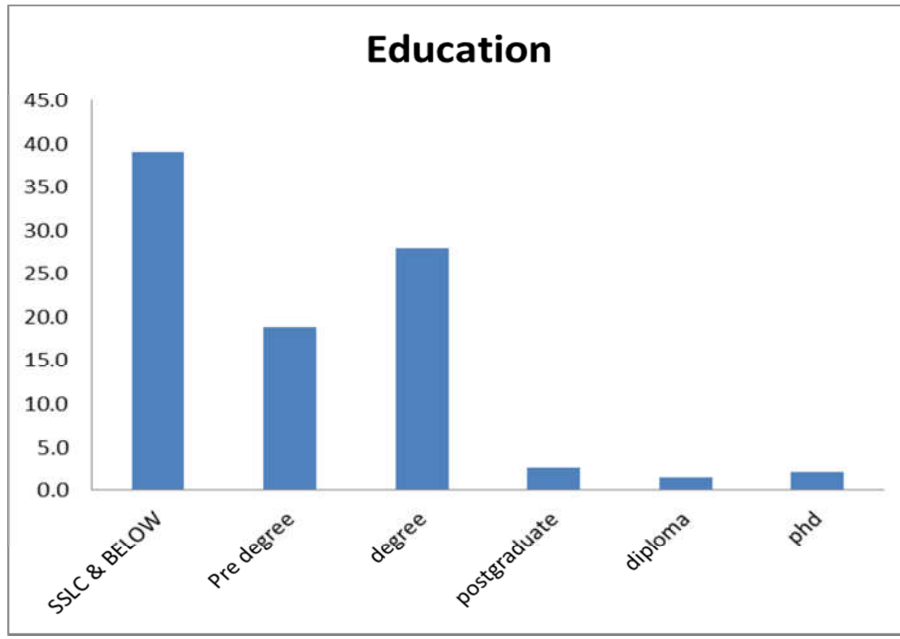


Figure 3 Classification based on education

From figure 3, it can be seen that 37% of the respondents belong to the category of 10th grade and below, 16% are Pre-Degree Holders, 26% are Degree holders, 3% are Post Graduate Holders, 1% have completed Diploma and 2% are PhD holders.

Present Occupation

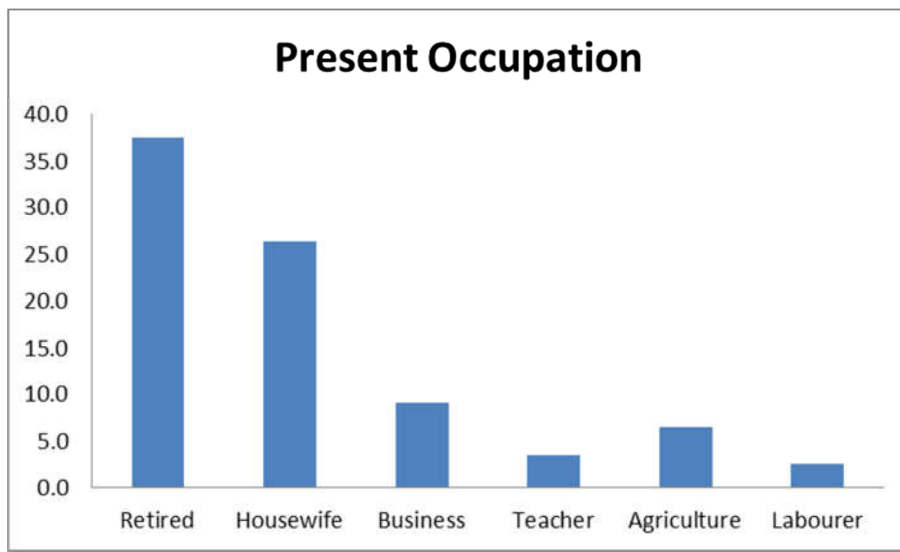


Figure 4 Present occupation

The sample constituted of respondents above the age of 60 and hence Majority of the respondents ie: 38% are Retired employees , 25% are housewives, 8% are in Business, 3% in Teaching, 6% in Agriculture, 2% are Laborers.

Data Analysis

The analysis was divided into different parts. Part 1 was on the opinion of the elderly people on demonetization, Part 2 analyses the internet usage and Part 3 analyses the impact of demonetization on the technology use of the elderly people.

Part 1 : Opinion about demonetization

The respondents had a good opinion about the government's move and efforts to tackle black money. Table 1 shows the data regarding the question on inconvenience caused due to demonetization.

Table 1: *Inconvenience caused due to demonetization*

Inconvenience caused due to demonetization	Percentage
No difficulties faced	5.2
There were difficulties, but it was worth a good cause	54.8
Lot of difficulties	40

It is evident from the table that the respondents said that though they faced difficulties, they had a good opinion about the movement on demonetization since it was for a good cause as far as the nation was considered. 40 % of the respondents said they faced a lot of difficulties due to shortage of cash and related issues. There were certain suggestions too from the respondents that the currency should have been made available to meet the demand, enough money in banks etc which would have made the process more convenient and acceptable.

Part 2: Usage of internet

This part was again subdivided into two- one part dealing with the general use of internet while the other part focused on use of internet for financial transactions, including the banking services.

The questions in the first part were asked to know the internet usage by the elderly people and to know the factors that are hindering them to use the internet. Percentage analysis was used to categorize the responses.

The analysis of the responses shows that though 73% of the respondents have the facility to use internet at home, around 58.9% of the respondents do not use internet. 60% of the respondents feel that accessing internet is not important for them in their life. 51% of the respondents state that they find it difficult to learn the use of internet, 11% state that it is difficult for them to learn internet language.

Among the 41.1% who use internet, 30% of the respondents use smartphone to access internet and the rest use either laptop or desktop. The help they get to use these are majorly from their family or friends.

Table 2 shows the distribution regarding the use of internet for different purposes. The majority of respondents use internet for their social media usage and for other entertainment purposes. With the gaining popularity of e- government services, it can be seen that the use of internet for government services was also high.

Table 2 *Use of internet for different purposes*

Nature of use	Percentage
Government services	28.9
Social networking	36
Entertainment	31.5
Online shopping	19.1
Online banking	27.9
News	31

The second part comprised on collecting the responses on the use of internet for financial transactions and banking services.

69% of the respondents said that they are not confident enough to do online financial transactions. They felt that the transactions were not secure and preferred to do the old method of transactions by paying cash. Though around 80% of the respondents have heard of the e- banking services like internet banking, mobile banking, e- cards etc, 27.4% only use

these services. The major factors that drive them to use the e- banking services were identified as time saving, ease of transactions and availability of the information of new services etc. The rest who are not using these services felt there was no much need to shift to the e-banking services and were comfortable with the legacy banking.

Part 3: Impact of demonetization

The questions here intended to assess the impact of demonetization on their use of internet and online financial transaction.

