



# GURUGRAM UNIVERSITY BUSINESS REVIEW (GUBR)

(A State Govt. University Established Under Haryana Act 17 of 2017)

**GURUGRAM UNIVERSITY, GURUGRAM**

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**Book Review**

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# Gurugram University Business Review (GUBR)

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## Message

### *From the Vice Chancellor*

I am glad to learn that the Department of Management, Gurugram University is bringing out the fourth issue of its bi-annual international research journal named *Gurugram University Business Review (GUBR)*. It is heartening to note that the journal is not only maintaining good quality publication standards but is rather raising the same by every passing day.

The journal-GUBR, published by the leading department of the University gives me reassurance in fulfilling my vision for the University as a journal is a showcase of the knowledge created and published by any academic Institution. Albeit, there can be no better platform than publishing a research journal where everyone can add valuable insights to the existing body of knowledge.

I also see this journal as a medium to strengthen our Ph.D program as it provides avenue to research scholars to share their research results. I wish to see the journal becoming part of good research data-bases and also citation indexes of repute in future. I have no doubt that GUBR will grow exponentially under the able leadership of its Editor-in-Chief, Dr Amarjeet Kaur.

I would like to congratulate the Department of Management and the editorial team of the journal in particular for their infinite efforts towards continuous improvement in the quality of this International journal.

Wishing striking accomplishments to this international, peer-reviewed journal GUBR !

**Prof. (Dr.) Dinesh Kumar**

*Patron – GUBR & Vice Chancellor,  
Gurugram University, Gurugram*







## Foreword

It is a matter of privilege to be associated with GUBR and write this fourth foreword for the Volume II, Issue II. It is heartening to see the growth of this Bi-Annual International peer-reviewed Journal; *Gurugram University Business Review (GUBR)* published by the Department of Management.

There were times when only quantitative research methods were regarded best and thereby majority of the published research work was falling in this category only. But, now the researchers are building a strong consensus about the significance of qualitative research methods in many areas especially in social sciences. There are many categories of qualitative research methods: a popular and helpful categorization separates these qualitative methods into five groups: ethnography, narrative, phenomenological, grounded theory, and case study. GUBR also supports the significance of qualitative research methods along with quantitative research methods and thereby serves as an avenue for a wider group of interested researchers from both the categories.

The journal has broad ethos and is open to a wide range of methodological approaches and philosophical underpinnings. GUBR is a globally respected multidisciplinary international journal which provides an international forum for knowledge sharing and dissemination from researchers across different cultures. GUBR aspires to be in the list of most preferred journals in the world and there is no reason that we foresee coming as any hindrance.

We are able to aspire for these goals because we have such a leadership at University who strongly believes in creating a research culture. In this quest, I extend my sincere thanks to Prof. (Dr.) Dinesh Kumar, the Hon'ble Vice Chancellor of the Gurugram University for his worthy directions and support and also for having such a strong trust in the capabilities of the editorial team. I also express my sincere thanks to Prof. S.C. Kundu, a self-acclaimed eminent researcher and Dean Academic Affairs at Gurugram University for his kind guidance and encouragement.

I will like to put on record and thereby acknowledge the contribution made by the very dedicated editorial team and Dr. Monika Bhatia, the Editor in particular for her persistent efforts in bringing out the forth issue of the Journal. I will hereby, urge that the GUBR is listed in good databass before the release of its fifth issue scheduled in June 2023.

Last but not the least; would express that I am indebted to all the contributors of this journal as the journal is made of anything but the articles by researchers.

Happy Reading!!

**Prof. (Dr.) Amarjeet Kaur**

*Editor-in-Chief*





## Editorial Note

Research could be a consistent decide to resolve the queries musing the human mind and here we present the second volume, second issue of *Gurugram University Business Review (GUBR)* an international bi-annual peer reviewed journal published by the Department of Management, Gurugram University, Gurugram.

The journal has been thoughtfully divided into two sections including (i) Research Papers; (ii) Book Review. The first section targets to publish empirical as well conceptual research articles related to various facets of business in a global context. Section two presents book review.

