A SURVEY TO FIND THE ASSOCIATION BETWEEN TECHNOLOGY PLATFORMS AND COSTING OF PROPOSED SOFTWARE WITH SPECIAL REFERENCE TO EDUCATIONAL SOFTWARE

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ABSTRACT

Development organizations developed the softwares as per the requirements of clients, and hence all softwares are unique in nature. It is an essential task for software organization to deliver quality product, keeping the cost within client's budget constrain and deliver the project as per scheduled.

Cost of proposed software is based on various parameters like total time, total effort, size, total functions, technology, product reliability, security and product complexity. This study attempts to investigate the association between technology platforms and Costing of proposed software.

Keywords: *Technology Platforms, Software Cost Estimation, Product Reliability, Security and Product Complexity.*

1. Introduction

One of the many challenges in software engineering is the estimation of the effort, schedule and cost necessary to develop a software system. The most common metric to assess an estimation methods, is the accuracy of the estimates made. Cost of proposed software is based on various parameters like total time, total effort, size, total functions, technology, product reliability, security and product complexity. (Barry Boehm, 1998) Accuracy in estimated cost for proposed software is very important in any domain because, estimated cost works as an input for overall project management and if the input is wrong then the entire system and its output goes wrong. Estimated cost is the major input to the planning process and very important for budgeting, bidding and investment decisions. The particular difficulty in estimating software projects is related to the facts that software is immaterial and that the major development expenses are labor costs for the developers.

During the estimation process, future values are predicted using historical project data and making assumptions about present and future project characteristics. To enable economically wise decision making for software development, it is thus essential to reduce uncertainty and accurately estimate the effort, development time, number of required developers and cost.

After identifying the efforts and costs it becomes important to reduce the cost by choosing proper technology, methods of development / deployment. For example, if web development platform is chosen and certain libraries, frameworks like SCRUM (Sara Ashraf, 2017), Drupal, Joomla (Quadri, 2011), Moodle (Dr. Dharmendra Chourishi, 2011) etc. are

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used, and then the development time, efforts and direct and indirect costs can be reduced, Agile cost estimation (Zulkefli Mansor, 2011) (Mahdi JAVANMARD, 2015) process can produce more accurate result and can reduce effort, time and cost, If we use object oriented software development methodology then it will reduce the development time, resources, effort and indirectly cost for software development. (Guimaraes, 2016), (Urdhwareshe, Aug. 2016). Similarly use of cloud computing reduces estimated cost. (Talia), (Aljabre, January 2012)

2. Research Methodology

Technology being used for the proposed software is key issue in the development of any software. Technology risks are derived from the software or hardware technologies that are being used as part of the system being developed. Using new or emerging or complex technology increases the overall risk, it can increase the time, efforts etc. Under most circumstances regulatory cost estimates ignore the possibility of technological progress. Technical factors plays main role in cost estimation, but these factors are not stable they are changing.

As the budget of proposed software is the main base for every software project management from developer's as well as customer's point of view. Generally Customers may or may not be aware about the technology used for the software. In this study customers from educational fields are considered as first respondent while software developers are considered as second respondents.

It is decided to investigate the association between technology platforms and Costing of proposed software with Special Reference to Educational Software. On the basis of this objective one hypothesis was framed as 'There is no association between technology platforms and Costing'

The researcher has collected the primary data through Purposive Sampling Method to select 300 respondents from software development organizations and 52 respondents from educational institutions. The researcher has designed two different questionnaires one for IT Industries and another for educational field for data collection.

To test this hypothesis following research questions were asked to the respondents from IT Industries.

1. While estimating cost of educational software development, which cost parameters are on your priority?

2. From the following which are the Web technologies that can affect (makes cheaper or expensive) the estimated cost of educational software (by affecting its development time, effort, resource, size etc.)?

Sr. No	Web Technologie	Cheaper	Expensive
1.	Word press		
2.	Joomla		
3.	Drupal		
4.	Moodle		
5.	Plone		

3. From the following which are the Frameworks that can affect (makes cheaper or expensive) the estimated cost of educational software (by affecting its development time, effort, resource, size etc.)?

Sr. No.	Frameworks	Cheaper	Expensive
1.	Scrum		
2.	Agile System development		
3.	Ruby on rails		

To test this hypothesis following research questions were asked to the respondents from educational fields

1. While raising order for software developments, do you aware about the technologies used for this software development?
   · Yes
   · No

2. While bargaining for cost of your proposed software whether you compromise with-
   · Time
   · Quality
   · Efficiency
   · Security

· Functionality
· Technology
· Other

3. Instead of the project cancellation due to cost whether you are ready to compromise with the technology for the software?
   · Yes
   · No

1. **Result And Analysis**

3.1 Analysis of Responses towards the IT industries

3.1.1 Importance of cost parameters while developing educational software.

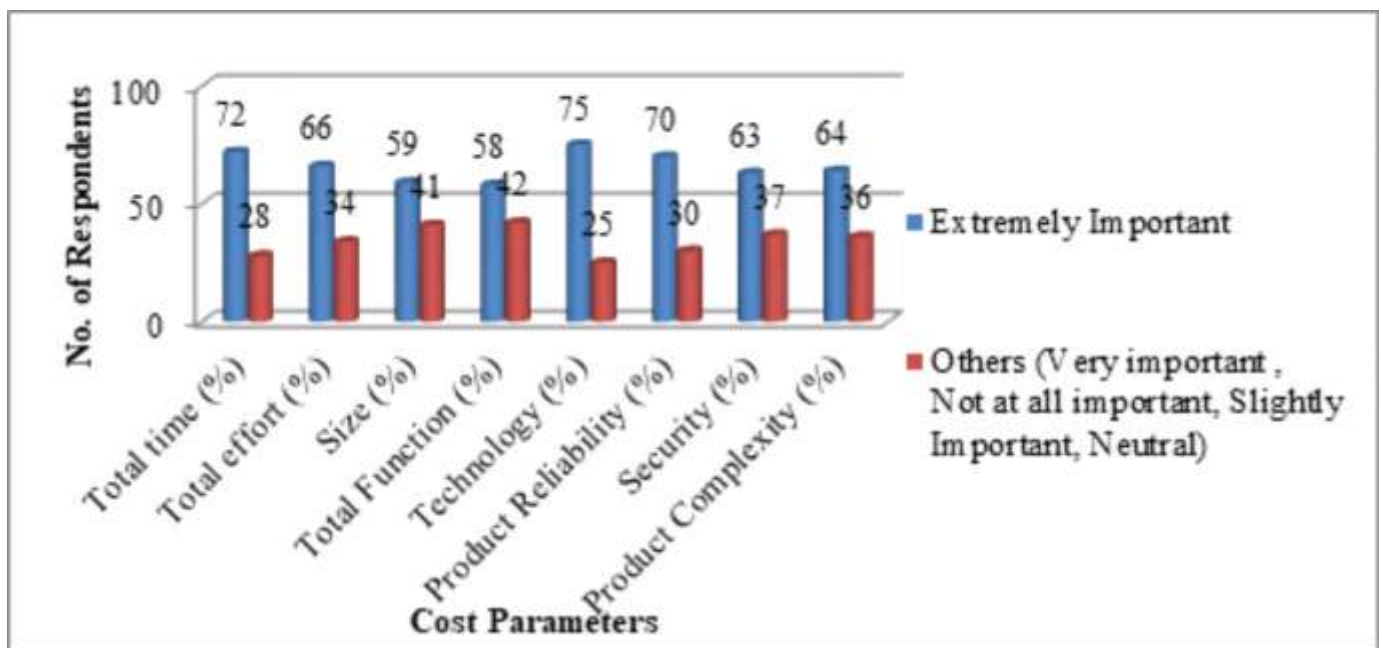*Figure 1.1. Importance of cost parameters while developing educational software*

Figure 1.1 shows that, 75% respondents gave priority to Technology required to develop the software, 72.0% respondents gave priority to Total time required to develop the software, 70.0% respondents gave priority to Product reliability, 66.0% respondents gave priority to total efforts and 64% respondents gave priority to product Complexity, and 63% gave priority to product security. It shows that mostly technology, Total time, and Product Reliability are the dimensions on the priority of the organizations while estimating cost of proposed educational software.

3.1.2. Web technologies that can be used to reduce the estimated cost of educational software

Table 1:Web technologies that can be used to reduce the estimated cost of educational software

Web Technologie	No. of Responses		Percent of Cases
	Responses	Percent	
WordPress	211	34.0%	70.3%
Joomla	212	34.2%	70.7%
Drupal	153	24.7%	51.0%
Moodle	22	3.5%	7.3%
Plone	6	1.0%	2.0%
Other	16	2.6%	5.3%
Total	620	100.0%	206.7%

Table 1 shows that, according to 70.7% respondents Joomla can reduce the development cost of educational software, according to 70.3% WordPress can reduce the development cost of educational software, while according to 51.0% respondents Drupal can reduce this development cost, very few respondents agree that other technologies can reduce the development cost.

3.1.3. Standard Frameworks and Libraries that can be used to reduce the estimated cost of educational software

Table 2 : Standard Frameworks and Libraries that can be used to reduce the estimated cost of educational software

Standard Frameworks and Libraries	No. of Responses		Percent of Cases
	Responses	Percent	
SCRUM	191	42.0%	63.7%
Agile System Development	216	47.5%	72.0%
Ruby on Rails	38	8.4%	12.7%
Other	10	2.2%	3.3%
Total	455	100.0%	151.7%

Table 2 shows that according to 72.0% respondents, Agile System Development can reduce the development cost of educational software; according to 63.7% SCRUM can reduce the development cost of educational software, while according to 12.7% respondents, Ruby on Rails can reduce this development cost. Some respondents also mentioned that Frameworks and open source technologies, Windows Azure can reduce the development cost and one respondent also added one point that most of the educational software's are robust in nature so most of the time agile methodology is not needed.

If projects are complex and having several recursive

changes needed then the agile system can be helpful to reduce development costs as are open sources too.

According to one of the objective of this research, that is to identify the ways to reduce the development cost of educational software, this analysis is very important in this research because it shows that Agile System Development, SCRUM and Ruby on Rails can reduce the development cost of educational software.

3.2 Analysis of Responses towards Educational Institutions
3.2.1. Awareness of respondents about the technologies used for the software development

Table 3 : *Awareness of respondents about the technologies used for the software development*

Awareness about the technologies used	Frequency	Percent
No	6	11.5%
Yes	46	88.5%
Total	52	100.0%

Table 3 shows that 88.5% respondents from educational field are aware about the technology used for their educational software while only 11.5% respondents are not aware about the technology used for their softwares. This analysis shows that maximum respondents are aware about the technology used for their software's.

1.2.2. Parameters of software with which respondents are ready to compromise during negotiation for estimated cost

Figure 2: *Parameters of software with which respondents are ready to compromise during negotiation for estimated cost*
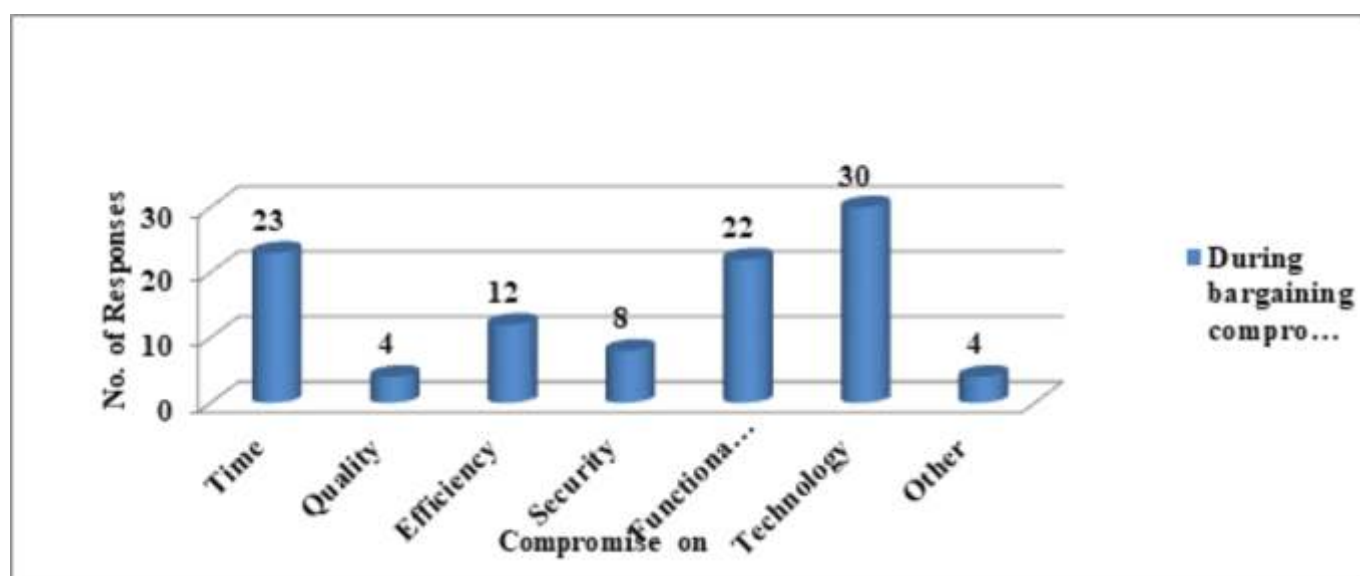
Figure 2 shows that, 57.7% respondents are ready to compromise with technology, 44.2% respondents are ready to compromise with time, 42.3% are ready to compromise with functionality and 23.1% are ready to compromise with efficiency, while very few are ready to compromise with other parameters like Quality, Security. From this analysis we can notice that most of the respondents are ready to compromise with Technology, time, functionality rather than compromising with other important factors like quality and security.

3.2.3. Whether respondents are ready to compromise with the technology for the software rather than project cancellation

Here data collected from the respondents to know whether they are ready to compromise with the technology for the software rather than project cancellation is presented in Table 4.0.

Table 4 : Whether respondents are ready to compromise with the technology for the software rather than project cancellation

Ready to compromise with the technology	No. of Responses	Percent
No	10	19.2%
Yes	42	80.8%
Total	52	100.0%

Table 4 shows that 80.8% respondents are ready to compromise with the technology for the software rather than the project cancellation while 19.2% respondents are not ready for it. We can say that most of the respondents are ready to compromise with the technology used for the software rather than project cancellation.

Frequencies

4. Hypothesis Testing

Hypothesis - There is no association between technology platforms (Web Technologies and Frameworks) and Costing (Cheaper and Expensive).

Chi-Square Test

	Observed N	Expected N	Residual
Cheaper	179	150.0	29.0
Expensive	121	150.0	-29.0
Total	300		

Table 5: Chi_Square Test for Web Technology

	Observed N	Expected N	Residual
0	152	150.0	2.0
1	148	150.0	-2.0
Total	300		

Table 6: *Chi-square Test for Frameworks*

	web technology	frameworks
Chi-Square	11.213[a]	.053[a]
Degrees of freedom	1	1
Asymp. Sig.	.001	.817

Table 7: *Test Statistics for web technology and Frameworks*

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 150.0.

The chi square value of 11.21 (Degrees of freedom =1, N=300), significance value is 0.001 which is less than 0.05 (p< 0.05) is significant at 1 degree of freedom, showing that there is significant difference in the expected and observed frequencies. As such we can reject the hypothesis that there is no association between technology platforms (Web Technologies) and Costing (Cheaper and Expensive). Hence, there is association between association between technology platforms (Web Technologies) and Costing (Cheaper and Expensive)

The chi square value of 0.053 (Degree of freedom =1, N=300), significance value is 0.81 which is more than 0.05 (p> 0.05) is not significant at 1 degree of freedom, showing that there is no significant difference in the expected and observed frequencies. As such we can't reject the hypothesis that there is no association between technology platforms (framework) and Costing (Cheaper and Expensive). Hence, there is no association between technology platforms (Frameworks) and Costing (Cheaper and Expensive)

5. Conclusion

The chi square test applied for Hypothesis testing shows partial satisfaction of Hypothesis, but the data presented in table format clearly shows that there is association between technology platforms (Web Technologies and Frameworks) and Costing.

This research concludes that while negotiating estimated cost of proposed software with the respondents, as maximum respondents from development fields are aware about the advanced web application development technologies, standard frameworks and libraries that can reduces the development costs significantly, can suggest the respondents to accept the new technology rather than using the traditional development technologies to negotiate the cost of proposed software.

While negotiating estimated cost of proposed software with the developer/vendor rather than compromising with important parameters like quality, security, efficiency, functionality respondents can compromise with technology as there are various new technologies that can reduce

the development time, effort, resources and indirectly the estimated cost.

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A STUDY OF SYMPTOMS, CAUSES AND HEALTH ISSUES DUE TO STRESS ON FACULTY MEMBERS

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ABSTRACT

Modern life is full of hassles, deadlines, frustrations, and demands. We all experience stress, health issues in our lives. In the fast changing world of today, no individual is free from stress and no profession is stress free. Now a day's faculty members are not only involved in admission activities but also involved in administrative responsibilities, research and development, counselling and placement activities etc. Therefore many stress symptoms found in the faculty members. It's important to understand how stress symptoms, stress cause affects on faculty members body due to stress.

The current paper is an exploratory research to investigate the stress symptoms and causes influencing work stress of the faculty members of various private and government colleges. Traditionally the faculty's job has not been considered as a stressful but today's cut throat competition there is a need of research in this area.

Keywords: Stressors, Stress symptoms, Factors, Stress Management Techniques, Sources, Health, Exploratory research

1. Introduction

Hans Selye first introduced the concept of stress in 1939 derived from Latin, the word "stress" was popularly used in the seventeenth century to mean hardship, strait, adversity or affliction. Stress has been conceptualized in the following ways: (i) as an external force which is perceived as threatening (ii) as response to a situation demanding an individual to adapt to change physically or situation demanding an individual to adapt to change physically or psychologically (iii) as interaction outcome of the external demand and internal resources and (iv) as a personal response to a certain variation in the environment. (Mrs.V.R.MALARVIZH, 2014)

As per the forbes magazine's survey concludes that the University Professors' job is least stressful Job for 2013. Many stress symptoms found in the faculty members like moody nature, short-temper, accelerated, restlessness, lack of confidence, gain or lose weight, feeling negative about everything, tiredness, weakness, cold sweaty hands are consider for study.

Some common causes of stress like heavy workload, poor salary, time pressure and deadlines, repetitive and boring work, lack of career development, feeling powerlessness, lack of job security factors are also included in the research. Faculty members also face difficulties during the work like other faculty members behaviour, lack of availability of information, office politics and conflicts, excessive disturbances during the work, lack of recognition.

Keeping in mind the importance of human resource in organization, an attempt is made to study the symptoms, causes and ill effect of stress on job performance of faculty members working in various private and government colleges.