65% of the respondents are of the opinion that demonetization haven't forced them to use internet. 86% says that demonetization hasn't forced them to buy a new gadget to use internet and 74% of respondents say that demonetization haven't forced them to increase their online financial transactions.

It can be inferred that demonetization didn't have much impact on changing them to do online transactions.

Further, the age was classified into 4 groups 60-69, 70-79, 80-89, 90-99 to check whether there is any difference in the usage of internet and related services. The sample had a larger percentage of respondents from the age group 60-69 and this group itself was found to be the major users of internet. This may be mainly due to the fact that they belong to the "just retired" category and are more used to the usage of internet. They would have used internet in the offices before retirement and were tuned to many of these online services.

In the age group 60-69, 65% use internet while only 9% of the age group 70-79 use internet and 6% of 80-89 use internet. 58% of the respondents in the age group 60-69 felt that using internet is important for them while only 7% and 6% of the other age groups 70-79 and 80-89 respectively felt that using internet is important .

Table 3 shows the percentage of users categorized on the different age groups according to their use of internet for various services.

Table 3 Categorization of internet services by age groups

Age group	Govt Services	Social Networking	Entertainment	Online shopping	Online banking	General information	News
60-69	48	63.3	55.1	31.6	46.9	36.7	54.1
70-79	12.2	10.2	6.1	4.1	14.3	4.1	6.1
80-89	14.8	15.4	18.5	0	8	7.4	18.5
90-99	0	0	0	0	0	0	0

It can be seen from the table that there is good percentage of people from different age groups using internet for various purposes. Social networking is one main purpose for the use of internet irrespective of the different age groups.

It was further probed to find out what the hindrances were for using internet on the basis of the categorized age groups. The major factors identified were difficult to learn to use internet, usage of the internet language and terms and speed of internet, which is shown in table 4.

Table 4: Categorization of the hindrances to use internet by age groups

Age group	Difficult to learn	Costly gadgets	Internet cost	slower speed of internet	difficult to learn the internet language
60-69	47.6	0	8.3	26.2	13.1
70-79	78.3	6.5	2.2	6.5	6.5
80-89	62.5	0	3.1	12.5	21.9
90-99	100	0	0	0	0

Findings and Discussion

The primary objective of the study was to assess the impact of demonetization on the digital inclusion of the elderly people. The findings reveal that though demonetization had impact on their daily life, majority of them were not forced to use the online transactions due to demonetization.

The majority of the respondents had the feeling that internet was not of much use to them. This can be due to the lack of understanding and confidence on 'how it works'. The same reasons have been pointed out in the report produced jointly by Age Concern and Help the Aged and BT in Britain. It can be seen that the same phenomenon is applicable across the

globe. Another concern is the security issues related with online transactions. The elderly are reluctant to do financial transactions online, main reason being lack of knowledge and practice. In this study it can be seen that a good percentage of the respondents are using internet to avail the government services. With the increase in e- governance activities, the respondents use internet to pay the bills, tax etc. These people are comfortable using the latest hand held devices like smartphone, tablets etc.

Even though majority of the respondents do support demonetization and digital inclusion there is a hesitation in using it and they prefer to have some awareness programs. A holistic model has to be developed to identify the ways in which banks, government and telecom sector could intervene by providing mechanisms to cater to the needs of the elderly people by ensuring the digital and financial inclusion of elderly people. Majority of the respondents were of the opinion that in order to attain digital literacy, banks should appoint a special officer, who can assist the elderly people in using the digital services technically and also to have special counters for elderly people. From the government what the elderly people expect is special awareness programs in order to promote digital literacy. The respondents also wanted the telecom industry to provide awareness programs especially in the village areas. Also most of them prefer to approach Akshaya centers for awareness programs and some of them even prefer Residents association.

Limitations of the Study

Although this study provides valuable contributions from a theoretical and practical perspective, there are a few limitations. This research was conducted by collecting data from elderly people from rural and urban areas in Kerala who are above the age of 60. People's beliefs and attitudes can vary across different regions and states. A probability sample in a different geographic area may reveal differences in consumers' attitudes towards the adoption of Internet banking. Future research can also undertake a comparative study between North India and South India. The study was limited to assess the impact of demonetization on digital inclusion. Future scope can look into the general digital inclusion areas and identify the factors that are relevant.

This study examined many factors that may influence consumers' adoption of Internet banking. However, there may be some other factors that can impact on customers' adoption of Internet banking but were not identified in this study. Further research is required to identify other factors that may impact on elders' adoption of Internet banking.

Moreover, this study focused on the customers' perspectives. Future research could focus on the banks' perspectives. Interviews with bank management could be conducted to discuss their strategies regarding the implementation of Internet banking.

The scope for a longitudinal study will be more useful in the case of such studies. It has been only one year since demonetization came to place. So the study if conducted after a time period of 2- 3 years could yield more beneficial results.

Conclusion

The study was conducted to mainly assess the impact of demonetization on digital inclusion of elderly people and to assess the attitude of elderly people towards technology and also to understand the internet and device usage by elderly people. The study has taken around 200 responses from the elderly people with special reference to Kerala, a southern state in India. The findings reveal that demonetization has not paved way for a substantial digital inclusion of elderly people, even though it has had an impact on their daily life. Moreover even though majority of the respondents use internet for their social media usage and for other entertainment purposes they are not confident enough in using internet for financial transactions and banking services. With the gaining popularity of e- government services, it can be seen that the use of internet for government services was also high. So in fact a holistic model has to be developed to identify the ways in which banks, government and telecom sector could intervene by providing mechanisms to cater to the needs of the elderly people by ensuring the digital and financial inclusion of elderly people.

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A Conceptual Model of Employee Work Habits for learning organisations

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Abstract

Man is the only active element in the factors of production compared to the other 4M's like Money, Materials, Machines and Methods. Hence organizations focus more on employee training and development which helps to improve employee performance and organizational effectiveness. Learning organizations focus on continuous improvement in employee performance and development (Jeffrey & Christopher (2005)). Covey's seven habits (Stephen R. Covey (1989)) explain the seven habits of highly effective people. This gave an insight into developing a conceptual model for nurturing work habits for employee performance. An attempt is made to create a model based on the result of the exploratory study on the relevance of these habits on employee performance. Peter Senge who popularized learning organisations by describing it as the place where a) employees continuously expand their capacity to create the results, which they aim, b) new and expansive patterns of thinking are nurtured, c) where collective aspirations are set and d) people continuously learn how to learn as a team. In this paper the covey's habits are linked with the characteristics of a learning organization and arrived at the conceptual model which leads for further scope of research in its applicability in the real time situation.