The opening segment is a collection of twelve research articles on various aspects of business and management. A fascinating book on ‘The 7 Habits of Highly Effective People’ was reviewed in the book review section.

The first paper by Dr. Musa Pinar and Dr. Cassidy Belk intended to provide insight to students’ satisfaction with online learning compared to in-class learning experience. The study provides some insights about the factors perceived important for students’ academic success such as self-motivation, engagement with professors, having access to campus resources and engagement with other classmates.

The second paper by Dr. Marie Gildemyn, Dr. Jean-Paul Van Belle, Dr. Marita Turpin and scholars Monika Rudyte, Abdelkrim Azouakine, Kledisa Hasa, Ines Seynhaeve, Ikechukwu Nwanah investigated which technostress factors had an impact on Flemish business management students during the Covid-19 pandemic. They also looked at the consequences and the coping mechanisms that these students used to reduce technostress during Covid-19.

In the next paper, Dr. Amarjeet Kaur Malhotra, Sunint Bindra and Dr. Monika Bhatia measures the impact of announcements of Energy Policy Act of 1992 in the United States over the market returns of the stock price of selected 56 companies. Event study results show that the green legislation announcements do impact the abnormal market returns of firms carrying green activities. However, the impact is not the same for all the selected companies and is not for the long term or even significant.

Fourth paper by Dr. Nidhi Sheoran and Dr. Nisha Chaudhary intends to understand the effect of demographic profile on perceived brand personality by taking the food and beverage industry into context. This paper covers the relationship between demographic profile of the consumers and the perceived brand personality. The study was conducted on a sample of 666 consumers of selected food and beverages brands; out of which only 546 responses were used for data analysis, after checking the normality of the data by applying outliers test.

In next paper, Dr. Avishi Shrivastava, Dr. Lokeshver Singh Jodhana, Mr. Sarthak Chourasia and Prof. B.L. Verma Analyze the effect of Social Media Influencers on the Purchase Decision of Consumers. This study aims to find the correlation between consumer decisions and the e-services cape by social media influencers along with analyzing the effect of the sponsored content shared by many SMIs concerning the organic content shared by them on consumer decisions.

Ms. Geetanjali and Dr. Teena studies the drivers and barriers for adoption of electric vehicle in India. The study emphasizes that for the adoption of Electric vehicle at large scale, it is the responsibility of all stakeholders, manufacturer, dealers and government to take initiative to create more awareness that how electric vehicle bring multiple advantages for customer, economy and environment as compared to conventional engine vehicle.

The seventh paper by Dr. Divya Dwivedi and Ms. Nidhi Verma focuses on Consumer preference towards different online shopping sites. A cross-sectional study was conducted on 10 online shopping websites. This paper covers the consumer preferences during online shopping and suggests relevance and measures to improve online presence.

In the eight paper Ms. Sanjana reviewed the position of women entrepreneurship development in India. In order to understand the concept, profile, and dynamics of women entrepreneurs in India, the study analyses the prevalence of women entrepreneurs in the country. Highly cited research articles on women entrepreneurs, notably in the context of India, were among the criteria for choosing the current research on the subject.

Ninth paper by Ms. Pooja Malhotra, Ms. Kaina Bindra and Ms. Khushi Bhatia presents an efficient search engine for processing a vast array of textual and image data to find instances similar to an input image. The study has moved to a deep learning-based approach and used Google's Inception V-3 model which is a deep neural network to extract dominant high-level features from the input image. The paper finds the most similar images using Euclidean distance between the feature vectors of the images in the dataset.

In next paper Dr. Divya Malhan, Ms. Ruby Gothwal, Ms. Nisha Mor and Ms. Neha Nain applies the bibliometric analysis for talent and talent Management research. The study provides some theoretical and practical implications. The study findings can give researchers and practitioner's insights into the current position of talent and talent management and trend topics.

In the eleventh paper Dr. Kavita and Ms. Anjali Pandey applies dynamic analysis for the investments behaviour of individual and institutional investors in Indian stock market. The study concludes that there is a need for the spread of awareness among the people for various investment products. When people are aware of these products then only they will invest their money. The money that is invested will ultimately go towards nation building and the development of the country.