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2. Literature Review

The research in the area of stress symptoms, causes and health issues is wide and varied. Stress can affect all aspects of our life, including human emotions, own behaviours, thinking ability, and physical health issues. Physical symptoms of stress include: High / Low blood pressure, Headache, Stomach disorder and Ulcer, Sugar, Chest pain, Back pain, Sleep disturbances, depression and tendency to remain alone. Stress also becomes harmful when people engage in the compulsive use of substances or behaviours to try to relieve their stress.

(Mrs.V.R.MALARVIZH, 2014) concluded on symptoms of stress, impact of stress on the employees and organizations, and the importance of stress management. It is very obvious from the theoretical and empirical data that no causes for stress can be solved without proper and adequate communication.

(Chaudhry A. , 2013) summarized the detailed analysis bring forward number of suggestions for the policy makers of universities, managers/deans of universities, faculty members of universities of private and public sector universities.

The literature has a huge gap, in the study of stress symptoms, causes and ill effect of stress amongst the faculty members of various private and government colleges; the paper has been an effort to bridge this gap.

3. Research Methodology

The purpose of this study was to explore the stress symptoms, Causes and ill effect among faculty members based on gender, qualification, age, type of college etc. The test has standardized methods as people score 0 falls under "Never", score 1 falls under "Rarely", score 2 falls under "Sometimes" and score 3 falls under "Most of the times" and score 4 falls under "Always" category. The data is collected by using Google Form. The sample size of study is 58, out of which 30 male and 28 female. The sample consists of faculty members from the various colleges of Maharashtra, India. Stratified random sampling method was used to approach the sampled faculty members from private and government colleges. Tabulation and graphical representation techniques are used for data analysis. To test the Hypothesis Independent Samples t-test has been conducted to analyze the questionnaire data.

3.1 Hypothesis

Ho1 - The stress symptoms of the faculty members are not significantly different on basis of gender.

Ho2 - The Health Issues of the faculty members are not significantly different on the basis of gender.

3.2 Hypothesis Testing

Ho1 - The stress symptoms of the faculty members are not significantly different on basis of gender.

Stress symptoms	Gender 0=Female, 1=Male	N	Mean	Std. Deviation	Std. Error Mean
Moody	0	28	1.2857	.71270	.13469
	1	30	1.2667	1.08066	.19730
Short temper	0	28	1.4286	.99735	.18848
	1	30	.9333	.78492	.14331
Accelerated	0	28	1.1429	.84828	.16031
	1	30	.9333	.94443	.17243

Restlessness	0	28	1.2857	1.18187	.22335
	1	30	1.2000	.84690	.15462
Lack of confidence	0	28	1.0714	.71640	.13539
	1	30	1.3333	.80230	.14648
Getting confused easily	0	28	.8571	.75593	.14286
	1	30	1.1333	.73030	.13333
Gain or Loss of weight	0	28	1.9286	.89974	.17003
	1	30	.8667	.97320	.17768
Feeling negative about everything	0	28	1.0000	1.01835	.19245
	1	30	1.1333	.89955	.16424
Constant tiredness, weakness	0	28	1.1429	1.20844	.22837
	1	29	1.3103	1.00369	.18638
Cold or sweaty hands or feet	0	28	1.0000	1.01835	.19245
	1	30	1.0667	1.08066	.19730

Table 1: Group Statistics of stress symptoms of the faculty members on the basis of gender

Stress Symptoms		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Moody	Equal variances assumed	9.363	.003	.079	56	.938	.01905	.24221	-.46616	.50426
	Equal variances not assumed			.080	50.538	.937	.01905	.23889	-.46065	.49874
Short temper	Equal variances assumed	4.579	.037	2.109	56	.039	.49524	.23483	.02482	.96565
	Equal variances not assumed			2.092	51.283	.041	.49524	.23677	.01996	.97052

Accelerated	Equal variances assumed	2.035	.159	.887	56	.379	.20952	.23632	-.26389	.68294
	Equal variances not assumed			.890	55.923	.377	.20952	.23544	-.26213	.68118
Restlessness	Equal variances assumed	3.775	.057	.319	56	.751	.08571	.26860	-.45236	.62379
	Equal variances not assumed			.316	48.673	.754	.08571	.27165	-.46028	.63171
Lack of confidence	Equal variances assumed	2.790	.100	-1.308	56	.196	-.26190	.20025	-.66306	.13925
	Equal variances not assumed			-1.313	55.897	.195	-.26190	.19946	-.66149	.13768
Getting confused easily	Equal variances assumed	.093	.762	-1.415	56	.163	-.27619	.19518	-.66717	.11479
	Equal variances not assumed			-1.413	55.393	.163	-.27619	.19541	-.66774	.11536
Gain or Loss of weight	Equal variances assumed	7.702	.007	4.306	56	.000	1.06190	.24661	.56789	1.55592
	Equal variances not assumed			4.318	55.996	.000	1.06190	.24593	.56924	1.55457
Feeling negative about everything	Equal variances assumed	.168	.684	-.529	56	.599	-.13333	.25191	-.63797	.37130
	Equal variances not assumed			-.527	53.988	.600	-.13333	.25300	-.64058	.37391
Constant tiredness, weakness	Equal variances assumed	1.337	.252	-.570	55	.571	-.16749	.29381	-.75629	.42132
	Equal variances not assumed			-.568	52.490	.572	-.16749	.29477	-.75886	.42389
Cold or sweaty hands or	Equal variances assumed	.046	.830	-.241	56	.810	-.06667	.27619	-.61994	.48661

Table 2: Independent Samples t - test of stress symptoms of the faculty members on the basis of gender

Table 2 shows that except short temper stress symptom all other stress symptoms significance values are more than the significance value i.e. 0.05. Therefore it is said that there is no significant difference in the stress symptoms of the faculty members of different colleges on basis of gender.

Hence, the hypothesis 'Ho1 - The stress symptoms of the faculty members are not significantly different on basis of gender' is accepted.

Ho2 - The Health Issues of the faculty members are not significantly different on the basis of gender.

Health Issues	Gender 0=Female 1=Male	N	Mean	Std. Deviation	Std. Error Mean
Headache	0	28	1.1071	.91649	.17320
	1	30	1.0333	.92786	.16940
High blood pressure	0	28	.3929	.83174	.15718
	1	30	.3667	.80872	.14765
Stomach disorder and Ulcer	0	28	.7500	.92796	.17537
	1	30	.7000	.91539	.16713
Sugar	0	28	.1071	.41627	.07867
	1	30	.1000	.40258	.07350
Chest pain	0	28	.2857	.65868	.12448
	1	30	.2667	.63968	.11679
Back pain	0	28	.8214	.81892	.15476
	1	30	.9000	.84486	.15425
Sleep disturbances	0	28	1.0000	.98131	.18545
	1	30	1.0667	.98027	.17897
Depression	0	28	.7857	.99469	.18798
	1	30	.8667	1.00801	.18404
Tendency to remain alone	0	28	1.0000	1.08866	.20574
	1	30	1.1333	1.16658	.21299

Table 3: Group Statistics of Health Issues of the faculty members on the basis of gender

Health Issues		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Headache	Equal variances assumed	.008	.928	.305	56	.762	.07381	.24238	-.41173	.55935
	Equal variances not assumed			.305	55.813	.762	.07381	.24227	-.41155	.55917
High blood pressure	Equal variances assumed	.046	.831	.122	56	.904	.02619	.21544	-.40540	.45778
	Equal variances not assumed			.121	55.464	.904	.02619	.21566	-.40591	.45830
Stomach disorder and Ulcer	Equal variances assumed	.008	.929	.206	56	.837	.05000	.24213	-.43505	.53505
	Equal variances not assumed			.206	55.609	.837	.05000	.24225	-.43536	.53536
Sugar	Equal variances assumed	.017	.897	.066	56	.947	.00714	.10753	-.20828	.22256
	Equal variances not assumed			.066	55.405	.947	.00714	.10766	-.20858	.22286
Chest pain	Equal variances assumed	.044	.835	.112	56	.911	.01905	.17051	-.32253	.36063
	Equal variances not assumed			.112	55.452	.912	.01905	.17069	-.32296	.36105

Back pain	Equal variances assumed	.012	.912	-.359	56	.721	-.07857	.21874	-.51677	.35963
	Equal variances not assumed			-.360	55.915	.721	-.07857	.21850	-.51630	.35916
Sleep disturbances	Equal variances assumed	.050	.823	-.259	56	.797	-.06667	.25772	-.58293	.44960
	Equal variances not assumed			-.259	55.717	.797	-.06667	.25773	-.58301	.44968
Depression	Equal variances assumed	.036	.850	-.308	56	.760	-.08095	.26319	-.60819	.44629
	Equal variances not assumed			-.308	55.819	.759	-.08095	.26307	-.60798	.44608
Tendency to remain alone	Equal variances assumed	.531	.469	-.449	56	.655	-.13333	.29685	-.72799	.46132
	Equal variances not assumed			-.450	56.000	.654	-.13333	.29613	-.72655	.45988

Table 4: Independent Samples t - test of Health Issues of the faculty members on the basis of gender

Table 4 shows that Health Issues significance value is more than the significance value i.e. 0.05. Therefore it is said that there is no significant difference in the Health Issues of the faculty members of different colleges on basis of gender.

Hence, the hypothesis 'Ho2 - The Health Issues of the faculty members are not significantly different on basis of gender' is accepted.

4. Findings

4.1 Data Analyses

Data is collected in the questionnaire regarding the cause responsible to get stress in private and government college faculty members and represented in the tables as follows

S.No	Causes responsible to get stress in	Total
1.	Workload	14
2.	Poor salary	12
3.	Time pressures and deadlines	28
4.	Repetitive and boring work	22
5.	Lack of career development	26
6.	Feeling of powerlessness	32
7.	Lack of job security	24

Table 5: Causes responsible to get the stress in job

As per the table 5 it is found that Feeling of powerlessness (32%), Time pressure and deadlines (28%), Lack of career development opportunities (26%) and Lack of job security (24%) are the major causes to get the stress in job.

Data also collected related to difficulties faced by the faculty members in the colleges and that leads towards the stress are as follows

S.No	Difficulties faced by the faculty members	Total
1.	Group behavior	20
2.	Lack of information	10
3.	Office politics and conflicts	34
4.	Excessive interruptions	08
5.	Lack of recognition	22

Table 6: Difficulties faced by the faculty members

As per the table 6 it is found that Office Politics and Conflicts (34%), Lack of recognition in the college (22%) and Group Behavior are the major difficulties faculty members faced by the faculty members during job.

5. Conclusion

As per the research findings it is conclude that stress symptoms like gain or lose weight, restlessness, getting confused easily, short-temper, accelerated are the major stress symptoms among the faculty members and also no significant difference found in the gender. Similarly, Physical and Mental health problems like back pain, headache, sleep disturbance, tendency to remain alone are found in the faculty members. Open communication, Opportunities for career development, Proper recognition of work (promotions and incentives) and Support from the management can help in reduction in the stress level found in the research.

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AN ANALYSIS OF JOB SATISFACTION OF EMPLOYEES WORKING AT GOVERNMENT, TEACHING AND TRUST HOSPITALS IN AHMEDNAGAR DISTRICT - A PILOT STUDY

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Abstract

Employee Job Satisfaction is a key concept in the Organization and Management of all the organizations. With the advent of aspects like Service Quality, the topic assumes special significance in the context of service organizations like hospitals. This study examines the relationship between the type of Hospital Organizations (Government, Educational &Trust) and Employee Job Satisfaction for hospitals in Ahmednagar District. Before conducting the main study a pilot study was conducted with a sample size of 100 respondents. Results show that employee job satisfaction is not at a significantly high level. There is a significant relationship between the type of hospitals and employee job satisfaction. There is a correlation between different job levels and employee job satisfaction. Organizational and demographic factors do not have an impact on employee job satisfaction.

Keywords: Employee job satisfaction, Hospitals, Ahmednagardistrict, Government, trust and teaching hospitals.

1. INTRODUCTION

Employee Job Satisfaction is a key concept in the Organization and Management of all the organizations. With the advent of aspects like Service Quality, the topic assumes special significance in the context of service organizations like hospitals. This study examines the relationship between the type of Hospital Organizations (Government, Educational &Trust) and Employee Job Satisfaction for hospitals in Ahmednagar District. Before conducting the main study a pilot study was conducted with a sample size of 100 respondents. Objectives of the main study are - to study and assess the employee job satisfaction levels at major Hospitals in Ahmednagar District, to measure the relationship between the type of hospitals and employee job satisfaction at major Hospitals in Ahmednagar District, to examine the special relationship, if any, between employee job satisfaction at different levels of employees at major Hospitals in Ahmednagar District and to investigate into organizational and demographic factors that have an impact on employee job satisfaction.

2. OBJECTIVES OF THE PILOT STUDY

The pilot study aimed at achieving the following objectives:

  a. To get hands-on experience of issues encountered in data collection
  b. To test the actual use of the questionnaire
  c. To test the hypotheses as per the research methodology

d. To test the validity and reliability of a questionnaire prepared from the primary data collected

3. METHODOLOGY

3.1 Sample

The total sample size for the study was fixed at 400 as the population is large. For the pilot study the sample size was fixed at 25% of the main study sample size, that is, of 100 respondents.

3.2 Instrument for survey

A Questionnaire was designed forthe assessment of employee satisfaction. The responses to the key variable questions were taken on a Likert scale of agree/disagree. The responses were sequenced as under –

- No response
- Somewhat agree
- Completely agree
- Somewhat disagree
- Completely disagree

The questionnaire was divided into3 main sections and 10 questions were framed under each of the sections. These sections were - Monetary and Compensation Factors, Work environment and Management support, and Job-related factors. Standard scales applicable to hospitals like Chang *et* al (2017) were referred for this purpose.The questionnaire was tested for validity and reliability as under:

3.3 Test of validity

The hypotheses, hypotheses testing method, questionnaire, etc. were validated by the Guide and other experts in the field to ensure that the measurement was adequate and accurate in terms of the desired direction. A check-list as prescribed by Collingridge*et* al (2015) was applied for validation as under:

Step No.	Step	Action
	Table 1 Application of Collingridge check-list for validation	
1	Establish Face Validity	The questionnaire has been validated for face validity by guide and group of experts.
2	Clean Collected Data	Our mechanism of collecting data ensures that there is no invalid entry because there is no entry only. It is a selection for a range of options.
3	Use Principal Components Analysis (PCA)	a. We don't have too many variables under consideration b. It is expected that the variables should be widely interpretable. Therefore PCA was not used.
4	Check Internal Consistency	This was done through Cronbach's Alpha

3.4 Test of reliability

Cronbach's Alpha and other tests were applied to the questionnaire using the "Siegle Reliability Calculator" an excel program and the results are summarized as under figure 1. As the Cronbach's alpha score was more than 0.70, the questionnaire was considered as reliable.

	A	B	C	D	E	F	G	H	I
Cronbach's Alpha	0.971147305		**Reliability Calculator**					
Split-Half (odd-even) Correlation	0.974719628		created by Del Siegle (del.siegle@uconn.edu) for EPSY 5601					
Split-Half with Spearman-Brown Adjustment	0.987197994							
Mean for Test	90.25							
Standard Deviation for Test	24.49300921							
KR21 (use only 0 and 1 to enter data for this)	1.347034536		Questions	Subjects				
KR20 (use only 0 and 1 to enter data for this)	1.347722601		30	100				
	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8
Subject1	3	4	1	4	1	4	4	4
Subject2	2	2	1	2	3	2	2	3
Subject3	3	1	1	1	1	2	2	1
Subject4	4	4	4	4	1	4	4	0
Subject5	4	4	4	3	4	4	2	4
Subject6	2	3	2	1	1	2	2	3
Subject7	1	1	1	1	3	2	3	3
Subject8	1	3	3	1	3	4	4	3
Subject9	1	3	1	1	3	1	3	2
Subject10	4	4	4	4	4	4	4	4

Figure 1:Cronbach's Alpha score for the entire questionnaire

3.5 Hypotheses formulation: The hypotheses formulation is presented below:

	Table 2: Hypotheses formulation		
Sr. No.	Area of study	Null hypothesis	Alternate hypothesis
1	To study and assess the employee job satisfaction levels at major Hospitals in Ahmednagar District,	The employee job satisfaction is at a significantly high level	The employee job satisfaction is not at a significantly high level
2	To measure the relationship between the type of hospitals and employee job satisfaction at major Hospitals in Ahmednagar District	There is no relationship between the type of hospitals and employee job satisfaction	There is a significant relationship between the type of hospitals and employee job satisfaction
3	To examine the special relationship, if any, between employee job satisfaction at different levels of employees at major Hospitals in Ahmednagar District and	There is no correlation between different job levels and employee job satisfaction	There is a correlation between different job levels and employee job satisfaction
4	To investigate organizational and demographic factors that have an impact on employee job satisfaction	Organizational and demographic factors do not have an impact on employee job satisfaction	Organizational and demographic factors do have an impact on employee job satisfaction

3.6 Scheme formed for testing of hypotheses
  a. Responses would be collected under 3 sections of the questionnaire on a 5-point agree-disagree scale,
  b. The responses under each of the sections would be aggregated under two opposite groups of agree and disagree,
  c. While doing so for each of the extreme responses, a weight of 2 would be to distinguish them from the non-extreme responses,
  d. For each of the question, an average count will be calculated in the two opposites,
  e. Percentages to questions under one particular section of the questionnaire will be averaged to get a single score for that section. In this averaging following scales are used.

Table 3 Coding scheme for responses		
Sr. No.	Response	Value for averaging
1	No response	0
2	Somewhat agree	1
3	Completely agree	2
4	Somewhat disagree	-1
5	Completely disagree	-2

f. The section-wise averages will be further averaged into one single grand average representing agreement/disagreement to employee job satisfaction,

g. For the 1st hypothesis, the section-wise average score percentage will be compared with a hypothesized mean of the population of 50% score connoting an event by chance and not due to statistical significance,

h. P-values will be calculated and the null hypotheses will be checked for rejection or non-rejection. These calculations would be done at a 95% confidence level using a t-test since the standard deviation (SD) of the population is not known.

i. The remaining 3 hypotheses will be checked by the use of regression analysis, using employee satisfaction as the dependent variable and type of hospital, levels of employee, etc. as an independent variable.

4. RESULTS AND DISCUSSION

4.1 Descriptive analysis (Table set 4)

	Government	Trust	Teaching	Total
Category of Hospital	39	33	28	100

The distribution of Category of Hospital was 39 of Government group; 33 for Trust group; and 28 for teaching group.

	Doctor	Nursing staff	Medical and para-medical staff	Administration staff	Total
Category of Respondent	22	25	30	23	100

The division of Category of Respondent was 22 of Doctor group; 25 for Nursing staff group; 30 for Medical and para-medical staff group; and 23 for Administration staff group.

	20 -29 years	30-39 years	40-49 years	>=50 years	Total
Age	17	26	32	25	100

The distribution of Age was 17 of 20 -29 years group; 26 for 30-39 years group; 32 for 40-49 years group; and 25 for >=50 years group.