Key Words:- 4M's, Learning organizations, Organizational effectiveness, Seven habits, work habits, Employee performance,

Words Count:- 200

Introduction

Learning organisations created a bench mark for organisations' development by improving its learning curves on a continuous and systematic manner. The major activities of a learning organisations (LO) described are systematic problem solving, experimentation with new approaches, learning from their own experience and past history, learning from the experiences and best practices of others, and transferring knowledge quickly and efficiently throughout the organization. Each of these activities are connected with a distinctive mined-set, tool kit and a pattern of behavior. In this context an attempt is made to link the behavior patterns of performing employees with Covey's 7 habits and the characteristics of learning organisation.

The concept of Learning Organisation (LO) has been justified an organizational development strategy to acquire competitiveness and superior performance in a dynamic and challenging business environment. LO can be viewed as a social system whose organizational members have acquired the processes for continually generating, retaining and leveraging individual and collective learning, .

Objectives of the Study

- To identify the relevance of Covey's 7 habits in the employee performance based on an exploratory study
- To construct an Employee Work habit Model for learning organisations.

Literature Review

The literatures related to the seven habits and their influences in employee performance are depicted in this section.

, in their study investigated comparative relationships among focal proactive constructs and key organizational variables (i.e., job performance), personality traits (i.e., the Big Five), and individual variables (i.e., work experience). Results reveal significant correlations between proactivity and performance, satisfaction, affective organizational commitment, and social networking. (Sullo, 2009) Dr. Dweck's philosophy says, having a growth mindset means one is internally motivated. Being proactive denotes internal motivation.

Explored the complete performance improvement solutions by adopting new performance related vision, and a learning and performance strategy to improve employee performance improvement process. It also depicts the new roles, competencies and approaches to develop performance improvement expertise which are required in any organization. The habits of Begin with end in mind, put first things first are considered for performance improvement solutions.

Found the insights into ways that senior leaders can adjust their hiring and training strategies so positive workplace habits are enabled and negative ones are contained and minimalized so greater productivity can be engaged in the workplace.

Covey explains win-win based on the idea that one person's success is not achieved at the expense of other person's failure. He explains Win-win is about finding agreements and solutions that are mutually beneficial and satisfying (Covey, 2013). Covey's win-win philosophy is similar to Mary Parker Follett's early work in conflict resolution. For example, her integrated approach forms the basis of what is now commonly referred to as "win-win" (Tonn,2003).

Researchers identify listening with a different perspective apart from the dictionary meaning. "Listening is no longer considered a peripheral aspect of the communicative process" (Duker, 1964), Listening is the foundation of critical thinking" and understanding (Thompson & Lientz, 2004), Furthermore, a study by the U.S. Department of Labor identified listening, as an important skill people must learn along with their academic education in mathematics, reading, writing, and speaking, in order to be competent in the work place (U.S. Department of Labor, 1991).

Covey describes it as "two heads are better than one" (Covey, 2013), which is similar to the Henri Fayol's 14th principle, Esprit de Corps, which says individuals must work together to gain synergy (Laal & Laal, 2012), depicted in their research that "cooperative teams achieve at higher levels of thought and retain information longer than learners who work quietly as individuals.

"Sharpen the saw" is about exercising what Covey calls the four dimensions of our nature: physical, social/emotional, spiritual, and mental (Covey, 2013).

Methodology

Initially an exploratory study was conducted to explore the basic contextual background and the model was developed based on the theoretical link between the concepts. Convenience sampling method was used to collect the opinion from 25 HR managers who gave their response in the semi-structured questionnaire framed to know the relationship between employee performance and Covey's seven habits through the presence and absence of seven habits in performers and non-performers respectively. The opinion of HR managers was considered to verify the influence of employee's work behaviors and performance. Analysis of Variance is used to test the significant difference in opinion of HR managers in employee work behavior influencing their performance based on the nature of industry. And the model was developed based on the findings of the exploratory study the model was constructed leaving the scope for testing the same for future study.

Rationale Behind the Study:- The link between Covey's seven habits and Employee Performance

1. To be Proactive:- The proactive behaviors will help the employees in preparing themselves for any adverse and challenging conditions in the organization and this will help the employees to overcome the bottle necks which hinder their productivity. It also increases the speed and the employees will be able to complete their tasks on time.
2. Begin with the end in Mind:- This helps in visualizing the goal in a holistic manner and will support the organization in framing the right action plans to achieve the objectives. Employees who can visualize the end can easily meet their targets and will be able to be more productive.
3. Put first things first:- Employees who work systematically always are the winners. Where they plan their activities and put the first things first and also consider the priority by comparing urgent and important works.
4. Think Win-Win:- Team performance is the order of the day. Employees who have the habit of doing things in a Win-Win situation will be helpful for the organization to be

more productive. As Stephen Covey states in his book, “Win/Win is a belief in the Third Alternative. It’s not your way or my way; it’s a better way, a higher way.”

5. First understand and then be understood:- Learning organizations continuously provide training and these training will help potential employees to learn better. However the employees should have the attitude to learn and they need to understand before they pretend to be understood. Listening skills can be considered as a trait for performing employees.
6. Synergise:- The team performance will help the organisations more effective and the synergy will also create a motivation among the employees to have a healthy competition. The team performance will help in increasing the overall productivity of the organization in a win-win situation.
7. Sharpen the Saw:- As per the old wood cutter story, it is very important that the employees should keep their resources alive, and ready for their effective performance and the skills and knowledge are to sharpened for effective performance

Findings of the Exploratory Study

Table 1

Frequency and Percentage of HR managers’ opinion on the influence of the seven habits in better performance of employees

Opinion		Habit 1	Habit 2	Habit 3	Habit 4	Habit 5	Habit 6	Habit 7
Strongly Agree	Frequency	7	6	8	6	11	6	5
	Percentage	28%	24%	32%	24%	44%	24%	20%
Agree	Frequency	18	18	13	17	11	17	20
	Percentage	72%	72%	52%	68%	44%	68%	80%
Neither Agree Nor Disagree	Frequency	0	1	4	2	3	2	0
	Percentage	0	4%	16%	8%	12%	8%	0
Disagree	Frequency	0	0	0	0	0	0	0
	Percentage	0	0	0	0	0	0	0
Strongly Disagree	Frequency	0	0	0	0	0	0	0
	Percentage	0	0	0	0	0	0	0

Source: Primary Data

It is interpreted from table 1 that the HR managers agree that all the seven habits depicted by Covey helps to increase the employee performance in their organization and it is opined that the performers have these habits when compared to the poor performers.

Table 2

ANOVA based on type of industry and opinion of HR managers on habits as a predictor of performance					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.696	2	5.348	.511	.607
Within Groups	230.264	22	10.467		
Total	240.960	24			

Source: Primary Data

The above table 2 shows that there is no significant difference in opinion of HR managers on habits as a predictor of performance based on the nature of the industry, as the $F = 0.511$ is not significant ($0.607 > 0.05$).

Covey's 7 Habits

Stephen Covey explained the seven habits of human beings which make them more effective. Learning organisations continuously try to improve employee performance through training and development. The seven habits and its role in employee performance are explained as follows.