The last paper by Mr. Bhaskar Tripathi and Dr. Rakesh Kumar Sharma empirically analyses blockchain based security for the internet of things using structural equation model approach. The study explores that blockchain-based IoT security has resulted in more advancements that make life easier for individuals and businesses. By utilizing this technology, the usage of smart sensors, the protection of various technical devices, and security elements are better managed and monitored.

In the book review section Dr. Tabassum Ahmed reviewed a very interesting book entitled 'The 7 Habits of Highly Effective People' authored by Mr. Stephen R. Covey. This book guides one to maneuver their way out of self-doubt and inhibitions by incorporating these simple yet powerful habits of highly effective people. The book decodes the behavioral patterns of people who have achieved the greatest milestones of success in life and represents the simple habits which made these people stand out of the rest.

Our sincere thanks to all the authors for their contribution in way of research articles. Our Sincere gratitude to our Editor-in-Chief Prof. (Dr.) Amarjeet Kaur for her incessant guidance and support in publishing this issue of GUBR. We would like to express our heartfelt gratitude to Prof. (Dr.) Dinesh Kumar, the Chief Patron and Vice Chancellor, Gurugram University, Gurugram for his guidance and continuous inspiration. We are obligated to Patron Dr. Subhash Kundu for his support. We sincerely hope that this issue GUBR will be immensely valuable and thought provoking for the readers.

**Dr. Monika Bhatia**  
(*Editor*)

**Dr. Hawa Singh**  
**Dr. Naveen Kumar**  
(*Associate Editors*)



# Examining Student Experiences with Online vs In-person Learning During the COVID-19 Pandemic

Musa Pinar\* and Cassidy Belk\*\*

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## ABSTRACT

*This exploratory study aims to examine students' satisfaction with online learning compared to in-class learning experience to identify existence of any gaps, and to determine if preferences are impacted by student demographics. The results based on 149 surveys conducted via online link provided some insights about the students' online and in-person learning experience. The findings indicate a) the factors important for academic success, b) students overwhelmingly prefer in-person learning over online learning, and c) student demographics have limited effects on the student learning experience. These findings have some managerial implications.*

**Keywords:** Online Learning, In-person Learning, Pandemic Experience, Academic Success, Satisfaction GAP Analysis

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## INTRODUCTION

Amidst the recent COVID-19 pandemic starting spring of 2020, online learning has seen tremendous growth. Online learning involves the use of media and electronic technology to assist the processes of learning and teaching by enhancing the communication between students and teachers (Wang, 2018). The transition from traditional schooling to online learning has been difficult for both instructors and students. Student satisfaction from online learning is influenced by several factors, such as engagement with professor, type of online environment, academic performance, and perceived quality of education, all of which could impact the effectiveness of education and information retention (Basque and Doré, 1998). For this reason, university administrators could expand their offerings and elevate the overall quality of education by understanding student satisfaction with an online vs in-person learning environment.

Despite its some benefits, online education creates challenges and limitations that can negatively impact a students' learning experience and satisfaction. While the overarching goal of this study was to determine the impact that online learning has on education, this study intends to examine the student perceptions and satisfaction regarding their online vs in-person learning

experience and to determine the existence of any GAPs between the two learning modes. This study also examines if students' satisfaction with online and in-person learning is impacted by student demographics. The findings of this study could provide beneficial insight about online and in-person learning experience for university decision makers.

## BACKGROUND

Elliot and Shin (2002) claim that student satisfaction goes beyond the education itself, but to all 'the various outcomes and experiences associated' with it, as a student's life/experience in class is not unaffected by the other on goings of campus life. Student satisfaction could be related to their level of engagement with faculty, the tailoring of classes to match student preferences, among other things; however, universities still heavily stress the importance of academic performance above all other factors (i.e. Campbell, 2007; Elliot and Shin, 2002; Lo, 2010). As many universities have developed a more for-profit business operation style, students are seen as consumers of the universities that must be satisfied. Successful universities have surpassed the minimal academic needs of the students by directing some attention to the less tangible or known needs, such as well-qualified faculty and high faculty-to-student