	Male	Female	Total
Gender	45	55	100

The spread of respondents Gender was 45 of Male group; and 55 for Female group.

	<5 years	5-10 years	10-15 years	>15 years	Total
Total work experience	30	13	29	28	100

The distribution of Total work experience was 30 of <5 years group; 13 for 5-10 years group; 29 for 10-15 years group; and 28 for >15 years group.

	Diploma	Graduation	PG	Total
Education	36	43	21	100

The division of Education was 36 of the Diploma group; 43 for Graduation group; and 21 for the PG group.

	<10 years	10-20 years	> 20 years	Total
Period of the existence of the Hospital	0	42	58	100

The spread of the Period of the existence of the Hospital was 0 of <10 years group; 42 for 10-20 years group; and 58 for > 20 years group.

	<5 years	5-10 years	> 10 years	Total
Current work experience	48	29	23	100

The distribution of Current work experience was 48 of <5 years group; 29 for 5-10 years group; and 23 for > 10 years group.

4.2 Inferential analysis (Testing of hypotheses)
4.2.1 Testing of H_1 (Employee job satisfaction)

Employee job satisfaction was measured based on three parameters – pay and compensation, work environment and job-related factors. Results are summarized below -

Summary of responses to the 3 sections of the questionnaire (Table set 5)											
Qstn.	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10	Average
Disagree %	71%	78%	74%	68%	66%	73%	69%	71%	73%	63%	71%
Qstn.	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10	Average
Disagree %	70%	76%	74%	76%	69%	72%	73%	67%	73%	73%	72%
Qstn.	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10	Average
Disagree %	76%	78%	63%	70%	74%	67%	76%	68%	73%	69%	71%

Table 6 - Hypotheses testing @ 95% confidence level				
Sr. No.	Parameter	$H1_1$	$H1_2$	$H1_3$
1	Average	71%	72%	71%
2	SD	1.14239	1.10349	1.09219
3	H1	50%	50%	50%
4	Ho	0.71	0.72	0.71
5	n	100	100	100
6	t-value	1.81	2.02	1.95
7	p-value	0.036681	0.023307	0.027029
8	Decision	Reject Null	Reject Null	Reject Null

Going by the p-values of <0.05, $H1_1$, $H2_2$, and $H3_3$ are rejected in favor of the alternate hypotheses. In other words, employee job satisfaction is not at a significantly high.

4.2.2 Testing of H_2 (Relationship between the type of hospitals and employee job satisfaction)

Regression analysis was used to test the relationship taking employee job satisfaction as the dependent variable and the type of hospital as an independent variable. For this purpose, the average of 3 sections of employee job satisfaction was averaged into the grand average and the same was associated with the type of hospital for the sample size. Results were as under –

Summary statistics (Quantitative data)							
Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Tot-Avg	100	0	100	-2.000	1.400	-0.696	1.109

Summary statistics (Qualitative data): Correlation matrix				
	Type-1	Type-2	Type-3	Tot-Avg
Type-1	1.000	-0.561	-0.499	0.900
Type-2	-0.561	1	-0.438	-0.466
Type-3	-0.499	-0.438	1	-0.489
Tot-Avg	0.900	-0.466	-0.489	1

Regression of variable Tot-Avg: Goodness of fit statistics (Tot-Avg)	
Observations	100
Sum of weights	100
DF	97
R²	0.811
Adjusted R²	0.807
MSE	0.237
RMSE	0.487
MAPE	109.310
DW	1.708
Cp	3.000
AIC	-141.012
SBC	-133.196
PC	0.200

Analysis of variance (Tot-Avg)					
Source	DF	Sum of squares	Mean squares	F	Pr> F
Model	2	98.856	49.428	208.550	**<0.0001**
Error	97	22.990	0.237		
Corrected Total	99	121.846			
Computed against model Y=Mean(Y)					

Model parameters (Tot-Avg)						
Source	Value	Standard error	t	Pr> |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-1.561	0.092	-16.964	**<0.0001**	-1.743	-1.378
Type-1	2.107	0.121	17.471	**<0.0001**	1.868	2.346
Type-2	0.131	0.125	1.051	0.296	-0.117	0.380
Type-3	0.000	0.000				

Standardized coefficients (Tot-Avg)					
Source	Value	Standard error	t	Pr> |t|	Lower bound (95%)	Upper bound (95%)
Type-1	0.931	0.053	17.471	**<0.0001**	0.825	1.037
Type-2	0.056	0.053	1.051	0.296	-0.050	0.162
Type-3	0.000	0.000				

Interpretation (Tot-Avg)

       Given the R2, 81% of the variability of the dependent variable Tot-Avg is explained by the explanatory variable. Given the p-value of the F statistic computed in the ANOVA table, and given the significant level of 5%, the information brought by the explanatory variables is significantly better than what a basic mean would bring.

LS Means for factor Type				
Category	LS mean	Standard error	The lower bound (95%)	Upper bound (95%)
1	0.546	0.078	0.391	0.701
2	-1.429	0.085	-1.597	-1.261
3	-1.561	0.092	-1.743	-1.378
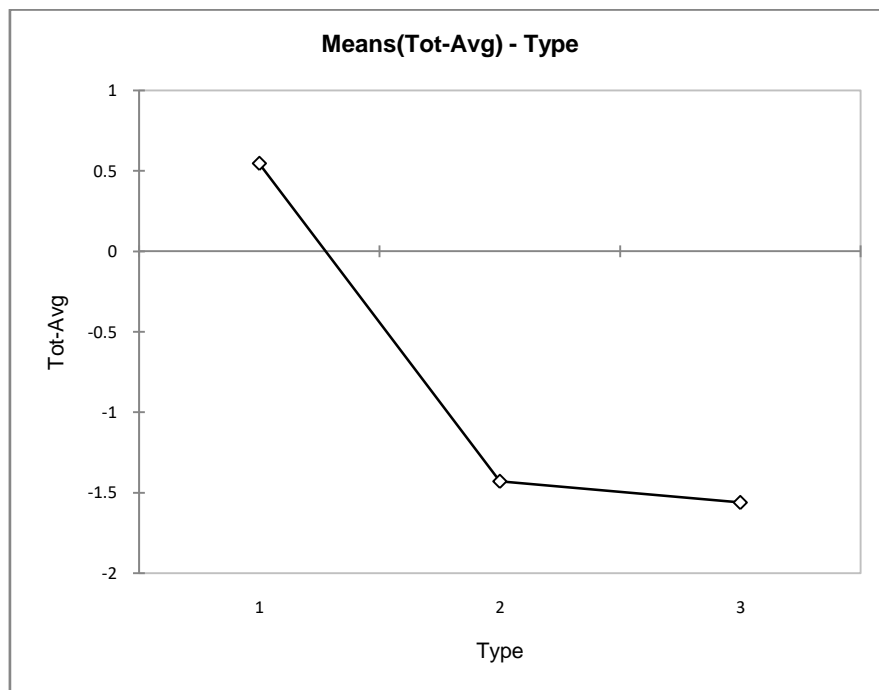
Figure 2: Means (Tot-Avg) - Type

       As the null hypothesis was rejected it can be inferred that there is a significant relationship between the type of hospitals and employee job satisfaction.

4.2.3 Testing of H₃ (correlation between different job levels and employee job satisfaction)

       Regression analysis was used to test the relationship taking employee job satisfaction as the dependent variable and the different job levelsas an independent variable. For this purpose, the average of 3 sections of employee job satisfaction was averaged into the grand average and the same was associated with the different job levelsfor the sample size. Results were as under:

Summary statistics (Quantitative data)							
Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Tot-Avg	100	0	100	-2.000	1.400	-0.696	1.109

Summary statistics (Qualitative data): Correlation matrix					
	Cat-Resp-1	Cat-Resp-2	Cat-Resp-3	Cat-Resp-4	Tot-Avg
Cat-Resp-1	1.000	-0.307	-0.348	-0.290	0.695
Cat-Resp-2	-0.307	1	-0.378	-0.316	-0.163
Cat-Resp-3	-0.348	-0.378	1	-0.358	-0.269
Cat-Resp-4	-0.290	-0.316	-0.358	1	-0.222
Tot-Avg	0.695	-0.163	-0.269	-0.222	1

Regression of variable Tot-Avg: Goodness of fit statistics (Tot-Avg)	
Observations	100
Sum of weights	100
DF	96
R²	0.486
Adjusted R²	0.469
MSE	0.653
RMSE	0.808
MAPE	175.808
DW	1.983
Cp	4.000
AIC	-38.697
SBC	-28.277
PC	0.557

Analysis of variance (Tot-Avg)					
Source	DF	Sum of squares	Mean squares	F	Pr> F
Model	3	59.156	19.719	30.196	**<0.0001**
Error	96	62.690	0.653		
Corrected Total	99	121.846			
Computed against model Y=Mean(Y)					

Model parameters (Tot-Avg)						
Source	Value	Standard error	t	Pr> |t|	Lower bound (95%)	Upper bound (95%)
Intercept	-1.145	0.168	-6.795	**<0.0001**	-1.479	-0.810
Cat-Resp-1	1.893	0.241	7.857	**<0.0001**	1.415	2.372
Cat-Resp-2	0.137	0.233	0.586	0.559	-0.327	0.600
Cat-Resp-3	-0.005	0.224	-0.023	0.982	-0.450	0.439
Cat-Resp-4	0.000	0.000				

Standardized coefficients (Tot-Avg)						
Source	Value	Standard error	t	Pr> |t|	Lower bound (95%)	Upper bound (95%)
Cat-Resp-1	0.711	0.090	7.857	**<0.0001**	0.531	0.890
Cat-Resp-2	0.054	0.092	0.586	0.559	-0.128	0.236
Cat-Resp-3	-0.002	0.093	-0.023	0.982	-0.187	0.182
Cat-Resp-4	0.000	0.000				

Interpretation (Tot-Avg)

Given the R2, 49% of the variability of the dependent variable Tot-Avg is explained by the explanatory variable. Given the p-value of the F statistic computed in the ANOVA table, and given the significant level of 5%, the information brought by the explanatory variables is significantly better than what a basic mean would bring.

LS Means for factor Cat-Resp:				
Category	LS mean	Standard error	Lower bound (95%)	Upper bound (95%)
1	0.748	0.172	0.406	1.090
2	-1.008	0.162	-1.329	-0.687
3	-1.150	0.148	-1.443	-0.857
4	-1.145	0.168	-1.479	-0.810
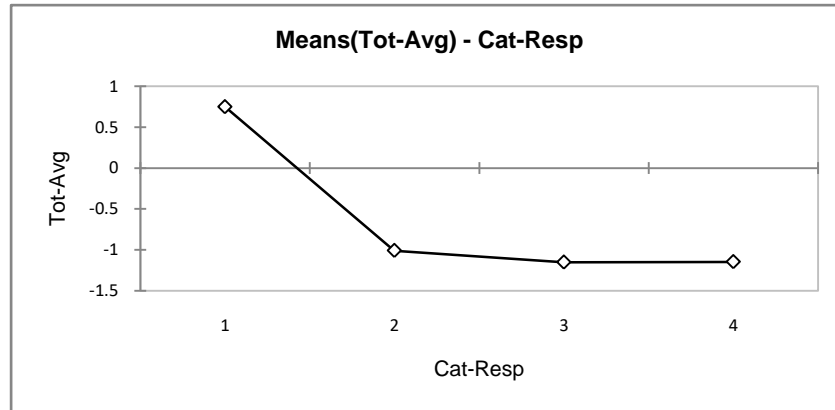
Figure 3: Means (Tot-Avg) –Cat-Resp

As the null hypothesis was rejected it can be inferred that there is a significant relationship between the different job levels and employee job satisfaction.

4.2.4 Testing of H_4 Hypothesis (Organizational and demographic factors and impact on employee job satisfaction)

Regression analysis was used to test the relationship taking employee job satisfaction as the dependent variable and factors like age, gender, etc.as an independent variable. For this purpose, the average of 3 sections of employee job satisfaction was averaged into grand average and the same was associated with factors age, gender, etc. for the sample size. Results were as under –

Summary statistics (Quantitative data)							
Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Tot-Avg	100	0	100	-2.000	1.400	-0.696	1.109

The goodness of fit statistics (Tot-Avg)	
Observations	100
Sum of weights	100
DF	88
R²	0.103
Adjusted R²	-0.009
MSE	1.242
RMSE	1.114
MAPE	170.967
DW	1.910
Cp	12.000
AIC	32.866
SBC	64.128
PC	1.141

Analysis of variance (Tot-Avg)					
Source	DF	Sum of squares	Mean squares	F	Pr> F
Model	11	12.574	1.143	0.921	0.525
Error	88	109.271	1.242		
Corrected Total	99	121.846			
Computed against model Y=Mean(Y)					

Interpretation (Tot-Avg)

Given the R2, 10% of the variability of the dependent variable Tot-Avg is explained by the 6 explanatory variables. Given the p-value of the F statistic computed in the ANOVA table, and given the significant level of 5%, the information brought by the explanatory variables is not significantly better than what a basic mean would bring.As the null hypothesis could not be rejected it can be inferred that organizational and demographic factors do not have an impact on employee job satisfaction.

4.3 Summary of inferential analysis

Summary of the testing of all the four hypotheses along with their interpretation is given below:

Table 7: Summary of inferential analysis				
Sr. No.	Null Hypotheses	R^2 value and p-value	Decision	Interpretation
1	The employee job satisfaction is at a significantly high level	0.036, 0.023 and 0.027	Reject Null	The employee job satisfaction is not at a significantly high level
2	There is no relationship between the type of hospitals and employee job satisfaction	81% and <0.0001	Reject Null	There is a significant relationship between the type of hospitals and employee job satisfaction
3	There is no correlation between different job levels and employee job satisfaction	49% and <0.0001	Reject Null	There is a correlation between different job levels and employee job satisfaction
4	Organizational and demographic factors do not have an impact on employee job satisfaction	10% and 0.525	Fail to reject Null	Organizational and demographic factors do not have an impact on employee job satisfaction

5. CONCLUSION

The collection of the data is possible with reasonable ease. Further processing of the data into variables required for inferential analysis of data can be done. As per the methodology the hypotheses can be duly tested. The survey instrument prepared for primary data collection tests reasonably well for validity and reliability. However, confidentiality is demanded by respondents.Employee job satisfaction is not at a significantly high level. There is a significant relationship between the type of hospitals and employee job satisfaction. There is a correlation between different job levels and employee job satisfaction. Organizational and demographic factors do not have an impact on employee job satisfaction.

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Abstract

COVID-19 pandemic is undoubtedly one of the biggest global events in our lifetime, presenting unforeseen challenges to many governments, banks, industries, education and people of all over the world. Several banks have made investments in technology and innovation for the digital transformation over the past couple of years. A lot of them, however, are still heavily reliant on face-to-face interactions, supported by paper processes. But, now it's time to see renewed vigor in the Indian financial services industry with banks making a concerted effort to boost up their digital game. This will be very critical as COVID-19 is expected to have a prolonged impact, and banking touches every part of our economy.

This article is an attempt to analyze the payments products during the time of COVID-19. The conclusion in this regard is the impact of COVID-19 on the payment system has been very significant & profound, yet not irrevocable. The article has indicated about the rise in the Digital payment system in India during the period of lockdown in the country.

Keyword: Digital payment system, COVID-19, Indian Economy, Financial Institution, Lockdown

Introduction

The COVID-19 pandemic has impacted the Digital payment system market positively. As per the financial trend suggestions, this time becomes an opportunity for banks and financial institutions to understand the expectations of customers regarding the financial services. To support and meet the financial needs of the customers, banks are using various technologies such as AI and human resource to impact marketing, innovation for providing the digital delivery of products and services. All this efforts of banks significantly driving the adoption of Digital payment system and will drive the market growth during the COVID-19 outbreak. (Dive, 2020)

The brief introduction of the banking sector, overview and Digital payment system is given as below:

Banking Industry

Today banking is the flourishing industry in India, as it focuses technological innovations. Digital payment system has emerged as the prime focus area in the "Digital Transformation" agenda of banks. In 2012-13, Indian banks had deployed a lot of technology-intensive solutions to boost the revenue, enhance customer experience and optimize cost structure. However, there is a big change in the technology agenda and implementation capability among different players of the-banking sector:

- Enhancing core-banking value
- Dealing with a changing risk regime
- Shift from cash to electronic payment mode
- Grappling with financial inclusion

Now it's time that bank should also focus on Digital payment system consciously as Covid19 will have far-reaching impact on the payments space, banks must do well to expand access to digital touch points underpinned by availability, security, stability and reliability in the immediate term.

1. Objectives Of The Research Study

a) To assess the impact of this COVID-19 pandemic on Digital payment system in India.

b) To analyze the payments products during the time of COVID-19.

c) To Study the benefits of financial products in the period of COVID-19.

2. Digital payment system at Glance

The world today is changing rapidly, and banking is also changing with it. The Digital payment system in India has witnessed a steady transformation since the introduction of LPG in 90's in the Banking sector and launch of some new technologies such as Automated Teller Machine (ATM) Magnetic Ink Character Recognition (MICR) etc. India is experiencing a growth trajectory in Digital payment system which is more prolific than various advanced less-cash economies.

In the current situation of COVID-19, the Digital payment system witnessed a decline of 30%per cent in the total transaction value, and the data available on National Payments Corporation of India (NPCI) indicate a sharp decline in the months when lockdowns was initiated (It is primarily because of hospitality, retail & travel sector).

However, Government and regulator have stressed on Digital payment system by the way of UPI, BHIM, Immediate payment service (IMPS) & National electronic funds transfer (NEFT), etc. to avoid usage of physical cash transaction which has higher risk element of COVID-19 transmission. These efforts along with opening of economy are further seen in the recoveries in various digital payment data available on NPCI in a reasonably short span of time. This is surly indicates though the impact of

COVID-19 on Digital payment system is detrimental & significant, but it's not lingering and Digital payment ecosystem is expected to develop rapidly to shape the post-COVID-19 era growth in India.

3. Impact and detail analysis of Digital payment system in the times of COVID-19

a) Payments done by using NPCI platform:

NPCI organization is set up by banks under guidance of the Reserve Bank of India and is actually responsible for all retail payments done in India. NPCI acts as an intermediary for processing of digital payments such as IMPS, UPI, Bharat Bill Pay and others. A review of the volume & value of such transactions from January 2020 to September 2020 has depicted a decline in digital payments in India in lieu of COVID-19 but has later shown a very quick recovery in subsequent months through various modes of payment.

In lockdown period there was significant limitation in spending among consumers, along with delay of multiple routine monthly payments. Lockdowns has caused significant uncertainty in decisions with respect to timing of spending, quantum and payments among consumers. This is reflected by a 49% decline in value of overall NPCI payment products observed in digital payment mode for the month of April 2020, compared to March 2020 payments.