1. Be Proactive
2. Begin with the end in mind
3. Put First things first
4. Think Win-Win
5. First understand and then be understood
6. Synergize
7. Sharpen the saw

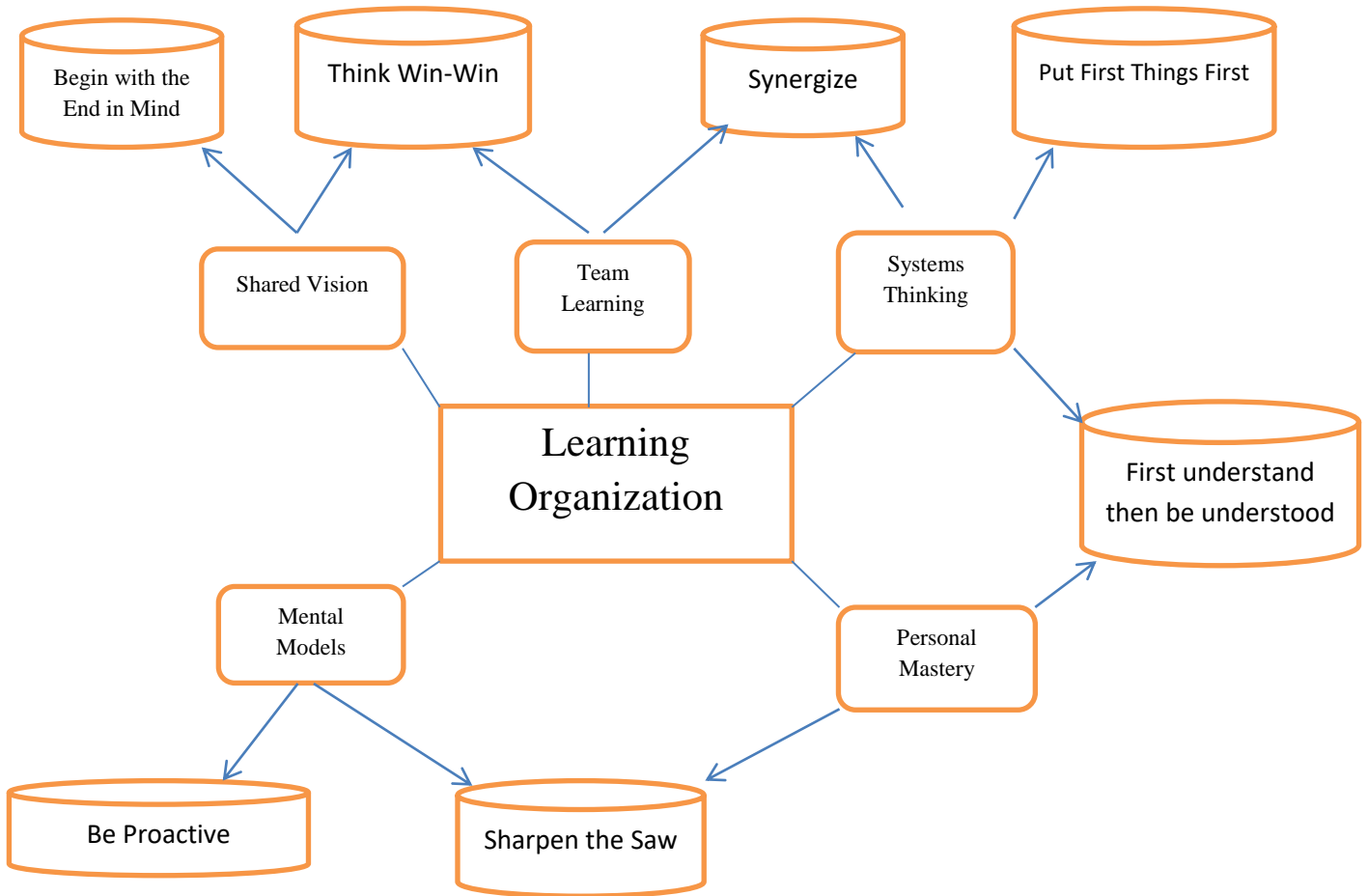
The features of learning organization

- A. Shared Vision
- B. Systems Thinking

- C. Personal Mastery
- D. Team Learning
- E. Mental Models

Employee Work Habits model for learning organizations

Figure 1



Developed by Dr. Rajeswari.R and Dr. Deepa Pillai 2019

Figure 1 depicts the relationship between the variables and its influential path. This model is created based on the conceptual relevance and the link between the variable in Covey’s seven habits and the features of the learning organisations. It is said that the five features of learning organisations required the seven habits of people in the way it is linked.

The organisations who aspire for continuous improvement and effectiveness should try to cultivate these seven habits in their employees for better work habits and behaviours which will intern help the organization to achieve its goals. The success of the model depends on the result of the future research by collecting the data to test the relationships among the variables.

Scope for further Research

There is a scope for further research in this area to implement the Employee Work Habit Model in a learning organization and measure the outcome of performance to validate the model.

Conclusion

The opinion of HR managers is considered as basic information to explore the relevance of the Covey's seven habits in employee performance. It is found that the performing employees possess these habits and cultivating these habits in employees helps them to perform better. And based on the literature review inputs a conceptual model is framed linking the features of learning organisations with the seven habits. Hence it concluded with a remark that the seven habits can be considered as a predictor of employee performance as well as the features of learning organisations and companies can develop strategies to cultivate these work habits in their employees which make the organization effective with high employee performance and organizational effectiveness.

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An Efficient Citrus Canker Detection Method based on Contrast Limited Adaptive Histogram Equalization Enhancement

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Abstract

Plant leaf disease is one of the critical causes for heavy loss of yield that reduces quantity and reduces quality of the agricultural product. Citrus plants such as lemon are mainly affected by citrus canker disease which affects the fruit production of the plants. Early canker disease identification is one of the challenging solution for increasing the plant production. This paper aims to identify and classify the canker disease accurately from the affected leaf images by adopting image processing techniques to detect plant leaf diseases from digital images. The proposed approach involves two stages to improve the clarity of leaf images. The primary stage uses Contrast Limited Adaptive Histogram Equalization (CLAHE) in pre-processing step which improves the contrast level of disease affected leaf image, segment the region of interest using K-mean Clustering and texture feature extraction using statistical GLCM. The second stage by adopting the Support Vector Machine classifier to detect the canker leaf image and implements these methods in lemon citrus canker disease detection. Experimental results show effective accuracy detection and reduced execution time of canker disease detection.

Keywords: Citrus Canker Disease, Image Processing Techniques, Histogram Equalization, Gray-Level Co-Occurrence Matrix and Support Vector Machine.