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ratios, as well as an effective learning environment and student supporting activities (Pinar et al., 2011; Girard and Pinar, 2020). To analyze this complex subjective outcome, several factors should be considered, such as thought-provoking teaching styles, the level of care that the student feels for their learning from facilitators, the feeling of “belonging” fostered in the school culture, or measures taken to nurture creativity (Lo, 2010). In a truly student-centered learning environment, universities must take active measures to understand student perceptions to isolate factors influencing any changes in satisfaction (Pinar et al., 2011, 2020; Girard and Pinar, 2020).

An evaluation of satisfaction is “based on a cognitive process in which individuals compare their prior expectations of product/service outcomes with the perceived product/service performance” (Elliot and Shin, 2002), which could be beneficial to identify any gaps between expectation and performance (Pinar & Girard, 2021). Elliot and Shin (2002) proposed a rating system of the top 20 educational attributes, serving as Student Satisfaction Inventory, which defined student satisfaction as the relationship between students’ expectations vs their experiences with their college education. They identified top attributes as valuable course content, registration process, excellence of instruction in major, placement rate of major, knowledgeable advisor, knowledgeable faculty, reasonable graduation time, and overall quality of instructions. In addition, a study by Lo (2010) utilized a scale to measure the effectiveness of the students’ learning experience, which included satisfaction with instructor directions and support, satisfaction with own commitment to learning, and satisfaction with course policies. The study found a strong correlation between the three main subsections of the survey that made up her primary variables.

Academic achievement is one tool to measure students’ overall academic performance. According to a report (CRIRES, 2005), academic achievement is a construct to measure students’ achievement, knowledge, and skills. Niebuhr (1995) suggests that both school climate and family environment have a stronger direct effect on academic performance than other elements. A study by Campbell (2007) based on a survey of 259 business students indicated that motivational constructs of intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs and

self-efficacy were all positively and significantly related to academic performance. Of all the main variables used to determine academic performance, it was found that the students’ learning environment is one of the most important factors in this model and a catalyst to success (Campbell, 2007).

With modern technology, incorporating online sessions into a college course has become increasingly popular in the past 15 years. A study by Candarli and Yuksel (2012) regarding students’ perceptions of video conferencing in higher education found that students had an overall negative attitude towards the use of technology in class. Online courses do provide some benefits to students. For example, the use of multimedia instruction allows learners to develop necessary cognitive skills, such as understanding conceptual complexity and flexibly applying this knowledge to new situations (Spiro et al., 1995). If online learning assumes certain requirements, this increases the possibility of higher student achievement and information retention. According to Liaw (2007), the most important e-learning criteria includes learning self-efficacy, multimedia formats, and interactive learning environments. Basque and Doré (1998) determined that the learning environment should implement six essential functions: inform, communicate, collaborate, produce, scaffold, and manage.

Wang et al. (2018) investigated a blended synchronous learning environment (BSLE), where most students attended the course in-person, while the rest joined the course using Zoom. Results of their study indicated that students enjoyed the convenience of attending lessons via Zoom at remote sites; however, researchers observed that individuals’ participation online was limited. Overall, the study identified factors to create a successful BSLE experience that include effective communication between the online students, in-person students, and their instructor. When students increase their connections with instructors, this increases their ability to acquire and retain information, as learning thrives in a social context (Liaw et al., 2007). The engagement of online students, redesign of instructional activities, and the quality of audio were identified as essential factors.

To gain insight and deepen understanding of student perspectives, an in-depth, qualitative study was conducted with some students about their online learning experience. The responses indicate that:



1. The students' overall opinion of online learning was generally positive, as they were grateful for the opportunity to continue learning safely during a global pandemic. However, most students found it more difficult to manage learning independent of the classroom environment. Students cited distracting environments as the primary difficulty, as well as a lack of social support from outside the classroom, stemming from the minimal social interaction online learning provides.
2. While many students appreciated their professors' flexibility, most agreed that the sudden transitions to online caused a sizable disruption in their learning experience. Participants also noticed the toll this took on their professors and expressed their desire for classes to only be required to abide by one format, rather than a hybrid of the two.
3. As for future learning environment, most students agreed that, while remote learning is more flexible in its practice, they would much rather continue in-person courses, with the exception being summer courses. Many respondents preferred remote learning in the summer, as it offers them the chance to take classes while following their normal summer schedule at home.