The first phase unlock of lockdown has started from 1 June 2020, which led to recommencement of multiple businesses and overall consumption. All this has the cascading effects of scheduled payment deferrals done in April-May 2020, aversion towards cash payments, led to significant digital payments being done in June 2020 by which time payments done through NPCI had resumed to 91% of which they were in March 2020. On an average, as compare to the volume value of payments grew at very faster rate, as the sizes of payments have also increased by 10% to 20% in procurement categories, primarily it was an attempt to limit physical exposure as well as proclivity to stock of inventories.

Growth trends has seen in overall payments from June to September 2020, enlarged prospects of digital payment system helped for tapping into non penetrating markets run primarily on cash and accomplishment of accumulated consumption needs as businesses build up the infrastructure to resume operations, efficiently and safety.

Table 1 Payments done through NPCI between Jan 20 to Sept 20
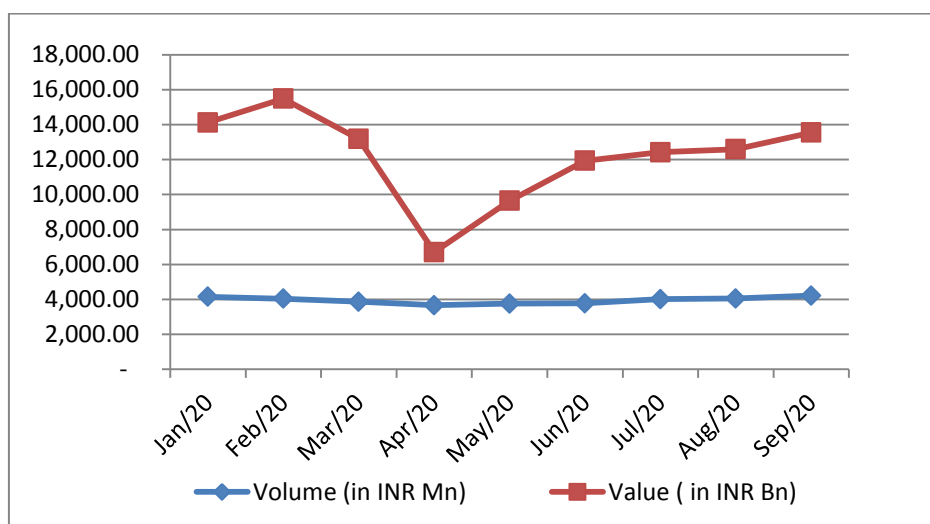
Source: NPCI payments database as accessed in Nov 2020

b) AEPS Transactions over Micro ATMs:

Aadhaar enabled payment system has seen an exceptional surge in the month of April 2020 in transactions processed as compared to January 2020, AEPS transaction value increased by 30% and volumes by 118% . This is clearly indicates that the outreach of the banking and micro ATM payment mechanism spread widely during and after lockdown in the rural areas for the nation. Direct benefit transfer announced by the central governments have encouraged rural population to actively avail AEPS services to retrieve cash supports transferred to their Aadhar linked bank accounts. Moreover, improved support from telecom operators for setup of strong AEPS infrastructure, for last mile connectivity of business correspondents and micro ATMs boosted enrolment numbers too.

As of Sept 2020, AEPS transaction values increased by 15% compared to April 2020 which denotes that the population enrolled in AEPS ecosystem has continuing to avail of their services in greater measure. NPCI has also stated that the potential rollout of Aadhaar-linked faces recognition enabled payments, in a measure to make AEPS contactless, which when implemented, will also lead to acceptability, usage and growth.

Table 2 AEPS Transactions over Micro ATMs
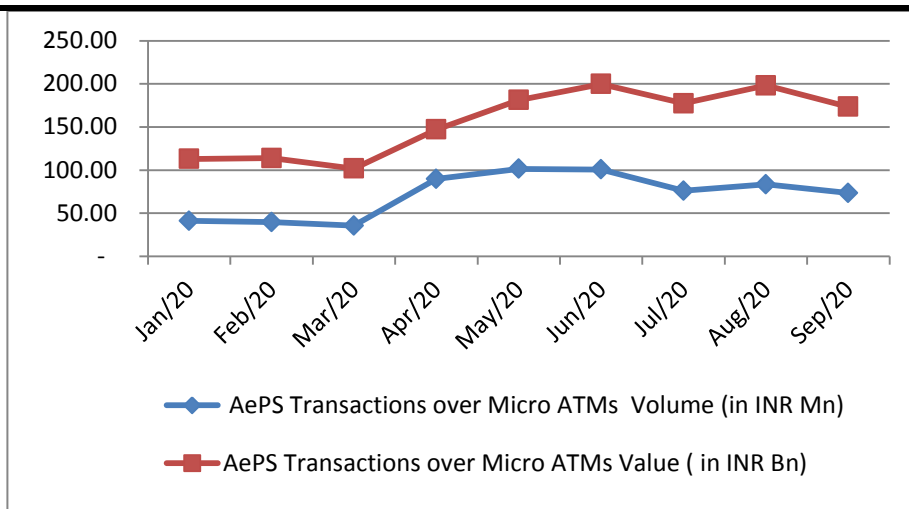
Source: NPCI payments database as accessed in Nov 2020

c) National Financial Switch (NFS) Cash Withdrawals:

Cash in was treated with reprehension and caution once the lockdown was initiated primarily due to fear of transmission of the COVID-19 virus, challenges in the ATM replenishments & lack of access to ATMs due to restriction of physical movement. This has reflected as cash withdrawals in the month of April 2020 via NFS ATMs as it shows 52% decline as compared to January 2020 withdrawals.

This is also aggravated by the unavailability of essential goods and services during lockdowns and cash on delivery not accepted as a mode of payment by most services delivering the essential services. Cash withdrawals has seen increase from the month of May 2020 onwards and by Sept, they stood at 84% of January 2020 withdrawals.

Furthermore, resumption of cash replenishment at offsite ATMs, which faced prolonged cash-outs during lockdown, permission to resumption of liquor sales, reopening of buses and railway ticket booking, and general uncertainty over lockdown timelines further accelerated to the cash withdrawals at ATM.

From a macro outlook on the future of cash in India will be a means of transacting post the pandemic, cash remains the preferred mode of payment for many people in our country, and also in semi-urban and rural areas too. As in India many small retailers, wholesalers and local vendors are not part of the digital payment system. They prefer cash transactions happen in this medium – both from their customers and to their suppliers, because cash is convenient to use and universally accepted, and it does not require multitude of access to infrastructure and related support services, which is difficult to find in many areas of our country, the usage of cash continues to remain high. With the COVID-19 situation continuing coupled with considerable levels of economic uncertainty, the reliance on cash in long run is expected to be maintained.

Table 3 National Financial Switch (NFS) Cash Withdrawals
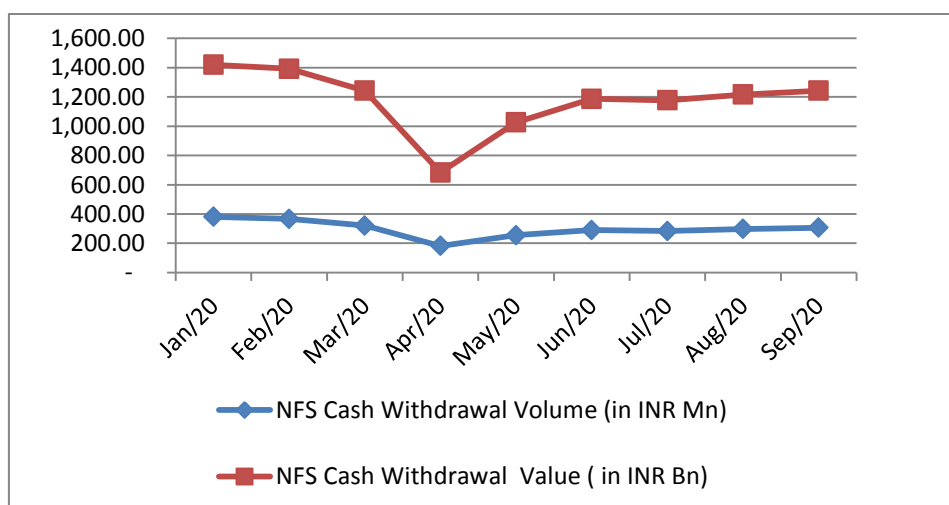
Source: NPCI payments database as accessed in Nov 2020

d) Unified Payments Interface (UPI) & Immediate Payment Service (IMPS) :

UPI transaction values have seen a decline of 30% in April 2020, as compared to January 2020, whereas IMPS transactions saw a decline of 44%. UPI and IMPS primarily provide service to the peer to peer transactions at an individual level, this

decline is potentially payments done through NPCI had resumed to ~91 per cent of what they were in March 2020. On average, value of payments grew at a very fast rate as compared to their volume. Growth trend is observed from the month of June2020 in overall payments as continuing further, augmented primarily by prospects of digital payment system for tapping into markets run primarily on cash and fulfillment of accumulated consumption needs as businesses build up the infrastructure to resume operations, safe, secure and efficiently and as consumers find safer alternative means to satisfy demand triggered by strict lockdown regulations in April 2020.

A significant reason for reduction of this digital payment system was a near standstill observed in necessary services like travel, allied leisure accommodations, transport, most important of which was suspension of Indian Railway services, which holds huge share in monthly UPI and IMPS transactions. As, retail shops and physical movement for purchase of goods and commodities was restricted, individual consumers seem to get encouraged to avail alternative online modes of purchase for essential as well as non-essential goods.

Further, Standstill during the lockdown has also resulted in suspension of payment of fixed routine expenses including employee benefits, rentals by tenants, etc. This, in turn has diminished the disposable income of the working population which also affected per capita spending and subsequent UPI transaction done by individual.

However, post lockdown period restrictions between mid- May 2020 to June 2020, value transacted via UPI in June 2020 has regained to 122%as compared to January 2020 levels. IMPS transactions have also reached to 95% of its January 2020 transaction levels by June 2020. Consumers started to use e-commerce avenues for purchase needs, previously catered by brick and mortar stores, stocking of essentials, general resumption of routinely availed services and cascading payment of any personal dues and liabilities deferred are possible factors for the levels of recovery observed.

Such trend has highlighted the importance of UPI's reliability and versatility. NPCI has stated that the relevance of UPI is expected to grow, by combining the physical and digital space, in a post COVID-19 world, with increasing relaxations being witnessed in India's lockdown.

NPCI has recently launched a campaign called 'UPI Chalega' with a dedicated microsite, which focuses on encouraging lockdown- related payments such as payments to grocers, supermarkets and salary payments through UPI. This campaign is estimated to have received nearly one billion impressions within its target audience, which further speaks towards increased awareness and acceptability of UPI as a payment method.

Table 4 Unified Payments Interface (UPI
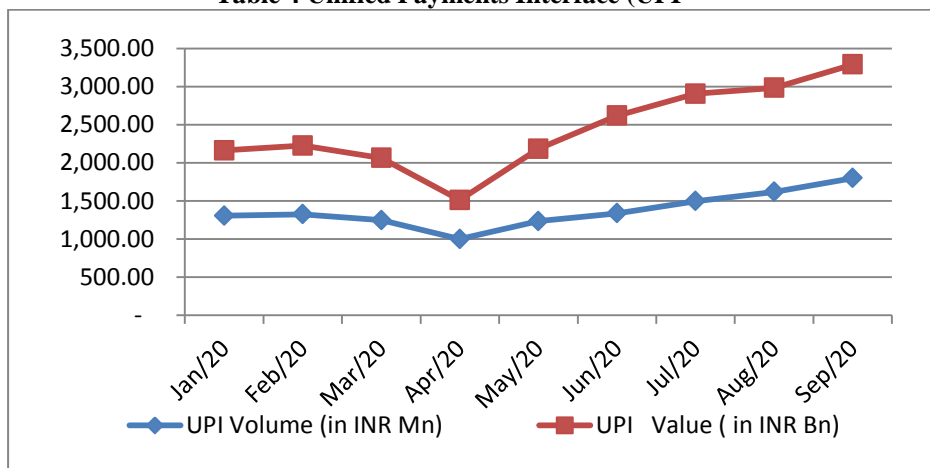
Source: NPCI payments database as accessed in Nov 2020

Table 5 Immediate Payment Service (IMPS)
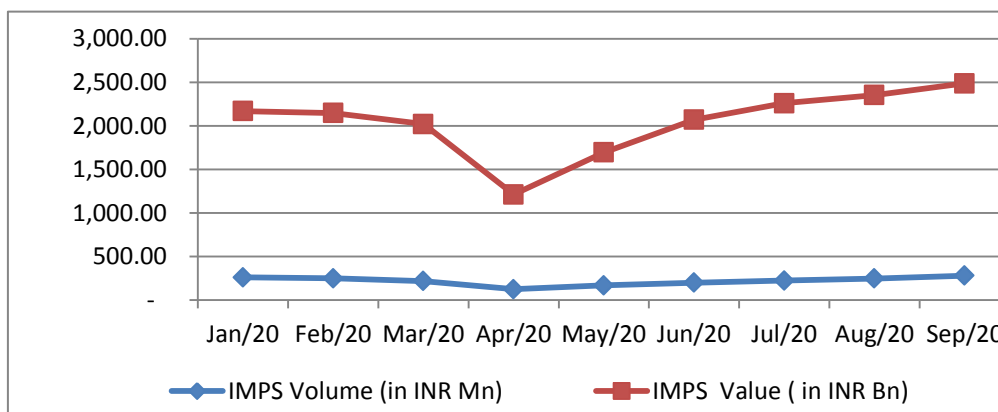
Source: NPCI payments database as accessed in Nov 2020

Conclusion

COVID-19 will have long-lasting impact Digital payment system in India and all over the world as well. Post crisis, COVID-19 impact on the payment system has been profound and considerable, yet not irreparable. Elements in the digital payment system are most adaptable to disruption and least dependent on physical infrastructure have been able to withstand, moderate and even so far as capitalize the crisis. This pandemic situation has compelled individuals, financial institutions as well as organizations to re-evaluate their payment framework and infrastructure so as to inculcate considerations of continuity in planning & disruption mitigation.

Additionally, this pandemic has also highlighted on inherent flaws brought forth by rigidity or inflexibility of being dependent on cash as a sole method of payment, for many legacy players in the industry and individual consumers.

Cash withdrawals in the NFS network indicates that rebounding to pre-COVID-19 levels Indian population has a certain proclivity and propensity to transact in cash. Thus, this pandemic may have given a sizable drive in the endeavor to marginalize cash transactions, but not so far as to eradicate it completely.

COVID-19 has introduced a lot of this universal and engrained change necessary for digital inclusion, it served as common ground for entire business payment systems to consider going digital at a regular period of time. Further, Rural economies were compelled to consider the AePS mechanism which led to an unprecedented rise in the transaction volumes post lockdowns.

Finally, the impact of COVID-19 on the digital payment system is being very complex and multi-faceted. The increased adoption in the short term is likely to accelerate the sustained shift toward digital payments. Also, this pandemic situation has uncovered various unknown perspectives and opportunities for Indian financial institution, businesses and individuals, which can be capitalized upon, by due agility and adaptability to anticipated change.

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E-BANKING SERVICE QUALITY IN PRIVATE COMMERCIAL BANKS

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ABSTRACT

Private commercial banks in India are exceptional service providers as they work in a more converse and competitive environment. They offer more products and services than nationalized banks. They ensure the privacy and security of the customers.With the advent of technology e-banking has emerged as a preferred way of banking. This study is based on secondary data and conceptual discussion. Service quality is a measurement of how an organization delivers its services as compared to the expectations of its customers. E-Banking service quality has repercussions on customer satisfaction. Banks should try to improve the quality of e-banking services to improve customer satisfaction. Quality of e-banking services is an important basis for competition amongst the private commercial banks.

Keywords: Service quality, Customer satisfaction, Private Commercial Banks, Services marketing

1. Introduction

Over the years, the banking system in India has evolved to achieve greater efficiency and transparency in the provision of financial services to customers. It covers the financial requirements of the various social classes of the country.

Public and private banks in India come with more flexibility in terms of their offerings and schemes. But private banks are in a better position to be peoples best choices. India's private banks are better in terms of efficiency and innovation. They are driven by profit, as a result they provide a better level of service.

Private banks were recognized in the 1990s after the LPG policy came into existence. Among the oldest and most popular private banks, Axis Bank and IndusInd Bank are considered to be the oldest private banks in India starting in 1993-94 when the government allowed them to introduce such banks.

Electronic Banking is commonly referred to as internet banking or just netbanking. It is an electronic payment system supported by a website that offers a wide range of products and services of any bank that can operate electronically, such as payments, transfers, deposits and more. It is an easy way to access account information and integrated account-related services from the comfort of your home and a stable internet connection. These services are also designed to protect you from online attacks. These netbanking sites can only be accessed with User IDs and passwords, by generating OTPs and captchas while logging in. Online banking has reduced the pressure on banking institutions and their customers. Today, when an account is opened in a bank, online banking services are automatically provided. Opening an account with a bank is also possible online. Online banking also maintains and provides tracking of all transactions and work done during the active session. E-Banking is secure and quick to access and process. Non-financial information such as banking news, checking statements, completing and submitting applications and more is possible at the click of a button. Nowadays, there is little difference between netbanking and e-Banking and terms are often used interchangeably. However, online banking is one of the many e-Banking services, while e-Banking integrates all the resources, financial and non-financial, offered. Unusual applies to e-Banking, even more so as the information hosted here is very sensitive. It is best not to use e-Banking services on public Wi-Fi, or on public computers.

In this paper we present a study reviewing the concept quality of E-banking services and its impact of customer satisfaction. The study is based on secondary data and conceptual discussion. Service quality is a measurement of how an organization delivers its services as compared to the expectations of its customers. E-Banking service quality has repercussions on customer satisfaction.

2. Literature review

E-banking

Historically, the introduction of the first Automated Teller Machine (ATM) in Finland marked the beginning of a new banking channel, which made Finland a leading E-Banking country, before being widely used in any other developed and developing country (Sharma, 2011). More recently, E-Banking, or the distribution of financial services through electronic systems, it has spread among customers due to rapid developments in IT and competition between banks (Mahdi, Rezaul, & Rahman, 2010). Lustsik (2004) describes E-Banking services as a variety of e-channels for online banking, telephone, TV, mobile, and computer banking. Bank customer requirements and service expectations are growing,as technology evolves and develops. These days, the customer wants to work and perform his or her banking activities anywhere without going to the bank, at any time without limiting the hours of operation of the bank, and making all its payments (purchases, debts, shares) immediately and a cost-effective approach. Therefore, the quality of financial services must be characterized by independence, flexibility, freedom, and flexibility, in order to meet these aspirations (Khalfan & Alshawaf, 2004).