INTRODUCTION

The agricultural land mass is more than just being a feeding sourcing in today's world. Indian economy is highly dependent of agricultural productivity. The occurrence of the disease on the plant result in substantial loss in both quality as well as the quantity of agricultural product. This can create the negative impact on the countries whose economies are primarily dependent on the agriculture. Hence the detection of the disease in plants is significant to avoid the financial loss.

In recent years, the leading severe disease is citrus canker and it is considered as one of the major disease among plants. Citrus plants such as lemon, orange are a long duration crops and traditional medicine plants are affected by a canker disease which appears as bacterial spot. The proposed approach considers lemon leaves for classification of citrus canker disease because of high commercial cultivation crop. Lemon is an important source of vitamin C and contains flavonoid

compounds that have distinct antioxidant and anti-cancer properties [2].

Citrus canker is a bacterial disease that affect the premature leaves and fruits of citrus plants. Initially, the infected leaves have some white spongy spots and that will turn to grey or brown later. The spots consist of oily margins or yellowish ring (lesions), which can appear on both sides of the leaves shown in figure 1. This disease can be detected by the appearance of lesion on groves, stems and leaves. The symptoms are appear as yellowish spots or halos on leaves that gradually enlarge to 2 – 4 mm dark brown pustules [7].



Figure 1 Citrus Canker Lesions in leaf and fruit

This citrus canker disease is caused by the bacterium *Xanthomonas Axonopodis* PV. Citric (XAC). The infection of citrus canker results in defoliation, dieback, tarnished fruit, reduced fruit quality, premature leaf and fruit and at last the trees will produce no fruits. Citrus canker is highly infectious and can be spread rapidly by wind, rain, landscaping equipment, people work in field, moving infected or exposed plants or plant parts and it is difficult to eradicate. Detecting citrus canker at the early stage is the key to control and spreading of this disease.

Digital image processing [9] and image analysis technology based on the advances in real time applications such as microelectronics, computers, medicine and biology and it able to circumvents the problems. In this paper a new model for enhancement of pre-processing image with efficient contrast and to predict the canker disease in citrus plant (lemon) by classifier is implement. This approach aims to use contrast enhancement techniques [21] to enhance the image quality and to classify the citrus canker affected leaf by Support Vector Machine classification. This system which can provide more accurate results related to the identification and classification of

disease. From an innovation perspective, the research contributions are as follows,

- a) To enhance the quality and contrast of citrus leaf image by adopting a Contrast Limited Adaptive Histogram Equalization (CLAHE) enhancement techniques.
- b) Presenting a framework for citrus canker diseases detection in citrus lemon leaf classification by implementing Support Vector Machine.

The remainder of this paper is organized as follows; Section II reviews briefly explains about the image processing techniques employed in plant disease detection, various classifiers used for citrus detection and limitations are identified. Section III presents the image processing techniques for canker detection in citrus leaf with classifiers. Experimental Results of the proposed technique are presented in Section IV. Finally, Section V concludes the paper.

RELATED WORKS

Various techniques of image processing and classifiers techniques have been developed for detection of canker diseases occurring on plant leaves, stems, lesion etc. Yue et.al [1] introduce intrinsic image decomposition priors into deterioration models for contrast enhancement named as Contrast Limited Adaptive Histogram Equalization (CLAHE). To enhance the pictures by modifying the decomposed enlightenment layer to improve under (finished) uncovered pictures. The histogram-based strategies image contrast by altering histogram appropriations. The two fundamental modules are intrinsic image decomposition and illumination adjustment are utilized to improve the quality of image.

Thangadurai and Padmavathi [7] presented a Computer vision image enhancement utilizing hereditary algorithm in plant leaves infection. Plant leaves diseases identification is utilized caught pictures for diseases analyzes and detection. Hereditary algorithm such as Genetic algorithm is utilized to discover the optimal solution and used to tackle issues in disease detection. In which grayscale pictures are anything but difficult to process and execute for different applications since they have better clarity and suited for examination than RGB pictures Histogram equalization out is utilized to increase the images clarity. The resultant images accomplish the improvement in image quality.

Menukaewjinda *et al.* [14] developed an Artificial Neural Network (ANN) i.e. Back Propagation Neural Network (BPNN) for grape leaf color extraction with complex background. The integration of Modified Self-Organizing Feature Map (MSOFM) and Genetic Algorithm (GA) are implemented which provide automatic adjustment in parameters for grape leaf disease color extraction.

The maize disease image recognition of corn based on Back Propagation (BP) networks effectively developed by Song Kai *et al.* [13] YCbCr color space technology is adopted to segment disease affected spot, Co-Occurrence Matrix (COM) spatial gray level layer is used to extract disease spot texture feature, BP neural network has been used to classify the maize disease. The applications of K-means clustering as well as BP neural

networks are estimated for clustering and classification of diseases.

Gavhale et.al [2] presents an image processing technique for detection of unhealthy region of Citrus leaf. There are four sorts of citrus diseases specifically Citrus ulcer, Anthracnose, Overwatering and Citrus greening. The proposed system includes image acquisition is the initial step for capturing picture by computerized camera to make database. Color space conversion and image enhancement is done in picture pre-preparing. Discrete cosine transform domain is utilized for image enhancement. YCbCr color system and $L^*a^*b^*$ color space are decided for color space transformation. In feature extraction statistical technique, utilizing Gray-Level Co-Occurrence Matrix (GLCM) to see measurements, for example, contrast, energy, homogeneity and entropy using gray crops enhancement.

Mokhtar *et.al* [3] present image processing technique for Tomato leaves diseases detection. In pre-processing stage a few strategies are applied for image enhancement, smoothness, remove noise, picture resizing, image isolation, and background removing. Gabor wavelet change and Support vector machine are implemented for identification and classification of tomato diseases. In feature extraction stage with the assistance of Gabor wavelet change include vectors are acquired for next classification stage. In classification phase, Support Vector Machine (SVM) is prepared for distinguishing the classification of tomato diseases.

Mitkal et.al [4] introduced an image processing technique for Sugarcane leaf detection disease. In preprocessing steps RGB images are converted to grayscale and unwanted part of data from the images is removed. Segmentation finds the diseased part of given image which contains green pixels and potentially infected area. Linear SVM, Nonlinear SVM and Multiclass SVM are used in feature extraction for disease detection.

PROPOSED METHODOLOGY

Image processing [10] has play a terribly important role in agriculture field because of widely accustomed observe the crop disease with high accuracy. For classification and detection of plant disease, digital image method is extremely effective in providing better detection for characteristic diseases at its early stages. Image processing techniques [12] is applied on various applications which includes to detect plant leaf, stem, and fruit diseases and to find the edges, color of the affected area. This paper focused mainly to improve the image quality with greater clarity by CLAHE enhancement techniques [18] in pre-processing stages and to detect the canker disease by classifiers. The following image processing techniques steps are used to detect the disease and Support Vector Machine are applied to get optimal solution of the canker disease are shown in figure 2.