In summary, this in-depth, qualitative study based on current students' perceptions offered important insights about benefits and challenges of online learning experience and their preference for in-person learning in the future.

## RESEARCH OBJECTIVES

The COVID-19 pandemic caused major disruptions in the academic community that led to online teaching and new learning experiences. Since it is important to understand students' perceptions of these new educational experiences, this study intends to provide insight to student satisfaction with online learning compared to in-class learning experience. It also aims to determine if preferences are impacted by student demographics. The specific objectives of the study are to:

- **RO1:** Determine factors that are important for students' overall academic success.
- **RO2:** Examine students' perception of learning experience (satisfaction) with 2a) online learning and 2b) in-person learning.

- **RO3:** Compare if students' perception and experience regarding online vs in-person is different to determine an existence of any gaps between these two modalities.
- **RO4:** Determine if the factors for overall academic success, students' perception, and experience with online, and in-person learning are impacted by student demographics of gender, class level and college.

## METHODOLOGY

To accomplish the study objectives, a survey instrument was designed to be administered via online link. The survey instrument had several parts to address the research objectives. The survey questions were compiled from relevant literature and an in-depth survey of current students who have had experience with both online and in-person classes. Part A of the survey included six questions for RO1 to determine the factors important for students' academic success compiled from the relevant literature (i.e., Campbell, 2007; Elliot and Shin, 2002; Niebuhr, 1995). These questions were measured with a 5-point Likert type scale, ranging from 1 = very unimportant to 5 = very important. Based on relevant literature (i.e., Basque and Doré, 1998; Liaw, 2007; Lo, 2010; Spiro et al., 1995; Wang et al., 2018), as well as the information gained from the in-depth interviews with current students, nine questions were included in Part B related to RO2 to examine student experience with online and in-person learning. These questions were measured using a 5-point Likert scale that ranged from 1 = strongly disagree to 5 = strongly agree. The survey also included questions regarding the quantity of online and in-person courses taken during the pandemic, and how often they attended the courses. Demographic questions were included at the end of the survey.

The survey instrument was pretested in two stages. To accomplish this, the survey was given to several students, a target population of the study, and faculty members for their feedback and suggestions regarding the clarity and biases of the questions. Next, the survey draft was pre-tested with ten current students who were the target population of the study. Based on these pretests, the survey was revised by rephrasing certain questions for clarification, grouping questions for better comprehension, restructuring the scale, and offering different response options. These revisions with pretests improved the appropriateness and relevance of the questions to accomplish the ROs and provided a face

validity of the survey questions included in the final survey (Churchill and Iacobucci, 2005).

The final survey was approved by the Provost's Office to be administered to the students. The Provost's Office was asked to assist in distributing the survey. Per our