Customer Satisfaction

Customer satisfaction is one of the most important concepts in the field of marketing studies today (Jamal, 2004). Overall, it integrates processes that culminate in post-purchase purchases such as mood swings, recurring purchases and product reliability (Churchill & Surprenant, 1982).Oliver (1980) explains that a sense of satisfaction arises when customers compare their actual product / service performance with their expectations. Several different definitions have been suggested to clarify customer satisfaction. However the concept of comparing post-product / service performance with pre-built expectations seems common in many definitions. Oliver (1981) defines contentment as a decision that assesses the background of use in relation to a product or service. Similarly, Tse and Wilton (1988) describe customer satisfaction as "the consumer's response to assessing the apparent difference between expectations and the end result after use"(page 204). Satisfaction can also be defined as response to post-purchase evaluation of a specific service / product quality, and compared to the expectations of the previous purchase phase (Kotler & Keller, 2011). In contrast, some researchers have found that the effect of the customer judgment regarding satisfaction about product or service on consumer goods and services is likely to be significant(Homburg, Koschate, & Hoyer, 2006). Therefore, customer satisfaction is the customer's feeling of happiness or unhappiness after severing the product / service performance in terms of expected years (Keller & Lehmann, 2006).

Customer Satisfaction and E-banking

According to Grönroos (1998) there is astable and positive relationship that combines both E-service quality and customer satisfaction. Indeed, Parasuraman, Zeithaml, and Berry (1988) also conclude in the study that the relationship between service quality and customer satisfaction is very strong and long lasting (Parasuraman et al., 1988). The simplest and most logical way to conclude that maximum customer satisfaction depends largely on getting the best service and the highest quality (Jain & Gupta, 2004). Many additional studies point to the relationship between customer satisfaction and E-Banking services. In their study, Asiyanbi and Ishola (2018) showed that they were satisfiedthe level of customers in the banking sector is growing when using E-Banking services (Asiyanbi&Ishola, 2018). Similarly, Ranaweera and Neely (2003) ensure qualityE-service is the first step in customer satisfaction(Ranaweera and Neely, 2003). Similarly, research conducted onthe banking sector by Bei and Chiao (2006) noted a great deal the relationship between service quality and customer level of customer satisfaction. Finally, Zhou, (2004) stated that the quality of loyalty-related E-Banking service has amajor impact on the level of customer satisfaction.

Dimensions of E-Banking Service Affecting Customer Satisfaction

With the number of studies coming together to demonstrate the relationship between E-Banking service and customer satisfaction, the question becomes the following: What characteristics or size of E-Banking service affects customer satisfaction and in what ways? Our review of the literature reveals that these factors can be integrated under efficiency, reliability, privacy and security, as well as responsiveness and communication. The speed of E-Banking services is a determining factor in customer satisfaction according to Parasuraman, Zeithaml, and Berry (1985). Effectiveness in terms of fast service is also confirmed by Wirtz and Bateson (1995) and Khadem and Mousavi (2013). Liao and Cheung (2002) find reliability as one of the most important factors customers need in assessing the quality of E-Banking service. A similar result was found in a case-based study by Kettinger and Lee (2005). With regard to privacy and security, a number of items identified and researched by researchers include maintaining job privacy, avoiding the sharing of personal information, and ensuring a high level of customer information security (Agarwal, Rastogi, &Mehrotra, 2009; Datta, 2010; Poon, 2007). According to Madu and Madu (2002), accountability is the willingness to support bank customers and provide fast-moving services. This type of service can be divided into four forms. First, the E-Banking system can control and use the service efficiently. Second, E-Banking channelscan guide customers in moving forward in the event of any failure. Third, it can also cover the immediate solution to any possible errors in E-Banking operations. Finally, it can support customer questions with the answer available there.

3. Service Quality for Private Commercial Banks
Dimensions of service quality

The five dimensions of service quality are:

Reliability: This refers to the organization's ability and consistency in performing a particular service in a way that satisfies the needs of its customers. This process covers all aspects of customer engagement, including delivery or upgrading of a service or service, quick and accurate problem solving and competitive pricing. Customers sincerely expect to buy the product, and the success of the company often depends on its ability to meet its expectations.

Tangibility: This is an organization's ability to demonstrate service quality to its customers. There are many factors that contribute to a company's success, such as its headquarters, staff and morals, its marketing resources and its customer service department.

Empathy: Empathy is the way an organization conducts its services in a way that makes the company seem sensitive to the wishes and needs of its customers. A customer who believes that the company really cares about his well-being may be more loyal to the company.

Responsiveness: This is the company's commitment and ability to provide customers with instant services. Responsiveness means receiving, evaluating and promptly responding to customer requests, feedback, questions and concerns. A company with high quality service always responds to fast customer communications which may reflect the value the company puts on customer satisfaction.

Assurance: A guarantee of trust in the customers they have in a particular organization. This is especially important for services that the customer may perceive as beyond their ability to understand and evaluate properly, which means that there must be some aspect of trust in the service provider's ability. Company employees need to be careful in order to gain the trust of their customers if they want to keep them.

Customer satisfaction

Customer satisfaction is a measure of how needs and responses are integrated and delivered to exceed customer expectations. It can only be achieved if the customer has a good relationship with the supplier. In today's competitive business markets, customer satisfaction is an important aspect of performance and a fundamental difference in business strategies. Customer satisfaction is part of the customer experience that discloses

supplier behavior to customer expectations. It also depends on how well it is managed and how fast the services are provided. This satisfaction can be attributed to various business aspects such as marketing, product production, engineering, product and service quality, responses to customer problems and inquiries, project completion, delivery services, grievance management etc.Customer satisfaction is the core of customer feedback about the supplier. The idea that a customer makes about a supplier is the sum total of the whole process they go through, from contacting the supplier before doing any marketing to the delivery of options and services and handling questions or complaints after delivery. During this process the client encounters the work environment of the various departments and the type of strategies involved in the organization. This helps the customer to have a strong view of the supplier which ultimately results in dissatisfaction or dissatisfaction.The customer perspective of the supplier helps the customer to choose between the supplier on the basis of price and how well the products delivered fit all the requirements. Supplier services never decrease after delivery as the customer demands higher prices after marketing services that can help them use and customize the delivered product more efficiently. If you are satisfied with the postal services, then there is a good chance that the supplier will retain customers in order to promote recurring purchases and make a good business profit. The organization really needs to work together and communicate with customers on a regular basis to increase customer satisfaction. In this communication and communication it is necessary to read and determine all the needs of each customer and respond appropriately. Even if the products are similar in competitive markets, satisfaction offers higher end prices. For example, buyers and sellers share regular purchases with credit cards for customer satisfaction, and many high-profile retailers also offer membership cards and discount benefits on those cards so that the customer remains loyal to them. The higher the level of satisfaction, the higher is the emotional

attachment of the customer to a particular type of product and supplier. This helps to create a strong and healthy customer service commitment. This obligation forces the customer to be bound by that particular provider and the chances of deviation are very small. So customer satisfaction is very important which every supplier should focus on in order to establish a discarded position in the global market and improve business and profitability.

4. Conclusion

Private commercial banks operate in a stiffly competitive framework. They have to compete with nationalized banks and other peer private commercial banks. Quality of e-banking services is an important basis for competition by the private commercial banks.

Electronic Banking is commonly referred to as internet banking or just netbanking. It is an electronic payment system supported by a website that offers a wide range of products and services of any bank that can operate electronically, such as payments, transfers, deposits and more. It is an easy way to access account information and integrated account-related services from the comfort of your home and a stable internet connection. E-Banking, or the distribution of financial services through electronic systems, it has spread among customers due to rapid developments in IT and competition between banks. Due to events like Corona, the use of e-banking has increased further. The Indian Governments move of demonetization was also directed to propel the use of e-banking. Thus, the conventional banking has been replaced to a sizable extent be e-banking. However, customer satisfaction still remains the priority for the banks. Dimensions of service quality like reliability, tangibility, empathy, responsiveness, and assurance, are applicable to e-banking service and they impact customer satisfaction. Service quality of e-banking services can be improved by working on these five dimensions. This will help the private commercial banks to gain market share and improve their business.

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The review of different data mining tools, techniques and algorithms for the data mining in education

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Abstract

Access of useful information is always important from the big dataset. This leads to extraction of useful results. Education is the field which requires the collection of educational raw data for proper processing to give important outcomes. This further helps in many decisions related to different areas in education. In this consideration, this paper details with the review information of educational data mining. The process and steps involved in it. It explores different methods, tools and techniques for educational data mining. This also gives idea about various algorithms for proper analyzing of the data in this mining process.

Keywords: *Algorithm, big dataset, Educational Data mining, Process, Techniques, Tools.*

Introduction

It is very important task to evaluate analyze and use the accurate information from the big set of data. The term data mining deals with the same concept. Data Mining is the access of required information from huge amount of data stored in data warehouse. The process of data mining ends into different patterns and required information. This skill uses different approaches , such as Artificial Intelligence ,Statistics, machine learning and database system.

Different techniques used in data mining are association, classification, clustering, prediction, sequential patterns, and regression etc.Data Mining has variety of applications in the various areas such as, Financial Data Analysis, Retail Industry, Telecommunication Industry, Biological Data Analysis, Other Scientific Applications, Intrusion Detection, Customer segmentation, Research Analysis, CRM, Education etc.

Educational Mining (EM) is one the application domain used in the education sector as it is one of the application sectors of Data Mining. In this type different techniques of data mining used on educational data. This is also known as Educational Data Mining (EDM). The main aim of EDM is to do analysis of these data to resolve related research problems. This includes the utilization of refined data analysis tools to find previously unknown, valid patterns and relationships in huge data sets. These tools can incorporate statistical models, machine learning techniques, and mathematical algorithms, such as neural networks or decision trees. Thus, data mining incorporates analysis and prediction.

Literature Review

Many investigations have been carried out to demonstrate the importance of the "Data Mining" techniques in education, demonstrating that this is a new concept for the purpose of extracting valid and accurate information about the behavior and effectiveness in the learning process[1][2]. Representing data mining in educational field which can be used to develop and understand the learning process of student and it will help to concentrate on finding student academic performance by assessing related variables has explained by Alaa el-Halees. [3]. Ryan S.J.D. Baker et al [4] analyzed the history and

trends in the field of educational data mining [5]. They focused about increased importance on prediction; the development of work using existing models to make scientific discoveries.EDM is defined by The Educational Data Mining community website as an emerging discipline which concerned about developing methods for exploring the unique types of data. This data come from the educational setting. Different methods can be used to better understand students, and their learning. EDM often stress with the improvement of student models which denote attitudes [6].Educational, Data Mining focuses on the development of exploration methods of specific types of data coming from the educational context. Its overall goal is to understand how students learn and identify those aspects that can improve learning and educational aspects. Data mining for education is so important. Such is the importance has prompted this research area that it is estimated that by the year 2022 all research related to education will involve analysis and data mining [6].

Educational Data Mining (EDM)

Educational Data Mining is a new growing field which relates with developing different methods that finds out knowledge from educational data. The goals of EDM can be defined as, to predict students future learning behavior, to study the effects of educational support, and to advance scientific knowledge about learning. It can be used by an organization or institution to take accurate decisions and also to predict the results of the student. These results help to focus on what to teach and how to teach. It will also help to capture learning pattern of the students and can be used further to develop techniques to teach them.

Process of Educational Data Mining

Figure 1: Process of Educational Data Mining

Source : Secondary data

The process of Educational Data mining is very well explained from the figure provided above.

The process categorized with the sequence of steps such as, Educational raw data, Preprocessing, EDM methods, Interpretation and modify education process.

The above mentioned steps are briefly mentioned below as,

Step1:-Educational Raw data-

In education, student-level data which can be considered as educational raw data. This refers to any information that educators, schools, districts, and state agencies collect on individual students, including data such as personal information, enrollment information, academic information and various other forms of data collected and used by educators and educational institutions.

There are following four important users(stakeholders) of the educational data mining-

1.Learners- Learners are type of users interested in understanding student needs and methods to improve the learner's experience and performance. They can benefit from EDM tools to suggest activities and resources that they can use. The grouping of the learners in an online environment is also very important. The main challenge is to learn these groups based on the complex data and create models which give reports on it.

2.Educators – Educators are the type of users attempt to understand the learning process and the methods they can use to improve their teaching methods. They can use different EDM applications. These applications will help them to identify different methods and organize the structure and curriculum. They also can take benefit of different identified tools to use to engage their learners for optimal learning outcomes .In particular, the distillation of data for human judgment technique provides an opportunity for educators to benefit from EDM always gives benefit to educators as it enables them to quickly identify behavioral patterns, which can support their teaching methods during the duration of the course or to improve future courses. It also can help them to determine indicators that show whether student is satisfied with the use of course material. This can also help to monitor learning progress.

3.Researchers – Researchers focus on the development and the evaluation of data mining techniques for effectiveness.

4.Administrators – Administrators are responsible for allocating the resources for implementation in institutions. It is sometimes a challenge to get the information to the decision makers to administer the application in a timely and efficient manner.

Step2:-Preprocessing of Data-

The technique which involves transfer of raw data into the final information that is in understandable format is called as Data preprocessing. This is a data mining technique. In the reality data is often incomplete, not consistent and is may contain many errors. To resolve such issues the technique Data preprocessing is get used.

Step3:- Methods in EDM-

After preprocessing of raw data, the sorted useful data can be applied with different methods used in educational data mining process. Some of the related methods mentioned below are as,

1.Prediction:-The prediction method handles very important aspect , that is to predict student's performance. It has several levels of granularity: it can be predicting that there will be no performance at all when students drop-off .Prediction in the form of pass/fail or in the form of degree or any course or predicting whether a student masters a given skill in a tutoring system. Numerous such factors can be considered for such prediction.

2.Clustering:- Clustering techniques are used to group objects so that similar objects are in the same cluster and dissimilar objects in different clusters.

3.Relationship Mining:-This method can be further subdivided as, association rule mining and

correlation mining, Graph mining, Multiview mining etc. These methods under relational mining use different algorithms for the data mining such as, Apriori algorithm, K-means algorithm etc.

Distillation of Data for Human Judgments. This method of educational data mining contains statistics and visualizations that help humans make sense of their findings and analysis. Statistical analysis, different diagrams and data representations are used on the available proper data.

Step4:- Interpretation of Data-

To come to the final conclusion we require implementation of processes by using which data is reviewed and gives required outcome. This is Data Interpretation. This interpretation of data gives a final value to the information which gets analyzed. This further determines its signification and implications. For such interpretation of data, it is required to finalize the scale. Different scales for interpretation are considered as,

Nominal Scale: It includes non-numeric categories that cannot be ranked or compared quantitatively. Variables are exclusive and exhaustive.

Ordinal Scale: This includes categories which are both exclusive and exhaustive but with a logical order. Quality ratings and agreement ratings are examples of ordinal scales (i.e., good, very good, fair, etc., OR agree, strongly agree, disagree, etc.).

Interval: It is a measurement scale where data is grouped into different categories where there are orderly and equal distances between the categories. There is always an arbitrary zero point.

Ratio: This contains features of all three.

Interpretation of the data is important as it helps in Data identification and explanation, Comparing and contrasting of data, Identification of data outliers and for Future predictions.

Step5:- Modification of EDM process-

On the basis of analysis and interpretation, the input of modified process again feed to the initial level of EDM process and used further for observations and evaluations of the process implementations. At the final acceptance level, the results are accepted and used for the required procedures.

Algorithms in EDM

Different algorithms support the process of data mining for pattern matching , clustering and association rules. The figure below list out some major data mining algorithms get used in top priority level.
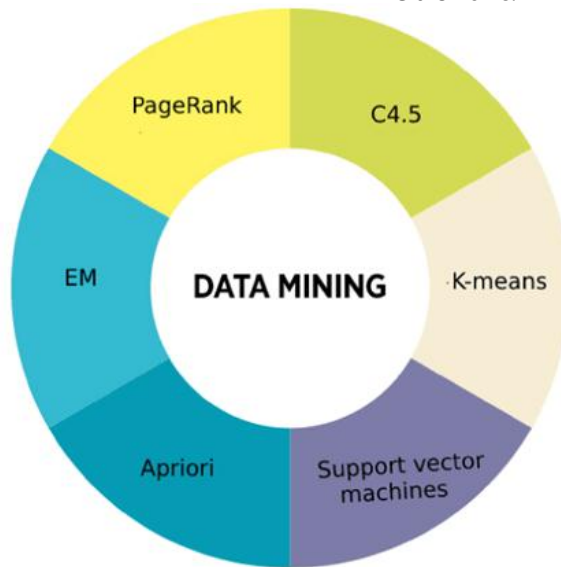
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Figure 2: Top Data mining Algorithms

Source: Secondary data

The brief information about the algorithms mentioned above is,

1.K-means Algorithm-K-means algorithm is an iterative algorithm that tries to partition the dataset into *K* pre-defined distinct non-overlapping subgroups (clusters). Here each data point relates with only one group.

2.Apriori algorithm -Apriori algorithm is given by R. Agrawal and R. Srikant in 1994 for finding frequent item sets in a dataset for boolean association rule. Name of the algorithm is Apriori because it uses prior knowledge of frequent item set properties.

3.EM algorithm-This is expectation–maximization (EM) algorithm. It is an iterative method to find maximum likelihood of parameters in statistical models, where the model depends on unobserved latent variables.

4.PageRank algorithm-PageRank (PR) is an algorithm used by Google Search to rank web pages in their search engine results.

5.C4.5 algorithm-This is an algorithm used to generate a decision tree

Techniques and Tools available for EDM

Four most useful data mining techniques are,

1.Regression (predictive)

2.Association Rule Discovery (descriptive)

3.Classification (predictive)

4.Clustering (descriptive) *This technique is important for doing fast analysis on data using different tools. Some of the tools available for EDM are mentioned below as,*

1.Rapid Miner- This is very popular since it is a readymade, open source, no-coding required software, which gives advanced analytics.

2.Weka-Weka is a collection of machine learning algorithms for data mining tasks.

3.Orange-This tool comes with environment having visual programming. It details with the tools for

importing data, dragging of data and dropping widgets and also provides links to connect different widgets together so that workflow can be completed.

4.R- This is a free software environment for statistical computing and graphics

5.Knime-Primarily used for data preprocessing.It is a powerful tool with GUI that shows the network of data nodes.

6.Tanagra- This is a free open source data mining software for academic and research purposes.

7.XL Miner- It is the only comprehensive data mining add-in for Excel, with neural nets, classification and regression trees, logistic regression, linear regression, Bayes classifier, K-nearest neighbors, discriminant analysis, association rules, clustering, principal components, and more.

8.Microsoft Excel also provides maximum methods for statistical analysis.

Conclusion

This paper discusses about process of educational data mining, different users of the system, methods, techniques and tools for the same. Data mining professionals work with databases to evaluate information and discard any information that is not useful or reliable This collective information is very much helpful for core study of educational data mining as concept and explains different work areas and research related to this domain. Educational data mining techniques used to determine performance of teaching learning process with positive, negative scenarios related to its different stakeholders mentioned in this paper. The process helps to learn student performance, behavior, to design course curriculum and to motivate students on various parameters. At the conclusion, this paper provides useful knowledge about educational data mining and initiates to choose required methods, techniques and tools for the further research carried out in this domain.