Image Acquisition

Image acquisition is the initial step for citrus canker detection. The canker disease affected citrus lemon leaf images are captured by high resolution digital camera and saved as image

processing supported format such as JPEG, TIF, BMP, PNG etc. The input captured image is then resized to 512 x 512 pixels.

damaged image should be pre-processed which reduce the effect made by the background.

Image Pre-processing

Image pre-processing is a second step of canker detection mainly it is used to improve the captured image data which suppress the distortions and also enhances the image features for further process that is more convenient to a human observer. Pre-processing step includes various techniques like image resize, filtering, morphological operations etc.

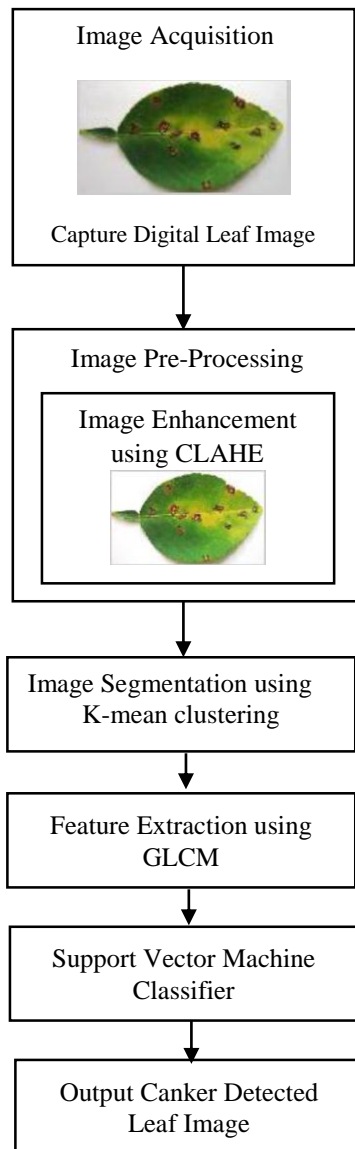


Figure 2 Flowchart for Citrus Canker Detection

The captured leaf images are resized to a fixed resolution. Since the images are captured from the fields, it contains some inevitable noises which are removed by filters such as Gaussian, median, Linear, Low pass, high pass filters etc., which will be selected depends upon the noise level of the images. Image pre-processing techniques includes image enhancement where the affected areas are enhanced with high quality. At first the

Image Enhancement

The color images are observed blindingly different for human visual perception which computes the conscious representation. Image enhancement it is adopted to improve the interpretability, visibility and quality of the image. The mainstream enhancement methods are Histogram Equalization which distributes the intensities of the images by increasing image contrast from low to high. Histogram equalization [1] creates an output image with a uniform histogram which flattens and stretches the dynamic range of the intensity levels of the images due to its simplicity and effectiveness. However, it will change the brightness of the image and may result in highly contrast enhancement. To find the mapping for each pixel based on local (neighborhood) grayscale distribution in targeted image.

In some cases, the histogram equalization it not be desirable to transform very low-contrast images because of highly localized grayscale distribution. For this situation the mapping curve may include segments with high slopes, that two very close grayscales might be mapped to significantly different grayscales. This issue is resolved by limiting the contrast through histogram equalization [15]. HE faces certain constraints, such as brightness preservation, contrast limitation and weighted adjustment. The integration of this contrast limiting approach with the adaptive histogram equalization [16] results named as Contrast Limited Adaptive Histogram Equalization (CLAHE).

CLAHE

Contrast Limited Adaptive Histogram Equalization (CLAHE) has produced good statistical estimation results on medical, computer and real time applications [8]. This CLAHE is framed based on partition the targeted image to certain non-overlapping regions of equal sizes. For 512×512 images, the number of regions is randomly selected which is equal to 64 achieved by equally dividing the image by 8 in each direction. For an instance, the sample division is shown in figure 3. This partition results in three different groups of regions.

The first one is Corner Regions (CR) four sides of images. The second region consists of 24 regions, is the Border Regions (BR) includes all regions on the image border, excluding the corner regions. The last one consists of all the remaining 36 regions, as Inner Regions (IR). To improve the image enhancement at first, histogram for each region is calculated based on a limit for contrast expansion, a clip limit for clipping histograms. Then estimated histogram is redistributed in such a way that its height does not go beyond the clip limit. In this case, for each grayscale, number of pixels with that grayscale in the region is counted. Collection of these counts for all grayscales is referred to as histogram of that region.

Finally, Cumulative Distribution Functions (CDF) [8], is calculated for CLAHE grayscale mapping then the histogram equalization is obtained by using an estimation of the CDF. For each region the numbers of pixels and grayscales, are defined as

M and N , and if $h_{i,j}(n)$, for $n = 0, 1, 2, \dots, N-1$, is the histogram of (i, j) region, then an estimate of the CDF, which is scaled by $(N - 1)$ for grayscale mapping, are represented as follows

$$f_{i,j}(n) = \frac{(N - 1)}{M} \cdot \sum_{k=0}^n h_{i,j}(k) \quad n = 1, 2, \dots, N - 1 \quad \text{---(2)}$$

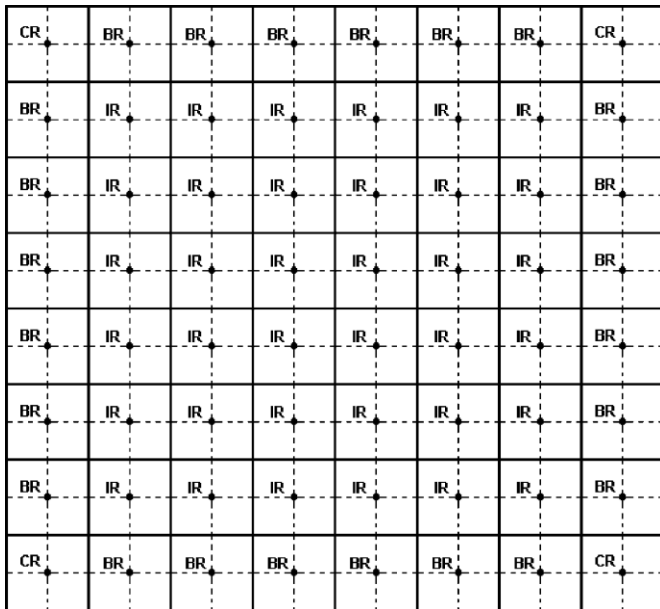
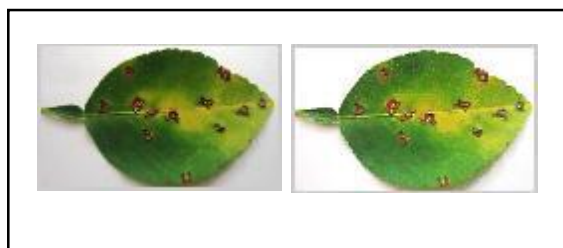


Figure 3 Structure of Leaf Regions in a 512×512 Square Image

This histogram function used to convert the given grayscale density function, approximately, to a uniform density function. In the CLAHE technique, each pixels are mapped by linearly combining the partition results from the mappings region of the four nearest regions. CLAHE formulation of histogram equalization for IR group is straightforward. However, for regions in CR and BR groups this formulation requires some special consideration. When the leaves images noises are removed, then by enhancement techniques the quality of the images will be improved are shown in figure 4. Finally the highly enhanced citrus leaf images are obtained. The next process is to extract leaf disease region in the image using image segmentation method.