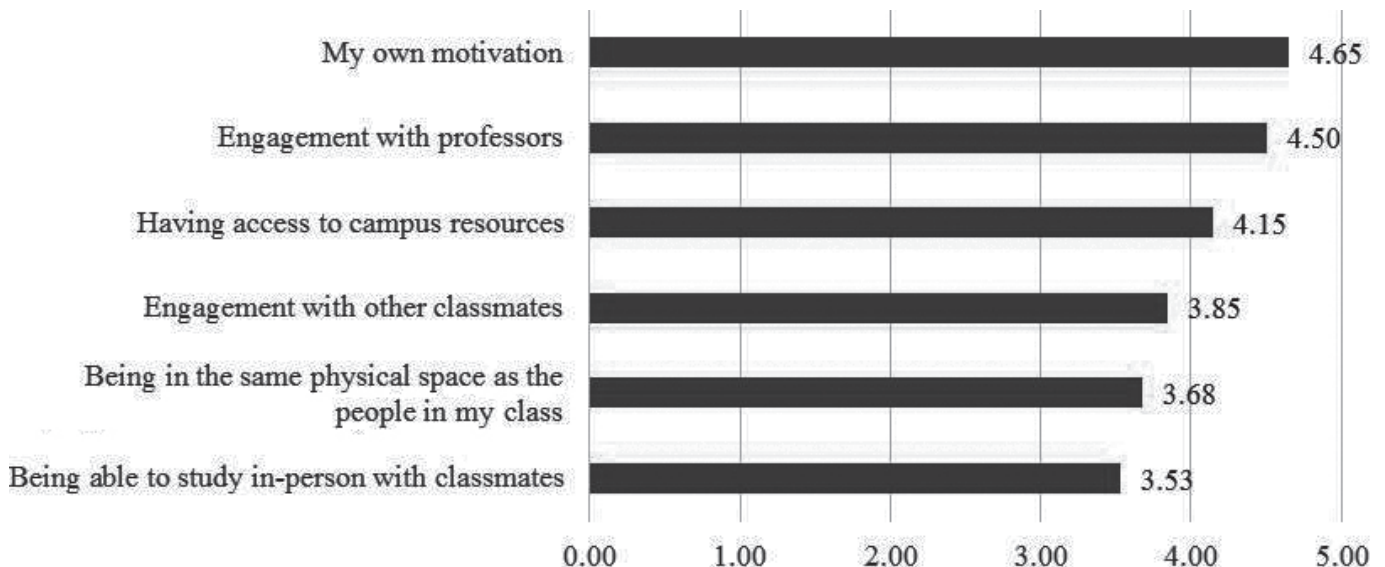
**Table 1:** Online and In-person Classes Taken and Attendant during 2020–2021

<i>Number of Online Classes Taken</i>	<i>n</i>	<i>Percent</i>	<i>Number of In-person Classes Taken</i>	<i>n</i>	<i>Percent</i>
0–1	5	3.4	0–1	22	16.3
2–4	81	54.4	2–4	80	54.4
5+	63	42.3	5+	43	29.3
Total	149	100.0	Total	147	100.0
<i>Often Attended Online Classes</i>	<i>n</i>	<i>Percent</i>	<i>In-person Classes Attended</i>	<i>n</i>	<i>Percent</i>
<50%	3	2.0	<50%	8	5.4
50–79%	17	11.4	50–79%	12	8.2
80–89%	26	17.4	80–89%	99	67.3
90–100%	103	69.1	90–100%	18	12.2
Total	149	100.0	I did not have in-person classes.	10	6.8
<i>In-person classes taken</i>	<i>n</i>	<i>Percent</i>	Total	147	100.0
No	2	1.3			
Yes	147	98.7			
Total	149	100.0			

request, the provost's Office provided a randomly selected email list of 630 students, which was about 25% of the student population. The final online survey link was sent to these students via email. After two weeks with one remind, a total of 149 responses were received, providing a 24% response rate. Since all responses were properly completed, they were used for analysis. The respondent profiles in Table 1 indicate that 57.7% are female, 40.9% are male, 1.4% preferred not to say. The distributions by class seem to be evenly distributed, with 25.5% senior, 28.2% junior, 27.5% sophomore, and 18.8% freshman. As for college, 45.0% are in Arts & science, 14.1% in Business, 18.8% in Engineering, and 22.1% in Nursing & Health Science. In addition, during the 2020–2021 academic year, a heavy pandemic period, 54.4% took 2–4 online courses 42.3% took 5+ online courses. Of the online courses, 69.1% attended 90–100% of classes and 17.4% attended 80–89% of classes. During the same academic year, 54.4% of students took 2–4 in-person courses and 29.3% took 5+ courses. Of these, 12.2% attended 90–100% of in-person classes and 76.3% attended 80–89% of in-person classes.