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MARKETING 4.0 - CONCEPTUAL ANALYSIS THROUGH LITERATURE REVIEW

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ABSTRACT

Kotler et al., (2016) in their famous book Marketing 4.0: Moving from Traditional to Digital, look at the changes in market dynamics, the opportunities and challenges created by digitalization, and the growing impact of the media that will shape the future consumer. They lead a foundation that shows why Marketing 4.0 becomes a foundation in production. The concept of Marketing 4.0 has become a popular topic for market researchers. To get the most recent review of research in the area of Marketing 4.0 systematic book reviews (SLR) was done based on a survey of 15 articles published in 2020 under the heading Marketing 4.0. Google Scholar Search Engine used for search. The aim was to identify the latest styles and recommendations related to Marketing 4.0. Some interesting findings came from SLR and that is discussed in this review paper.

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Keywords: Marketing 4.0, Literature review, COVID-19, Digitalization

Introduction

Marketing 4.0 is a marketing method that connects online and offline connections between companies and customers. In the digital economy, digital interaction alone is not enough. In an unrestricted online world, offline communication speaks volumes. Marketing 4.0 similarly mixes style with object. While it is fundamental that brands are flexible and flexible due to the fast-paced new styles, their loyal characters are more important than ever: that is the philosophy of Marketing 4.0 in the words of Philips Kotler (2016). Other important aspects of the concept, as one might call it include finding and staying connected with the customer; from 4Ps and AIDA to 5As: Ask, Advise, Assess, Assist and Arrange; use user information; multichannel and marketing inclusion. Scholars throughout Academicians have found a very interesting topic and have done extensive research on the meaning, scope, challenges, and opportunities of Marketing 4.0. This review paper looks at some of the recent publications related to this topic by focusing on the recommendations and / or quotes made by the authors. The purpose of managing the systematic literature review (SLR) was to obtain an updated view of emerging research practices focused on Marketing 4.0.

Systematic literature review (SLR) identifies, selects, and analyzes research to answer a structured question (Dewey, A. &Drahota, A. 2016). The search engine "Google Scholar" was used and the search term was Marketing 4.0. The selection criteria for the articles that are part of the review were: a. Paper should be of 2020 and b. A variety of contextual settings depending on the location and the product or services. Content selection in the papers was intended to address the question: What are the latest research trends regarding emerging trends focused on Marketing 4.0?

Analysis was performed on a standardized quality assurance approach (Hoyos and Barnes, 2012) and Gibson and O'Connor (2003) provided standard steps for this type of analysis to include quality data analysis, identification and conceptualization and concepts, body building, classification and categorization, data integration and its interpretation. Unlike the quantitative method, the quality method is highly dependent and difficult to configure.

The systematic literature review

The SLR presented below shows the in-text excerpts followed by the title of the publication as well as the important recommendations or excerpts, from the paper taken from the internet. Paper headings were provided to gain an idea of the research context.

1. Guven, (2020) Industry 4.0 and Marketing 4.0: In Perspective of Digitalization and E-Commerce. Marketing managers need to adapt to these changes and apply media and strategies to digital advertising.
2. Dash et al., (2020) Marketing-to-Millennials: Marketing 4.0, customer

satisfaction, and purchase intention. The Marketing 4.0 approach focuses on identifying the type of product and image of the product and may contribute to customer satisfaction and, consequently, increase customer purchasing intentions.

3. Suleman et al., (2020) Consumer Behavior in the Marketing 4.0 Era Regarding Decisions about Where to Shop.Research findings have found that risk affects market attitudes and decisions.

4. Garcia-Haro et al., (2020) Marketing 4.0 and Internet Technologies in the Tourism Industry Context. Companies should respond to these comments and ideas on the social media platform to build a positive image of the tourism industry. It will co-operate with tourist products and services in a participatory manner that is shared between consumers and companies and promote and encourage international explorers to visit the tourist site.

5. Dewi, (2020) Digital marketing strategy on travel tourism businesses in marketing 4.0 era.The tourism agency industry is wrong, this time ready to rely on the pedestrian service by booking tickets and choosing travel packages, everything has changed digitally.

6. Krishnamoorthy et al., (2020) Marketing 4.0: Impacts of Technological Developments on Marketing Activities. Technological advances regarding transformation and changes in the marketing mix are being evaluated. Finally, consider the broader approach to communication between technology and marketing.

7. Techasawat, (2020) Omnichannel retailing for consumers in marketing 4.0 Era. With this all-channel sales, customers can enjoy the fast-paced and useful shopping experience tailored to their lives, such as customized services that enhance customer interaction between retailers and vendors, resulting in consistent business of the retail business.

8. Confetto et al., (2020) From Dual Marketing to Marketing 4.0: The Role Played by Digital Technology and the Internet. Customized online marketing activity and large data analytics tools are shown to explore the link between dual marketing and big data analysis in Industry 4.0.

9. Putri et al., (2020) Halal tourism marketing strategies in 4.0 era: a research objective in West Sumatera. Digital technology has undergone major changes in the tourism industry, making changes in the tourism business, products, and information, business space plan, and destination.

10. Suryono et al., (2020) Strategies for Facing A Global Competition of The top three Indonesian marketplaces in the 4.0 Marketing Era (Survey on The Customers of Top Three Indonesian Marketplaces). The most important thing to do for Indonesia's top three markets is to maintain customer satisfaction, customer trust, and that will only improve whenever high quality communications are allowed.

11. Yuniarto et al., (2020) Guerilla Marketing in the Context of Industry 4.0. As technology evolves and people are uniquely linked to industry hypernet 4.0, there is a need to see how guerilla marketing addresses this development. This test attempts to investigate the differences between the 4.0 company's guerilla ads and traditional ones.

12. Sidek et al., (2020) Fortifying small business performance sustainability in the era of IR 4.0: e-marketing as a catalyst of competitive advantages and business performance. This study sheds light on providing important warnings to authorities about the importance of small businesses using e-Marketing as it produces a competitive edge and outstanding resilience to address the inevitable challenges of the IR 4.0 era.

13. Mallik, (2020) Marketing 4.0- Enhancing Consumer Experience Moving from Traditional to Digital. Marketing 3.0 has become a highly developed marketing strategy, however this trial focuses on Marketing 4.0 in terms of technology and the way Marketing 4.0 can be applied to any genre today.

14. Kolarova and Kolarova, (2020) An analysis of the use of marketing 4.0 principles for managing customers' relationships in microbreweries in the capital city of

Prague.The point of this investigation was to ensure that the Prague microbreweries use Marketing 4.0, use digitization, and adjust to the latest marketing trends and explain what methods they use to manage customer relationships.

15. Polisetty and Manda, (2020) Application of Marketing 4.0 Principles By the Indian Mutual Fund Industry. The Indian Mutual Fund's competitive industry requires the application of Marketing 4.0 principles due to market fluctuations and growing competition.

Findings and discussion

The circumstances of the 15 papers vary widely including industry continuity and services such as industry, tourism and finance. The sector situation also differed with the inclusion of vendors, SMEs, and marketing organizations from large companies. Attempts to combine standard marketing with digital marketing are reflected in activities that have this theme or something like Guerilla marketing.

The obvious findings are a clear goal of digital marketing and technology. While some of the revised articles have emphasized the role, effects, impact, and impact of digital technology, at least four refer to big data analysis, AI, and IoT as key features of Marketing 4.0. A few papers discuss marketing and product image. The use of competitive ingenuity was highlighted by a few authors. Balance sheets focus on a variety of factors such as customer satisfaction, value delivery, integration of Traditional and Modern marketing, risk considerations, use of multiple channel sales, etc. Big Data, AI, etc., about 2 / 3rd of the research has something or another

shade of these two. Several research papers show strong links between the two bodies (Ganguly and Mahalakshmi, 2020; Saura, 2020; Mogaji et al., 2020; Sivarajah et al., 2020). Integrated themes such as the use of competitive intelligence are actually part of the use of technologies such as AI etc.

Most of them, including those of 2020, were written while the world was recognizing the impact and impact of Covid-19. The epidemic has brought paradigm shifts in the way business is conducted and the obvious improved digital momentum is clear. This further reinforces the importance of digital marketing after Covid-19, a concept that was already entrenched even before Covid-19.

Conclusion

The amazing considerations of digital marketing are clearly seen as the focus of the latest marketing books 4.0. The concept of Marketing 4.0 as seen by Kotler et al., (2016) comes with the tag line "shift from mainstream advertising to digital marketing." The impact of technology on the marketing base has been seen as very broad. It affects all aspects of marketing, be it market research or the provision of after-sales services. Digital marketing in performance has greatly improved in recent times. For example, initiatives such as demonetization, campaigns such as "Digital India" and others reflect the clear intention of the Government of India to improve digital technology in advertising. As if that wasn't enough, the recent revolt of Covid-19 has almost completely revolutionized digital marketing. The basic principles of customer value and maximizing customer satisfaction, however, remain the root of the marketing ecosystem.

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EMERGING TRENDS IN INDIAN BANKING SECTOR WITH SPECIAL REFERENCE TO E-BANKING SERVICES

☐ Dr. Megha A. Jain*

ABSTRACT

E-banking is far beyond than the just shift from traditional or offline banking system to a digital world. It is an significant change how banks and the other financial institution interact with, learn about and satisfycustomers needs. Emerging Trends in Indian Banking Sector with special reference to E-banking services focus that Slowly but steadily, in India customers are moving towards the use of e-banking services. This study brings out the existing picture of e-banking services provided by both Public and private sector banks in Ahmednagar district. The Z –Test technique is used to analyze the collected data of the e banking service users.

Keyword: Assurance, E-banking, Information Technology, Reliability & responsibility, Security.

1. Introduction

The landscape of India's financial sector is changing as anywhere, anytime-banking, using different channels and technology, will bring a multi-fold increase the reach of technology to rural and remote areas. E-banking is became the need of an hour. E-banking in India has to confront a lot of challenges.

Apart from a several leading private players, SBI and Central Bank of India are the major public players in the-banking sector. Despite the fact that in the Indian Banking Industry public sector banks have huge network, infrastructure and customer base, still its performance is low for e-banking services as compared to its counterpart in the private sector.

2. Objectives Of The Research Study

To study the e-Banking services provided by public and private Sector banks in Ahmednagar district.

To understand the agreement towards satisfaction level for Service quality of E banking services provided by banks, the reliability & responsiveness, Assurance and security.

3. Hypothesis

For the purpose of the study following Hypothesis is formed and tested.

H_0: The satisfaction level of e-banking users for Services quality of e banking, Reliability & Responsiveness, Assurance and Security is good of all banks.

$$H_0 < 0.50 \qquad and \qquad H_1 > 0.50$$

4. E-Banking Services At Glance

E-banking can be defined as the effective delivery and automation of new banking products and services for customers through electronic & interactive communication channels.

"Electronic banking is the acme of information

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technology usage, to omit time and place limitation". E-banking services at a glance given below.

Core-banking: Core-banking is a general term which is used to explain services provided by a group of networked branches of Bank.

Automated Teller Machine: ATM can be defined as a machine which allows to the customers of a banking institution to transact banking business & process without any help of a bank cashier, clerk or any bank employee.

Debit card: A debit card is very similar to a cash card/ATM card, but it allows you to do a lot more than use an ATM machine. A debit card is like an electronic cheque which can be used to pay for goods and services.

Credit Card: It is a card issued by a bank or financial institution gives the holder an option or right to borrow funds, generally at the point of sale.

Electronic Fund Transfer (EFT): EFT offers facility to make payments to account holders of other banks in most efficiently and quickly.

Real Time Gross Settlement (RTGS):– It provides for an electronic based settlement of inter Bank & Customer based transactions, with intraday collateralized liquidity support from RBI to the participants of the system.

Mobile Banking : It is a complete payment solution, which gives us the power to pay in just One Click.

Unified Payments Interface (UPI): It is a system which have powers of multiple bank accounts into a single mobile application (of any participating bank), merging some of the banking features, seamless fund routing & merchant payment into single hood.

Point of sale (PoS): PoS is the place where selling process take place. It is also known as a point of purchase. On a macro level, a PoS may be a market, a mall or a city.

Research Methodology

E-banking service users of public and private banks in Ahmednagar district constitute the universe.

Sources of Data:

Primary data is collected with the help of structured questionnaires from 430 e-banking service users. Secondary data is collected from Research Journals & Articles, PhD Thesis, Newspapers and Internet.

Sampling Design:

Selection of Banks:

Three public and three private sector banks selected for research purpose in Ahmednagar district namely State Bank of India, Central Bank of India, Bank of Maharashtra, ICICI Bank, HDFC Bank and Axis Bank

Selection of Taluka:

There are 14 talukas in Ahmednagar district, From North Division Rahuri & Shrirampur and from South Division Ahmednagar & Shrigonda.

Population/Universe of Banks:

The population/ universe is defined as total 78 Public and private sector banks in selected taluka's of Ahmednagar district.

Sample size of E-banking Users

The size of the sample is decided using statistical method. In this research paper, the sample size (n) is **430.**

5. Data Analysis& Findings

Statistical tools are used for data analysis. In order to study the specific opinion of e banking users towards above e bank related statement Z test of Proportion is used:

Sr. No.	Sub Sr. No.	Statements	Hypo.	Z Value	Table Value	Discussion
a)		**Agreements towards satisfaction level for the Service Quality of E-banking services provided by your bank**				
	1	Simple and easy procedure for registration of e-banking services	$H_0 < 0.50$ $H_1 > 0.50*$	12.12	1.96	Fail to accept H_0
	2	Easy to operate ATM banking services	$H_0 < 0.50$ $H_1 > 0.50*$	6.55	1.96	Fail to accept H_0
	3	Easy to operate mobile banking services	$H_0 < 0.50*$ $H_1 > 0.50$	-9.54	1.96	Accept H_0
	4	Easy to operate Internet banking services	$H_0 < 0.50*$ $H_1 > 0.50$	-3.95	1.96	Accept H_0
	5	Convenient location and availability of ATMs	$H_0 < 0.50*$ $H_1 > 0.50$	-6.55	1.96	Accept H_0
	6	I did not find any mismatch of balance/problems till now while using e-services	$H_0 < 0.50*$ $H_1 > 0.50$	-6.55	1.96	Accept H_0

Table 1. Z test for Agreements towards satisfaction level for the Service Quality of E-banking services provided by your bank

Discussion:

Simple and easy procedure for registration of e-banking services for this statement the Z Value (12.12) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short the procedure for registration of e-banking services is simple & easy.

Easy to operate Internet banking services for this statement the Z Value (-3.95) which is less than the table value (1.96) so researcher accept Null Hypothesis (H_0), it means less than 50% respondents are agree with this statement in short the Internet Banking system is not easy to operate.

Convenient location and availability of ATMs for this statement the Z Value (-6.55) which is less than the table value (1.96) so researcher accept Null Hypothesis (H_0), it means less than 50% respondents are agree with this statement in short ATMs are not available at convenient locations.

I did not find any mismatch of balances/problems till now while using e-services for this statement the Z Value (-6.55) which is less than the table value (1.96) so researcher accept Null Hypothesis (H_0), it means less than 50% respondents are agree with this statement in short the above statement is not true.

Sr. No.	Sub Sr. No.	Statements	Hypo.	Z Value	Table Value	Discussion
b		**Agreements towards satisfaction level for the Reliability & Responsiveness**				
	7	E-banking services are as per specifications/ brochure	$H_0 < 0.50$ $H_1 > 0.50*$	20.73	1.96	Fail to accept H_0
	8	Good support for customer's service problems queries	$H_0 < 0.50$ $H_1 > 0.50*$	7.04	1.96	Fail to accept H_0
	9	Use of ATM cards with multiple bank ATMs	$H_0 < 0.50$ $H_1 > 0.50*$	2.60	1.96	Fail to accept H_0
	10	Bank alerts before/after updation in account balances	$H_0 < 0.50$ $H_1 > 0.50*$	20.73	1.96	Fail to accept H_0
	11	Provides information regarding new scheme of Bank	$H_0 < 0.50$ $H_1 > 0.50*$	20.73	1.96	Fail to accept H_0

Table 1. Z test for Agreements towards satisfaction level of the reliability & responsiveness

Discussion:

E-banking services are as per specifications/ brochure for this statement the Z Value (20.73) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short the E-banking services are as per specifications/ brochure.

The use of ATM cards with multiple bank ATMs for this statement the Z Value (2.60) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short the above statement is true.

Bank alerts before/after updation in account balances for this statement the Z Value (20.73) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short the above statement is true.

Provides information regarding the new scheme of Bank for this statement the Z Value (20.73) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short banks are provide information regarding the new scheme of Bank.

Sr. No.	Sub Sr. No.	Statements	Hypo.	Z Value	Table Value	Discussion
c		**Agreements towards satisfaction level for the Assurance**				
	12	Availability of information of bank on Internet	$H_0 < 0.50*$ $H_1 > 0.50$	-11.09	1.96	Accept H_0
	13	24/7 Hours e-banking services are available (ATM, Internet, Mobile)	$H_0 < 0.50*$ $H_1 > 0.50$	-6.55	1.96	Accept H_0
	14	Good account security maintained by the bank	$H_0 < 0.50$ $H_1 > 0.50*$	3.34	1.96	Fail to accept H_0
	15	Satisfactorily solves problems of Users	$H_0 < 0.50$ $H_1 > 0.50*$	20.73	1.96	Fail to accept H_0

Table 1. Z test for Agreements towards satisfaction level for the Assurance

Discussion:

Availability of information of bank on the internet for this statement the Z Value (-11.09) which is less than the table value (1.96) so researcher accept Null Hypothesis (H_0), it means less than 50% respondents are agree with this statement in short the above statement is not true, because more than 50% respondents are not aware about internet banking.

Good account security maintained by bank for this statement the Z Value (3.34) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short banks are maintained good account security.

Satisfactorily solves problems of Users for this statement the Z Value (20.73) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short banks solves problems of Users .

Sr. No.	Sub Sr. No.	Statements	Hypo.	Z Value	Table Value	Discussion
d		**Agreements towards satisfaction level for the Security**				
	17	Proper security is provided of your account	$H_0 < 0.50*$ $H_1 > 0.50$	-6.55	1.96	Accept H_0
	18	Personal Identification Number (PIN) system is suitable for security	$H_0 < 0.50$ $H_1 > 0.50*$	20.73	1.96	Fail to accept H_0
	19	The bank keeps account information Confidential	$H_0 < 0.50$ $H_1 > 0.50*$	20.73	1.96	Fail to accept H_0

| 20 | Better security regarding unauthorized access(Hackers) | $H_0 < 0.50$ $H_1 > 0.50*$ | 2.60 | 1.96 | Fail to accept H_0 |
| 21 | Provides physical (watchman, camera, etc.) security to ATM centers | $H_0 < 0.50$ $H_1 > 0.50*$ | 2.60 | 1.96 | Fail to accept H_0 |

Table 1. Z test for Agreements towards satisfaction level for the Security

Discussion:

Proper security is provided to your account for this statement the Z Value (-6.96) which is less than the table value (1.96) so researcher accept Null Hypothesis (H_0), it means less than 50% respondents are agree with this statement in short the above statement is not true.