Original Image

Enhanced Image

Figure 4 Image Enhancement using CLAHE

Image segmentation

The citrus canker diseased leaves images are partitioned into multiple segments by using segmentation process. Segmentation is used to segment the interest disease affected portion of the leaves images. There are various techniques are used for image segmentation such as clustering methods, compression based methods, histogram-based methods, region growing methods, etc. In this system k-means clustering algorithm is used for the segmentation of image which is totally dependent on the features and characteristics of image.

In segmentation, image is divided into a small significant segment known as clusters [5]. K-means technique detects the clusters from the processed image. The input for k-means clustering image has N objects of citrus leaves are to be cluster (X_1, X_2, X_N) and K is the number of cluster. Output is the addition of dissimilar citrus leaves and finally diseased leaf portion is obtained. However, K-means clustering is used to separate the leaf image into different clusters if a leaf contains more than one disease. K-means clustering has good adaptability and also suitable for large set of information. At the end of the segmentation process, the diseased portions of the leaves are extracted.

Feature extraction

In plant diseases detection, each leaves have unique feature characteristics which play a fundamental role in classification of disease. In this approach, leaves image features include texture, color, shape are considered for disease detection. In this system by considering the texture portion which is the most significant features for image classification and retrieval. Here texture features of diseased leaf includes Contrast, Energy, Local homogeneity, Cluster shade and cluster prominence are computed by Gray-Level Co-Occurrence Matrix [7]. This method allows computing some statistics describing texture.

Gray-Level Co-Occurrence Matrix (GLCM) - GLCM is the statistical method of analytical texture which considers the spatial relationship of each pixels [2]. The GLCM characterize the texture leaf image by calculating the pixel occurrence in an image with specific values and in a specified spatial relationship. By creating a GLCM followed by extracting statistical measures from this matrix.

Contrast - It is the measure of pixel intensity contrast and its neighbor pixel of the target image. If the target image is equal to 0 the largest value of the image is obtained. It can be defined as

$$Contrast = \sum_{i,j=0}^{N-1} P_{ij} (i - j)^2$$

Energy - Energy is a measure of uniformity with squared elements summation in the GLCM, it lies in the range between 0 and 1. If the energy is 1 for a constant image then it can be represented as

$$Energy = \sum_{i,j=0}^{N-1} P_{ij}^2$$

Homogeneity - It is the measures of the closeness of the distribution of elements towards the diagonal in the GLCM and

lies in the range between 0 and 1. Homogeneity is 1 for a diagonal GLCM and it is defined as

$$Homogeneity = \sum_{i,j=0}^{N-1} \frac{P_{ij}}{1 + (i - j)^2}$$

Correlation - Correlation measures how correlate a pixel to its neighbor pixel over the whole image and lies between -1 and 1 [2].

$$Correlation = \sum_{i,j=0}^{N-1} P_{ij} \frac{(i - \mu)(j - \mu)}{\sigma^2}$$

where,

P_{ij} = Element i, j of the image

N = Number of gray levels

μ = mean value of all pixels in the relationships that contributed to the GLCM, it is calculated as:

$$\mu = \sum_{i,j=0}^{N-1} i P_{ij}$$

σ^2 = variance of the intensities of all reference pixels calculated as:

$$\sigma^2 = \sum_{i,j=0}^{N-1} P_{ij} (i - \mu)^2$$

After the texture features extraction, find out the stage of the disease. According to the leaves color and result of texture features, the disease level can be identified.

Classifier

The Support Vector Machine (SVM) classifiers are adopted differentiate citrus leaf disease. SVM is used to classify disease on their texture feature. It constructs a hyper plane in a high dimensional space that can be used for classification. For given citrus leaves image a set of points belonging to either one of the two classes, an SVM finds a hyperplane having the largest possible fraction of points of the same class on the same plane. This separating hyperplane is called the Optimal Separating Hyperplane (OSH) that maximizes the distance between the two parallel hyper planes and can minimize the risk of misclassifying examples of the test set.

Given labeled training data as data points of the form

$$M = \{(x_1, y_1), (x_2, y_2), \dots, (x_n, y_n)\} \quad \text{-----}(2)$$

where $y_n = \pm 1$, a constant that denotes the class to which that point x_n belongs. n = number of data sample. Each x_n is a p -dimensional real vector. The SVM classifier first maps the input vectors into a decision value, and then performs the classification using an appropriate threshold value. To view the training data, by divide (or separate) the hyperplane, which can be described as:

$$\text{Mapping: } w^T \cdot x + b = 0$$

where w is a p -dimensional weight vector and b is a scalar. The vector w points perpendicular to the separating hyperplane. The offset parameter b allows increasing the margin. When the training data are linearly separable, select these hyperplanes so that there are no points between them and then try on maximizing the distance between the hyperplane. Found out that the distance between the hyperplane as $2/|w|$. To minimize $|w|$, need to ensure that for all i either

$$w \cdot x_i - b \geq 1 \text{ or } w \cdot x_i - b \leq -1 \quad \text{-----}(3)$$

Training dataset consist of 70 sample images of both citrus leaf and testing dataset consist of 30 images of disease sample. The classifier trains the diseased leaf on the training set applies it to the testing set and then measure performance by comparing the predicted samples and it gives output as presence of canker disease in citrus plant.

EXPERIMENTAL RESULTS

The performance evaluation of canker detection is implemented using MATLAB under windows environment. This proposed method is evaluated on citrus (lemon) leaves to detect the canker detection. This proposed method adopted by two steps are to enhance the image quality and to detect the canker detection in citrus leaves. In pre-processing step CLAHE is applied to enhance the image quality and SVM classifier is used to detect the canker affected leaves. The various training and testing samples are used and compare with targeted citrus leaf shown in table 1.

Table 1. Training and Testing Set

Classifiers	Training Images	Testing Images
Without CLAHE Enhancement-SVM	70	30
With CLAHE Enhancement-SVM		

Performance Metrics

The proposed methods are evaluated and compared with various classifiers such as K-NN and Navies Bayes in terms of certain performance metrics such as FAR, FRR, GAR, EER and Execution Time.

Equal Error Rate (EER) - It is used to calculate the error rate of performance operating under verification task.