The bank keeps account information Confidential for this statement the Z Value (20.73) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short the statement is true.

Better security regarding unauthorized access(Hackers) for this statement the Z Value (2.60) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short banks provides better security regarding unauthorized access(Hackers).

Provides physical (watchman, camera, etc.) security to ATM centers for this statement the Z Value (2.60) which is greater than the table value (1.96) so researcher fail to reject the Null Hypothesis (H_0), it means more than 50% respondents are agree with this statement in short the above statement is true.

6. Conclusion

The Banking sector is now witnessing a big wave of progress with introduction of E banking and innovations in the banking scenario. Indian banking system is growing in size and complexity while acting as an important agent of economic growth and intermingling different segments of the financial sector. E-banking has changed the outlook of banking industry worldwide as now banks are offering more classy services to the customers with the constant product and process innovations.

From the research it is also concluded that though the public banks are having a huge customer base, infrastructure and network still the private banks are better in providing e-banking services.

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STUDY OF THE DIGITAL RESPONSE BY RETAILERS IN THE PANDEMIC THROUGH LITERATURE REVIEW

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ABSTRACT

COVID-19, the epicenter of the century, has had a profound effect on the entire industry, and on our health in an unprecedented way. The closure announced by the government to monitor the spread of the disease has halted many businesses on a large scale. As a result, US GDP for 2Q2020 (Apr-Jun) decreased by 9%, while UK GDP contracted by 20% (GDP Growth - Second Quarter 2020, OECD, 2020). Such setbacks have never been heard of in the last decade. Against this backdrop, it will be interesting to see how businesses have performed on this issue, what steps they have taken to deal with natural storms, and what technologies they have chosen to survive. A vicious cycle that leads to economic downturns has begun to emerge. Retail is one of the most important sectors of the economy. This paper proposes a strategy to combat the risk or robustness of the digital retail business.

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Keywords: COVID-19, Retail, Response, Digitalization

Introduction

COVID-19, the epicenter of the century, has had a profound effect on the entire industry, and on our health in an unprecedented way. The vicious cycle that leads to economic hardship has begun to grow. Reduced consumption-reduced prices - providing less work-reducing spending - lower consumption - all blocks look good. Against this backdrop, it will be interesting to see how businesses have performed on this issue, what steps they have taken to deal with natural storms, and what technology they have chosen to survive. Retail is one of the most important sectors of the economy. This paper proposes a disaster management strategy for the digital business. In this regard, the paper reviews some recent research in this area. The review focused on the idea of using digital technologies used to combat problems such as Covid-19 to achieve economic stability. The sector focus is on the retail industry. Another important study planned was an evaluation of the effectiveness of various digital technologies in order to sustain the economic performance of retail companies.

Literature Review

Research related to digitalization and marketing in various sectors leading to economic sustainability was conducted to incorporate those related to improving efficiency, creating competitive advantage, reshaping value, restructuring, redefining, integration and integration, cost effectiveness, performance flexibility, and customerfocus.

A number of studies in the recent past have focused on the transformation based on digitalization in the Retail sector (Aithal and Aithal, 2019; Dyk and Belle, 2019; Esch et al., 2019; Hänninen et al., 2019;Kaplan and Tewes, 2019; Kutnjak et al., 2019; Sachs, 2019; Vojvodić, 2019; Weber and Schütte, 2019; Jain andWerth, 2019; Iftikhar et al., 2019; Gajjar, 2020; Lagorio and Pinto, 2020; Gawankar et al., 2020; Jin and Shin, 2020).

A study by Hanninen et al. (2019), states that sales undergo a significant transformation as markets based on multiple segments, such as Amazon, Alibaba, eBay, JD.com, and Rakuten, evaluate active retailers. From thriving brick and mortar stores and the development of shopping malls throughout the 1900s, retailhas gradually become digitized as various markets join online and offline to create customized customer information. Researchers are developing a framework for how multi-dimensional markets integrate their pre- and post-stage activities to create a customizable, useful, and fast-paced shopping experience.

In their study, Koncar et al. (2020), see that retail will change over the next decade. The most compelling reason for this is the digital integration that is dramatically changing the service industry. The digital impact is a common change in retailer's business strategy.

The issue and the purpose of this test is to distinguish strong digital marketing strategies that are likely to be successful in the market. New advanced technologies and devices enable retailers to interact directly with consumers, improve shopping experience, and track customers at each location in the shopping cycle. Improved conversions change sales by changing vendor applications. Retailers who successfully use digital strategy get a chance at another market game, people who do not focus on the new risk of losing competition and time. Digital creation involves innovation and a new business idea. As a result of the experiment, digital strategic proposals will be introduced to change the trading business strategy in the modern digital age.

In their study, Barsch et al. (2019), believe that competitors and customers put Local Ownership Stores (LOOROs) under pressure to make digital. Local Shopping Platforms (LSP), unquestionably utilizes LOORO's local quality and proves to be a promising vehicle that enables LOOROs to overcome their complex digital challenges. In this study, by examining 27 LSPs in Germany, Switzerland, and the U.S., the authors classified LSPs as neighbors of e-commercial institutions and determined the use of based typology. In addition, the authors examined how LSPs respond to local LOORO preferences. Despite its obvious role as corporate management institutions and low-level business choice in the LOORO web-based business, research results show that LSPs are currently inadvertently circulating administratively enabled regions that assist the Internet channel, while ignoring LOORO's capabilities of regional managers and neighboring stores such as Point of Sale (PoS).

In a study by Ohlin (2019), the researcher asserts that, with the increasing level of digital integration into the retail space, retail office owners need to adapt their operating system to suit modern times. Web-based business and other advanced tools have transformed the retail business and sitting retailers must be accountable for moving forward in order to stay relevant. Although previous experiments have examined the concept of digital devices in sales or the general impact of improved change in the environment, theory aims to examine the impact of improved change in the vendor's

action plan. To assess the impact of digital transformation on the retail office owner app, a single content analysis is directed at Company X, an active retailer operating in Sweden. Business Model Canvas has been used as a tool to visualize the current operating system of the organization and to make recommendations for Company X applications. All the considered scenarios increased participation with external partners and the creation of new client channels. The research results add to the existing knowledge of changes in vendor systems. This researcher agrees with the conclusions of the previous study that there is an impact of improved change in sales. It suggests new research on the impact of a vendor strategy. The test is similar to the way in which a business model framework can be used as a comparison unit when evaluating strategic options.

In Stark's book (2020), the author presents a study of Digital Transformation from the perspective of a retail store. Existing frameworks are displayed. Many new solutions based on digital technology have been unveiled. Some resulting questions are usually answered. CEO response and input are summarized. The resulting customer survey is being tested, highlighting the need to investigate Digital Transformation in more depth.

Thus, large volumes are available based on the theme "digitalization-led transformation in the field of Retail". In addition, a large number of studies are available based on the topic "economic crisis due to the Covid-19 epidemic" (Hertatiet al., 2020; Kraus et al., 2020; Ritzen et al., 2020; Murugeswari, 2020; Fischedick et al., 2020; Redeker, 2020; Bardt, 2020).

Effectiveness of digital technology

A study by Ferreira et al., (2020), suggests that digital technology has transformed the retail industry. The digital revolution has changed the style, which works together in all industries, from education to health. In this case, the retail industry is not different. It is always influenced by the advancement of digital technology, which adds significant disruptive changes to the competitive environment. Sales are increasingly online as

multilateral markets bring together offline markets and create a better consumer shopping experience. In this unique environment, customers are hoping to find hi-tech shopping malls. Entrepreneurs look for benefits, such as, creating and maximizing new market opportunities by banking with technology tools, creating new operating models, developing and improving their processes in a customer-centered way. The study provides trends in trends in key technologies used and adds potential for future retail trends.

A study by Krymov et al., (2019), argues that digital technology has dramatically changed modern retail industries. The study looks at key issues related to the business transformation model and related product distribution processes based on the knowledge and digital capabilities of the business. Pre-development and the introduction of digital information and technology in the retail space were specifically linked to network distribution. The elements of a digital business that change the sales process and new business processes are brought under the framework: digital creation, personalization, comfortable payments, comfortable and fast delivery. The skills are based on digital principles that enable an integrated product distribution model where the customer chooses the purchase of a comfortable and reliable channel against the convenience and convenience. Components of all forms of economic activity are associated with a new evolutionary trend marked by a deeper familiarity with digital technology and data across all fields of public service. At the same time, the list of key drivers has been enhanced by factors such as business processes for digitalization, as well as the yield of new products that reveal corporate operational status and readiness for structural changes. Thus seeking modern technology just as their use becomes strategic indicators for business leaders. Many business executives understand that business success often depends on their strong adaptation to market needs and the application of new technologies to the company's day-to-day operations. Research has determined the tendency to devise a new way of dealing with a range of product offerings: multi-channel trading and individual performance. The article contains the presentation of marketing tools to make current store information and product distribution more accessible, to allow for flexible variations in product distribution chains depending on the changes required. The hierarchical values of large corporations are introduced into the system: digitalization, personalization, comfortable and fast delivery, and payments.

A study by Borisova et al., (2020), argues that digital innovation has affected retail organizations. Increasing competition encourages the search for tools to influence consumer decisions. The tightness of client requirements, their tendencies, and the means of communication with providers are a popular area for the continued development of organizations. The digital business climate is influenced by the use of computer systems in organizational activities and the formation of interaction with partners. There is a need to create new programs based on digital technology. Organizations that use these programs evaluate the productivity of their business. Development seeks to maintain a balance of innovation in current performance tests and to ensure the protection of market positions. In addition, there is research speculation about the impact of innovation on the organization's activities in its market performance. Diagnosis is made from the leaders of the Russian retail market. The technology tested in the organization has been categorized, and the business aspects of the business have been evaluated, and the main test of the organization's scientific authority on the variables affecting the presentation of technology has been researched.

In another study, Dannenberg et al., (2020), noted that the German food market expanded during the corona crisis. COVID-19 has created a huge increase in online commerce. This article explores the impact of the epidemic on online grocery stores in Germany. The authors followed and modified Geels' research methodology (2002 and 2012), and looked at how and why online grocery sales increased during corona pandemic. A special highlight is the expansion of the rural area. Research shows the general rise in grocery trading and the unprecedented high collisions in online grocery trading and differentiates driving and limiting features.

A study by Dong et al, (2017) suggests that digital technology has transformed the service sector including marketing. Factories are increasingly relying on digital technologies, for example, big data, cloud computing, e-commerce, digital tracking, and digital platforms that change business operations and models, and market forces. The Bank of Canada analyzed firms in transportation, wholesale, and retail, to obtain information on the adoption of digital technologies. The findings show that firms are increasing investment in digital technology, often in order to increase efficiency and improve consumer knowledge.

Challenges and Prospects

The future of retail is improving. The transition from traditional physical to digital is inevitable (Ellis-Chadwick, 2018). For a long time, communities have gathered in shopping malls, markets, cities, and shopping malls to promote their products and businesses. However, the development of digital technology, software development, and global internet adoption have changed the way we shop. The impact of this change in consumer behavior has a significant impact on many types of retail outlets, with the same number of organizations repairing the environment, and closing down their actual stores for sale using digital channels. Where the Internet was a highly secretive workplace used mainly by tech-savvy 30-something, the highest paid boys living in the United States, in less than 25 years the web became a regular trading channel, where half the population could reach. Research is investigating how this store development started, how online shopping has improved, what marketers are striking and the failure of the internet, and what this might mean for the fate of cities and urban areas. Does that mean that visible stores will disappear? Probably not. However, reselling is reshaping quickly and businesses that will thrive in the future will be those with digital products and trading multiple channels.

The Shnorr test (2020), provides an integrated test of digital marketing. The study created the process of testing the necessary delivery of different development by entering the marketplace. The survey demonstrates the importance of critical testing of digital

marketing. The author introduces basic research into advanced digital technology in the Russian region. A digital development test has been performed.

McKinsey and the Company, in their report (2020), circulated the proposals for a portion of UK stores due to new developments. They focus on two areas of support - total income and staff transformation. The UK Retail site is at the forefront of development due to three factors - one, with the most significant web-based acquisition rate, two, retail genre has dropped by almost 200 points since 2013, and three, part of a major private sector employer representing ~ 14% of shares in the market. Therefore, innovation is a key foundation for UK retailers to stay fit and productive: the futures trading experience will be driven by visual design and changing consumer preferences while allowing retailers to redesign the operating model and financial issues. By 2030, the test anticipates a new invention (both through channel movement and computer use) that affects 33% of UK retail shares. To address this, retailers should reconsider all functions and procedures, and similarly make informed decisions about the angle at which they acquire new technologies in all areas that change their reliance on the retail activity. At the same time, this level of progress likewise gives UK retailers the opportunity to lead new work models. All in all, a new 'reboot' design can boost UK retailers' genes by 280–600 basis points. Achieving this will require vendors defining a strategy and setting up a 'control tower' in order to avoid sending more independent and outgoing pilots. Their decisions about innovation will be incorporated with those closest to consumer offerings, functional models, people, and, for larger retailers, their impact and responsibility towards a much wider network.

Analysis and Conclusion

There are various digital technologies in operation in the retail sector. The technology influences customer experience, helps predict demand, effectively manages inventory and delivery models. Few studies have found that digital technology has transformed businesses significantly and had a positive impact on business during the corona crisis. Very likely

the potential for further technology distribution will determine the field study and organizations that adopt this technology will emerge as winners (McKinsey & Co., 2020). Several studies have focused on the impact of digital technology in the retail sector. All of these technologies can be used to combat a problem like Corona is a retail industry. These courses point to a bright future for the digital marketing industry. There will be some challenges, however, that need to be addressed. To support this theoretical claim, further research can be conducted based on baseline data from the data examining their actual response to the epidemic.

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AN ANALYSIS OF JOB SATISFACTION OF EMPLOYEES WORKING AT GOVERNMENT, TEACHING AND TRUST HOSPITALS IN AHMEDNAGAR DISTRICT

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ABSTRACT

Employee Job Satisfaction is a key concept in Organization and Management of all the organizations. With the advent of aspects like Service Quality, the topic assumes special significance in the context of service organizations like hospitals. This study examines the relationship between the type of Hospital Organizations (Government, Educational &Trust) and Employee Job Satisfaction for hospitals in Ahmednagar District. While a good number of studies on the conceptual relationship in the context of hospitals are on record, those that have been carried in a set-up of rural-urban mix, the mix of government, trust and medical college run hospitals is not seen. This study aims at providing specialized information on the concept with reference to impact of variables like type of organization on employee job satisfaction. If a hospital is run by Government, or a Private Trust or a Medical College, how does it impact employee job satisfaction? Such interesting relationships will be investigated. Preliminaries of the study are discussed in this article.

Introduction

Employee Job Satisfaction is a key concept in Organization and Management of all the organizations. With the advent of aspects like Service Quality, the topic assumes special significance in the context of service organizations like hospitals. This study examines the relationship between the type of Hospital Organizations (Government, Educational &Trust) and Employee Job Satisfaction for hospitals in Ahmednagar District.

Indian medicinal services include world class framework and extremely creative ability pool too. Legislature of India is likewise contributing vigorously as it has declared to set AIIMS in a few states over the India.

Employee Job Satisfaction

*Satisfied employees*help produce *satisfied customers. Satisfied employees* are probably going to help customers with a progressively charming aura and a more elevated level of customer support. This makes an additionally fulfilling customer experience, expands customer dependability, and at last drives expanded benefit. Then again, low employee satisfaction and in general low employee resolve can contrarily impact organization activities significantly, causing disappointed customers and hurt gains.

Employee Job satisfaction in Hospitals

Job satisfaction is characterized as a pleasurable or positive passionate state coming about because of the examination of one's activity or professional adventures. Few models have been proposed for contemplating work satisfaction. The most famous activity satisfaction model is Locke's scope of effect hypothesis, which hypothesizes that activity satisfaction is controlled by a disparity between what one needs in an occupation and what one has in a vocation. The hypothesis additionally makes reference to that the amount one qualities a given feature of work (e.g., the level of self-governance) directs how fulfilled/disappointed one becomes with the activity when desires are/are not met. The regular parts of employment satisfaction are work, pay, advancements, acknowledgment, benefits, working conditions, supervision, colleagues, organization and the board. On the other hand, the dispositional hypothesis places that individuals have inborn airs that cause them to have propensities toward a specific degree of satisfaction, paying little heed to the idea of the activity.

Hospitals in Ahmednagar District

Ahmednagar is the biggest District of Maharashtra. In 2011, Ahmednagar had populace of 45.43 lakhs of which male and female were 23.42 lakhs and 22.00 lakhs separately. In 2001 enumeration, Ahmednagar had a populace of 40.41 lakh of which guys were 20.83 lakh and staying 19.58 lakh were females. Ahmednagar District populace established 4.04% of all out Maharashtra populace. In 2001 registration, this figure for Ahmednagar District was at 4.17 % of Maharashtra populace. There was change of 12.44 % in the populace contrasted with populace according to 2001. In the past statistics of India 2001, Ahmednagar District recorded increment of 19.80% to its populace contrasted with 1991. The anticipated populace for 2020 is 48.79 lakhs (Source: Census 2011). Out of the complete Ahmednagar populace for 2011 evaluation, 20.09 percent lives in urban locales of region while 79.91 % populace lives in country zones of towns. There are various significant emergency clinics in the locale. Prominent amongst these are ShirdiSansthan, Pravara Medical Trust Hospital, VikhePatil Hospital, Anandrishiji Hospital, St.Lukes Hospital and others. The district has a unique mix of hospitals that are run by the Government, Trusts and also Medical Colleges. Hence it is felt that the concept of employee satisfaction can be well studied in the context of hospitals in Ahmednagar District. The topic not only deals with an important concept of marketing and HR, it has its own contextual relevance given the number of major hospitals that are run in Ahmednagar District. It is also to be noted that the concept of employee job satisfaction is strongly associated with another key concept, customer satisfaction and this relationship has been duly considered for this study.

Review of Literature

Brunoet. al. (2017) identified with the work environment social emotionally supportive network and its suggestion on soundness of employees and working environment result in medicinal services administration area. Finding of research indicated that work environment social emotionally supportive network for worker had association with more elevated level of customer direction.

Alameddineet. al.(2017) uncovered that confusing relationship exist between work satisfaction and employment disorder among German medical attendants. Pattern investigation from 1990 to 2013 was done in look into. Pattern demonstrated that medical attendants with higher satisfaction had higher tenacity rate.

Leggat, et. al. (2017) led to cross sectional review directed in metropolitan clinic. It gave exact proof on staff discernment identified with the nature of care in connection of patient satisfaction. Research additionally mirrored different factors likewise answerable for persistent experience for example working environment mental disposition and other hierarchical factor.

Rehaman and Husnain (2018) distinguished that there is connection between persistent satisfaction and employee satisfaction in quality consideration. The exploration additionally demonstrated that there are different variables of employee's conduct that brought about patient satisfaction. There were factor like compassion (minding frame of mind, individualized consideration), appearance of social insurance supplier.

Guarnacciaet. al. (2018) portrayed relationship of employment satisfaction and word related self – viability on wellbeing of employees that brought about their general execution.

Leeet. al. (2018) examined and tried a model on employee encounters of work environment could convey brought about by and large satisfaction of life.

Cherianet. al. (2018) it was discovered that medical attendant's satisfaction in work environment was emphatically identified with the responsibility level for association. The plan of research was exploratory in nature. It demonstrated that association responsibility and occupation satisfaction were significant factor that had huge effect on understanding satisfaction. Fulfilled customers needed to allude same association to other people.

AL-Mhasnahet. al. (2018) inspected the patient satisfaction and nature of care conveyed by human services supplier. SERVQUAL model

was utilized to recognize connection between quiet satisfaction and nature of care in Jordan. Aloisio et al., (2018) proposed that employee level and association level variable were answerable for work satisfaction in medicinal services experts and that prompts better nature of care. This examination was done in senior consideration setting (Long term care setting). Ghareebet. al. (2018) uncovered that employees working in wellbeing setting considered accreditation as a positive angle for the association and this particular staff discernment decidedly corresponded with the nature of care in human services association. It legitimately demonstrated frame of mind of employees straightforwardly connected with nature of care in medicinal services association.

Research Gap

While a good number of studies on the conceptual relationship in the context of hospitals are on record, those that have been carried in a set-up of rural-urban mix, the mix of government, trust and medical college run hospitals is not seen. This study will provide specialized information on the concept with reference to impact of variables like type of organization on employee job satisfaction. If a hospital is run by Government, or a Private Trust or a Medical College, how does it impact employee job satisfaction? Such interesting relationships will be investigated.

Statement of the research problem

Employee job satisfaction is an important part for any service organization. Employee job satisfaction plays a major role when ascertaining the total satisfaction of the customers with the service provided by the organization. The objective of this study is to examine the relationship between the type of hospital organization and employee job satisfaction.

The research questions to be investigated are as under –

RQ1 – What is the level of employee job satisfaction of employees working in the Hospitals in Ahmednagar District?

RQ2 – Are there any special organizational and demographic features that impact employee job satisfaction in Hospitals in Ahmednagar District?

RQ3 – Is there any relationship between employee job satisfaction at different levels in the organization?

At a broad level the study proposes to investigate the association between type of hospital and employee job satisfaction. At finer level the study proposes to examine association between special organizational and demographic features that impact employee job satisfaction. The research will study intra-conceptual relationship like what are the factors that affect employee job satisfaction and also inter-conceptual relationship in terms of association of employee job satisfaction working at different levels.

Relevance and Significance of the study

The healthcare landscape in India is changing quiet fast. The evolution of healthcare since the first half of the 20th Century was characterized by large hospitals, predominantly government or Para government driven. Most of these were driven on a platform of charity. This situation continued in to the post-independence period, though some corporates invested in hospital and many successful private doctors began to grow their consultancy services or practices. It is only post liberalization (1991) that the "Corporatization" of hospital increased pace and today has led to investment in hospitals being viewed purely as a commercial proposition that have resulted in many corporate hospital chains- Apollo, Fortis, Escort, Max, Wockhardt etc.

Research objectives, Scope and limitations

Research objectives

Following objectives were set for the research-

1. To study and assess the employee job satisfaction levels at major Hospitals in Ahmednagar District,
2. To measure the relationship between the type of hospitals and employee job satisfaction at major Hospitals in Ahmednagar District
3. To examine special relationship, if any, between employee job satisfaction at different levels of employees at major Hospitals in Ahmednagar District and

4. To investigate into organizational and demographic factors that have an impact on employee job satisfaction.

Scope of research

The scope is summarized as under -
Concept(s) –
   a. Employee Job Satisfaction
   b. Type of organizational structure
   c. Relationship between the two
Context(s)
   a. Hospitals in Ahmednagar District
   b. Types of hospitals (Government, Trust, Medical College)

The research will study intra-conceptual relationship like what are the factors that affect employee job satisfaction and also inter-conceptual relationship in terms of association of employee job satisfaction working at different levels. At finer level the study proposes to examine association between special organizational and demographic features that impact employee job satisfaction and customer satisfaction.

Limitations

1. The study will have limitations in terms of geographical location since it will be conducted only on customers (patients) from Ahmednagar District of Maharashtra.
2. Moreover limitations of sampling will apply to the study.

Conclusion

Hospital is an organization with multifunctional activities whose objective is as follows:-
1) To provide medical care to sick & injured regardless of race, color and economic status.
2) To educate patients, their relatives and community regarding health.
But in the long run they have become commercial & profit making organizations. The quality of healthcare delivery in India is highly variable and is dependent on location (urban/rural), delivery format (small facilities/ large hospitals), sector (public/private) and the intent of the healthcare provider. This is compounded by the fact there are no quality indicators or performance parameters available in the public domain.
Health care system across the world has undergone significant change in the last few years. The objective is to study the employee practices and employee job satisfaction in relation to the delivery of service in health care organization. Given the fact that Ahmednagar District is the largest in the State of Maharashtra and there are number of hospitals catering to a big mix of rural and urban population, the study assumes significance not only in terms of the key concepts being investigated but also in contextual reference.

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ONLINE PRODUCT REVIEWS AND ITS IMPACT ON PURCHASE INTENTION

❑ Dr. Gadekar Vithal Laxman*

ABSTRACT

The purpose of the study was to investigate the effect of online product reviews on purchase behaviour. The study attempted to find if demography of consumers have impact on the perception of online product reviews and purchase behaviour. The study also had a purpose to find if the effect of online product reviews change as per product category. The data was collected from several educational institutes in and around Ahmednagar city in Maharashtra. 234 responses were analysed. The result showed that demography is significantly related with the perception of online product reviews. Second finding says that the impact of online product reviews changes as per the product category. Practical implications and limitation of the study are discussed in the last section of this paper.

Keywords- Online product reviews, Purchase intention, Electronic Word of Mouth

Introduction

E-commerce has been accepted rapidly and widely by the Indian population. People from rural areas are also buying things online. This has led to investigate the newly formed consumer behaviour. Researcher was keen to understand how consumers make decision to buy something online. Literature review suggested that reviews written by existing consumers of that product are referred by others to make informed decision. Therefore this research tries to investigate the effect of online product reviews on purchase intentions. The other objective of the study was also to examine if people refer to reviews for all categories of products.

Literature Review

Jalilvand and Samiei (2012) conducted a research to investigate the impact of electronic word of mouth on brand image and purchase intention. They conducted this study for one of the brands in Automobile sector. The questionnaire for collecting data was designed with the help of past studies in marketing domain. A structural equation modelling was used to analyse data and meet the objective of the study. The analyses showed that electronic word of mouth impacts strongly on brand image and

purchase intention. The study recommended some general tips for websites and forum coordinators for presenting the members of the online communities the most useful information in effective ways.

Adjei et al (2010) created and tried a model of online client to client correspondences in creating alluring on the web brand network results. They directed two investigations to test the model. In first examination the discussion between brand network members were coded and converged with overview information to test the model. In second examination was including the investigation. The discoveries indicated that the online brand networks impact deals. It was likewise discovered that positive data shared by members of network individuals had solid directing buy conduct than basic data. The investigation additionally reasoned that online brand networks are powerful in client maintenance. This investigation referenced that all organizations should; if necessary, rethink their online network techniques dependent on discoveries of this examination.

Bambauer-Sachse and Mangold (2011) examined impact of critical online product reviews, on brand equity. The study wanted to select products

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which were familiar to people and their involvement in purchasing those products are relatively high. For this reason the researchers chose computers and digital camera. Only high-quality reviews which contained detailed review about various attributes of products in specific and more logical were observed. Several pre-tests were conducted before the final study. The researchers observed during pre-test that on an average people read 2.6 reviews, therefore they decided to use three reviews as test stimuli for the final study. For final study the most negative review perceived by respondents in second pre-test were used. The result of the study showed that the negative review caused significant brand equity dilution. Therefore study recommended marketers that negative online product reviews should not be neglected. This study also found that the impact of negative online product reviews on potential customers who do not have much knowledge about that brand is very strong than its impact on consumers who are well versed with that brand.

Jiménez and Mendoza (2013) researched how customers decide the believability of online audits and its effect on buy aims of search and experience items. By and large, the outcomes show that more valid audits lead to higher buy expectations. Strangely, the discoveries likewise show that purchasers decide the validity of an audit distinctively for search and experience items. For search items, customers consider online surveys to be more solid when the audits contain nitty gritty data about the item. Notwithstanding, for experience items, customers decide the validity of an audit by evaluating the degree of commentator concurrence with a survey..

Bansal and Voyer (2000) inspected the cycles of informal exchange as for a help buy. Target members were recently posted military individuals and their wards at a Canadian Forces Base in eastern Canada. The study found that the impact of word of mouth on purchase intention is very high particularly when word of mouth was actively sought by the receiver. The study observed that strength of tie between sender of word of mouth and receiver of it also had impact on receiver's purchase intention. If the strength of tie is very high between sender and receiver then strong impact in purchase intention was found. If the sender's expertise is high then word of mouth information is more actively sought. It was also found that of the sender's expertise is high then its impact on purchase intention of receiver is also high. The finding of the study demonstrated that there exists solid positive connection between recipient's mastery and the level of quest for informal exchange.

Beatty and Smith (1987) conducted a study to examine antecedents of External search efforts made by potential consumers. The study found that higher the product class knowledge lesser would be the total search efforts. The findings of the study indicated that purchase involvement is positively associated with total search effort. Further it was observed that time availability and search efforts are directly related.

Chevalier and Mayzlin (2006) examined the relationship between customer reviews and relative sales at two well-known e-commerce platforms. The study found that an increase in a book reviews results in an increased sales at that site. The study also observed that the impact of one-star rating is greater than five star rating for a book. It was additionally discovered that clients read survey text instead of depending just on rundown, all things considered.

Research Methods

Sampling unit for this study was any consumer who had bought any product recently (within last 6 months). Recent experience of buying is easy to recall and therefore only such people who had bought something during last 6 months were approached. India is a country of young population. According to 2011 census report around 25% of Indian population was in the age bracket of 20-34 years. This population has grown by 10 years now and has formed significant part of earning population of the country. Therefore it was decided to focus young population of the country; therefore people who are 25 years old or greater are selected in the study. These people have high spending power and they are well acquitted with the technology, further they can easily surf on internet for the information they need. The measurement scale for online product reviews (electronic word of mouth) was adapted from the research study of Bambauer-Sachse and Mangold, (2011). The measurement scale for

purchase intention was adopted from study of Shukla (2011). These scales together formed 9 items. All of these 9 items were rated on 7 point Likert's scale where 1 meant strongly disagree and 7 meant strongly agree. In addition to these 9 items 4 questions included to collect demographic data. 1 item was introduced to understand the product category for which respondents have checked online product reviews for. A convenient sampling technique was used to select and approach samples. In all 380 prospective respondents were approached. However; only 250 responses could be collected. Out of 250 responses 16 responses had to be deleted because of their incompleteness and unengaged responses. In this way total 234 responses were considered for final data analysis.

Results

The reliability of the questionnaire was examined. The result is shown in table no. 1.

Table no. 1 Reliability Statistics

Cronbach's α	No. of question Items
.782	14

The Cronbach's alpha value is greater than .7. It indicated that the scale is reliable.

Respondents' Profile

Table no. 2-Demographic Characteristics of respondents

Age (Years)	25-35	126	54%	54%	54%
	36-45	72	31%	31%	85%
	45-55	36	15%	15%	100%
	Total	234	100.0	100.0	
Gender	Female	72	30.8	30.8	30.8
	Male	162	69.2	69.2	100.0
	Total	234	100.0	100.0	
Education	Post-Graduation	144	61.5	61.5	61.5
	PhD	90	38.5	38.5	100.0
	Total	234	100.0	100.0	
Income	Up to 2.5 lakh	36	15.4	15.4	15.4
	2.5 lakh to 5 lakh	18	7.7	7.7	23.1
	5 lakh to 7.5 lakh	126	53.8	53.8	76.9
	7.5 lakh to 10 lakh	18	7.7	7.7	84.6
	more than 10 lakh	36	15.4	15.4	100.0
	Total	234	100.0	100.0	

From table no. 2 it was observed that majority of the respondents are from age group 25-35 years. More than 69% of respondents were male consumers. More than 60% of the respondents were pursuing post-graduation. More than 53% of respondents were having income range of 5 lakh to 7.5 lakh per annum.

Descriptive statistics

To understand overall perception descriptive statistics was conducted.

Table no. 3- Descriptive statistics- Online product review perception

	N	Minimum	Maximum	Mean	Std. Deviation
Online product review perception 1	234	1.00	7.00	5.4615	1.91016
Online product review perception 2	234	1.00	7.00	5.3846	1.69243
Online product review perception 3	234	2.00	7.00	5.2308	1.97140
Online product review perception 4	234	1.00	7.00	5.1538	2.07423
Online product review perception 5	234	2.00	7.00	5.0769	1.86291
Online product review perception 6	234	1.00	7.00	4.5385	2.10268
Overall Mean				5.1410	

From descriptive statistics it was observed that the first statement- Online product review perception 1- 'When I buy a product/brand, consumers' online product reviews make me confident in purchasing the product/brand' has received highest rating amongst all statements. It signifies the impact of online product reviews on making purchase decision. On the other hand statement -Online product review perception 6- 'If I don't read consumers' online product reviews when I buy a product/brand, I worry about my decision' has got lowest mean value. This suggests that when consumers have knowledge about the product they are buying, the reviews may not have any significant impact on their purchase decision. Overall mean 5.14 indicates that most of the respondents refer to online product reviews to support their buying decisions.

Table no. 4 Descriptive Statistics- Purchase Intention

	N	Minimum	Maximum	Mean	Std. Deviation
Purchase intention item 1	234	2.00	7.00	5.3077	1.98043
Purchase intention item 2	234	2.00	7.00	5.2308	1.80787
Purchase intention item 3	234	2.00	7.00	5.2308	1.80787
Overall Mean				**5.2564**	

Overall mean of Purchase intention scale is 5.25, which indicated that respondents have moderately high purchase intention.

Hypotheses testing

To test H_1 one way ANOVA was conducted in SPSS. The result is shown in table no. 5.

Table no. 5- ANOVA Demography and Online Product Review Perception

		Sum of Squares	df	Mean Square	F	Sig.
Your age	Between Groups	14410.385	10	1441.038	2100.337	.000
	Within Groups	153.000	223	.686		
	Total	14563.385	233			
Income	Between Groups	252.000	10	25.200	78.050	.000
	Within Groups	72.000	223	.323		
	Total	324.000	233			
Gender	Between Groups	67.846	1	67.846	23.423	.000
	Within Groups	672.000	232	2.897		
	Total	739.846	233			
Education	Between Groups	70.096	1	70.096	24.281	.000
	Within Groups	669.750	232	2.887		
	Total	739.846	233			

From one way ANOVA it was observed that significance values (p) for all demographic characteristics are less than .01 ($p<.01$). This indicated that demographic profile is significantly related with the online product reviews perceptions. As demographic characteristic changes, consumers' perception of online product they are interested in buying also changes significantly. Therefore we failed to accept the null hypothesis H_0-Demographic Characteristics of the consumer are not significantly related with online product reviews' perception. Thus we accept H_1.

To test H_2 Pearson's Correlation test was used. The result is shown in table no. 6

Table no.6 Correlation- Online product review perception and Purchase intention

		Mean_Online_ Review	Mean_Purchas e_intention
Mean_Online_Review	Pearson Correlation	1	.959**
	Sig. (2-tailed)		.000
	N	234	234
Mean_Purchase_intention	Pearson Correlation	.959**	1
	Sig. (2-tailed)	.000	
	N	234	234
**. Correlation is significant at the 0.01 level (2-tailed).			

From table it was observed that the significance value of Pearson's test ($p<.01$) is less than .01. This indicated that we failed to accept the null hypothesis and thus accept H_2. In other words online product review perception and purchase intentions are strongly correlated. As perception of online product review increases purchase intention also increases.

For testing H_3 hypothesis one way ANOVA was used to test if online product reviews perception changes as per product category. The result is shown in table no. 7.

Table no. 7 ANOVA- Online Product reviews perception and Product category

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	691.513	6	115.252	**541.288**	**.000**
Within Groups	48.333	227	.213		
Total	739.846	233			

From table no. 7 it is observed that significance value of F test (p<.01) is less than .01. Therefore we failed to accept null hypothesis and thus accept H3. In simple words it means that as product category changes perception of product reviews also changes significantly. This can be attributed to the level of knowledge consumer have about products. Consumers having enough knowledge of products may not consider product reviews while making purchase decision.

Findings and Discussion

Overall mean of online product review perception scale is around 5.1 which indicated that online product reviews have positive impact on purchase intention of consumers. Hypotheses testing suggested that demography of consumer is significantly related with the online product review perception. In other words it means as consumers with different age group, of different gender, different income level and different education level, differ in their perception of online product reviews. This needs further investigation to find as to which set of consumers seek online product reviews and take purchase decision accordingly. Such investigation will definitely help marketers to chase such set of consumers online to influence their buying behaviour. Second major finding of this study is that online product reviews' perception is significantly correlated with purchase intention for that product. More positive reviews would increase the purchase intention of that product. Therefore marketers should try to get more positive feedbacks for their products. Marketers should provoke consumers to give more specific feedback about important product attributes. Such reviews would help more number of potential consumers to make purchase decisions.

Third major finding of this study is that the perception of online product reviews change as per product category in consideration. This suggested that as product category change the effect of online product review also change. This may be due to knowledge of the product that consumer have. If consumer have very good knowledge about the product and/or brand they may not refer to online product reviews; as they may refer them (online reviews) for the products of which they have poor knowledge. Marketers of newly launched products or products with innovative technology should make note of this point and should emphasis on getting positive online product reviews. This may help attract new customers and increase sales. There are often some limitations to research studies. This study also has limitations. First, majority of the respondents are from similar age group and similar education level. This limits the power of findings in generalization. Second the study is conducted in small geography- only one city in Maharashtra state, which again limits the significance of findings. However future studies may apply this research in other parts of the country and include as many various age group and education level in the study to make the finding generalized.

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