False Rejection Rate and False Acceptance Rate (FRR and FAR) - It is used to measure the process with the system to enroll or getting rejected. FAR defines as the system will incorrectly accept the canker leaves. FRR defines as the system will incorrectly reject the canker leaves,

$$FAR = \frac{\text{wrongly accepted sample}}{\text{Total no of wrong match}}$$

$$FRR = \frac{\text{wrongly rejected sample}}{\text{Total no of corrected match}}$$

Genuine Acceptance Rate (GAR) - This is defined as a percentage of genuine canker leaves accepted by the system.

Table 2 shows the comparison of proposed performance is evaluated in terms of without applying CLAHE enhancement and with CLAHE enhancement in pre-processing steps. Then the output of pre-processing is forwarded to other techniques and compared with various classifiers.

Table 2: Performance Comparison of Canker Detection

	Classifiers	FAR (%)	FRR (%)	GAR (%)	EER	Execution Time (ms)
Without CLAHE Enhancement	K-NN	3	2	97	0.72	0.64
	NB	4	4.5	96	0.62	0.57
	SVM	5	6	95	0.54	0.41
With CLAHE Enhancement	K-NN	4.5	4	95.5	0.43	0.33
	NB	5	6	95	0.33	0.25
	SVM	6	8	94	0.24	0.19

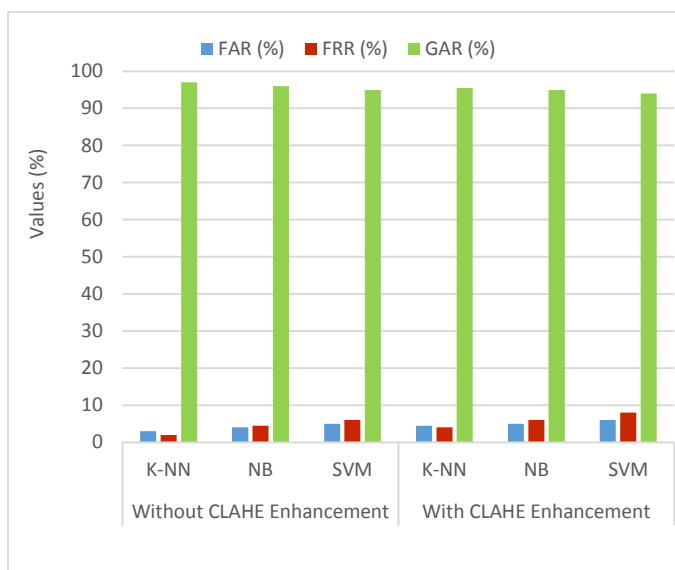


Figure 5 Accuracy Comparison for CLAHE Enhancement

The above figure shows Accuracy prediction of canker detection disease in citrus leaves in terms of FAR, FRR and GAR. It is clearly noted that the pre-processing step with CLAHE Enhancement achieves efficient result integrated with SVM classifiers. The SVM classifiers achieves the good prediction rate for differentiating the canker disease.

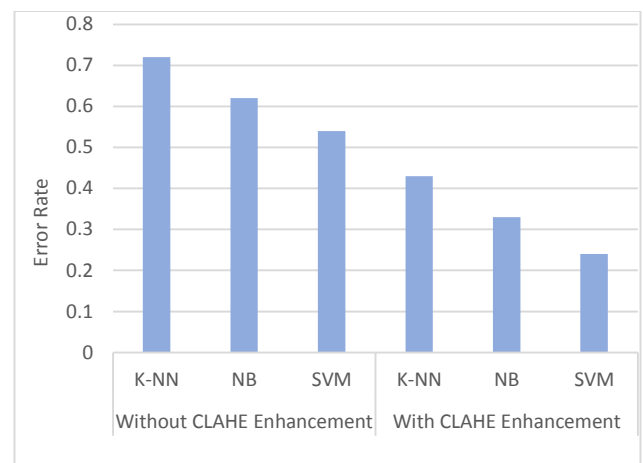


Figure 6 Error Rate Comparison

Figure 6 shows the Error rate comparison of various classifiers in terms of CLAHE Enhancement. The SVM classifiers shows less error rate when compared to other classifiers.

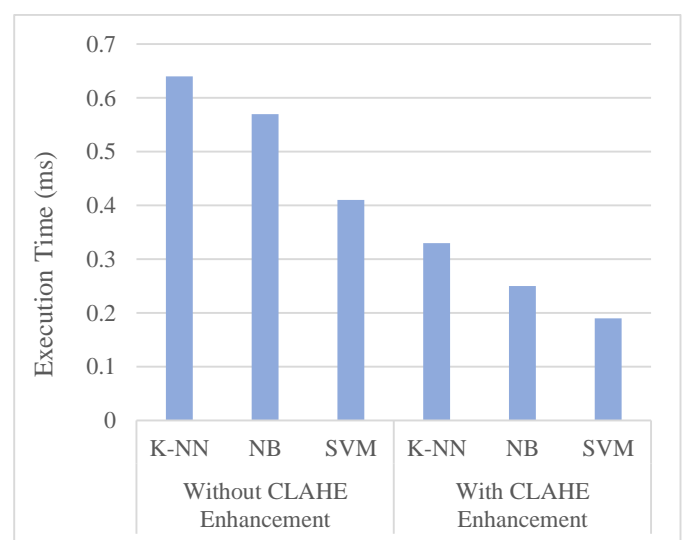


Figure 7 Execution Time Comparison

Figure 7 shows the Execution time comparison of various classifiers in terms of CLAHE Enhancement. The SVM classifiers shows less execution time for detection of canker disease in citrus plant. Less execution and high accuracy will be the effective result for canker prediction.

CONCLUSION

Citrus plant plays an important role in agriculture and medical field. So, this paper represents an approach for canker detection in citrus and enhance the image quality. Digital Image Processing techniques can be employed to detect leaf diseases with accuracy compared to the traditional methods. The paper discussed the CLAHE enhancement method to improve the image quality that can be used to detect Citrus Canker Disease. First the sample leaves images are acquired and segmented into

multiple parts. Then GLCM color and textures features are extracted and SVM classifiers are applied to detect the disease of the leaves. Experimental results demonstrate that our enhancement model outperforms well in terms of image enhancement and the canker detection based classifiers achieves the efficient results of accurately detecting and differentiate the canker leaf disease.

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Examining the relationship between critical success factors of total quality management implementation and business performance: a structural equation modelling approach

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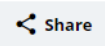
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Abstract

The objective of the study is to examine the relationship between critical success factors of total quality management implementation and business performance. A survey method of data collection was adopted to collect primary data from small-scale manufacturing organisations in a regional manufacturing cluster. The two-step structural equation modelling approach is followed to examine the relationship between critical success factors of total quality management implementation and business performance. The study identified seven critical success factors such as top management commitment, customer focus, strategic planning, process management, people management, leadership, and supplier management which play a major role in determining the success of quality management practices. The study also found that there is a strong positive relationship between total quality management practices and business performance, and contributes to the growing body of literature.