## RESULTS

To address the ROs, several statistical analyses were performed. To accomplish RO1, one-sample t-test was conducted using a test value of 3 (a neutral point on 5-point scale) to determine the importance of the factors for students' academic success. The results in Figure 1 show that the mean values for all six factors



**Figure 1:** Importance of Factors for Academic Success

Scale: 1 = Very unimportant and 5 = Very important; One-sample t-test,  $p < .01$  for all factors (test value = 3)



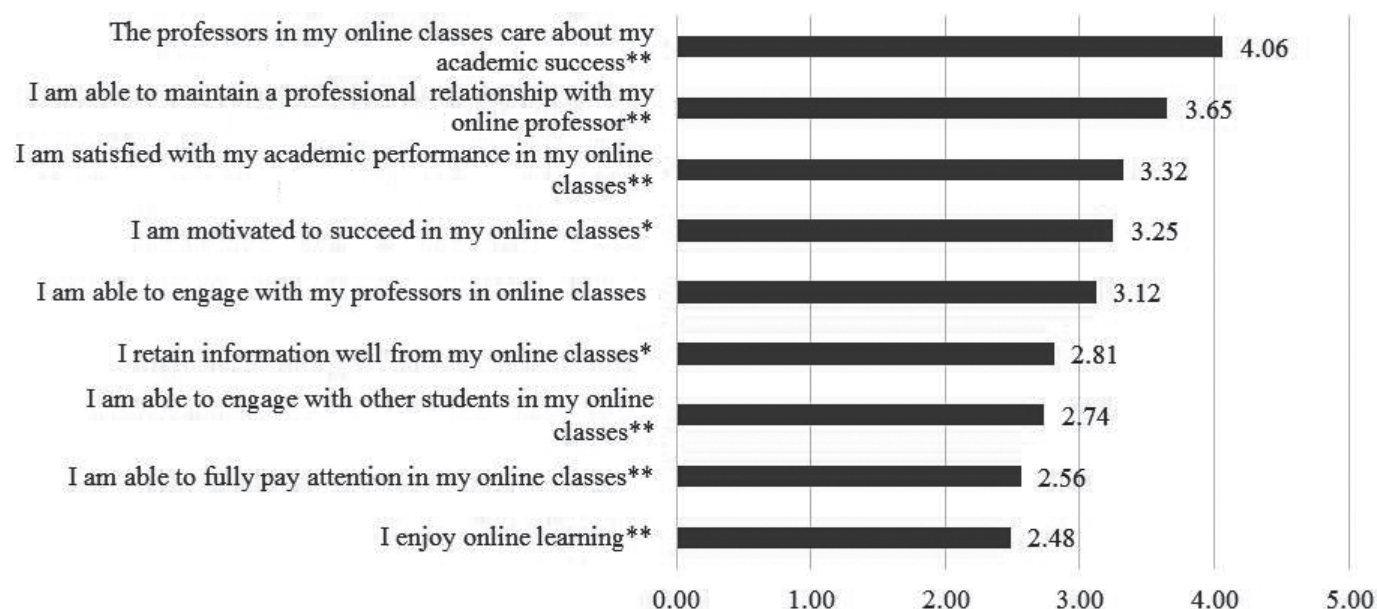
are greater than 3 on a 5-point scale, and all are statistically significant ( $p < .01$ ), suggesting that they all are perceived as important for students' academic success. The mean values indicate that students perceive 'my own motivation' as the most important factor for their academic success, followed by 'engagement with professor' and 'having access to campus sources', 'engagement with other classmates', 'being in the same physical space in my class', and 'being able to study in-person with classmates.' While self-motivation is the most important factor for student's academic success, students also perceive that engagement with their professors and classmates, as well as access to campus resources, are important for their academic success. These findings could have important implications for universities to help students succeed.

RO 2A examines student perception of online learning experience. To determine if students' learning experiences were significantly different from the neutral value of 3 (a test value), a one-sample t-test was conducted. The results in Figure 2 show that students have a significantly positive online experience with four factors ( $p < .01$ ), a significant negative experience with four factors ( $p < .05$  or  $p < .01$ ), and a neutral experience with one factor ( $p > .01$ ). The mean values indicate that students have the highest positive experience (satisfaction) with 'the professors in my online classes care about my academic success', followed by 'able to maintain a professional relationship with my professor',

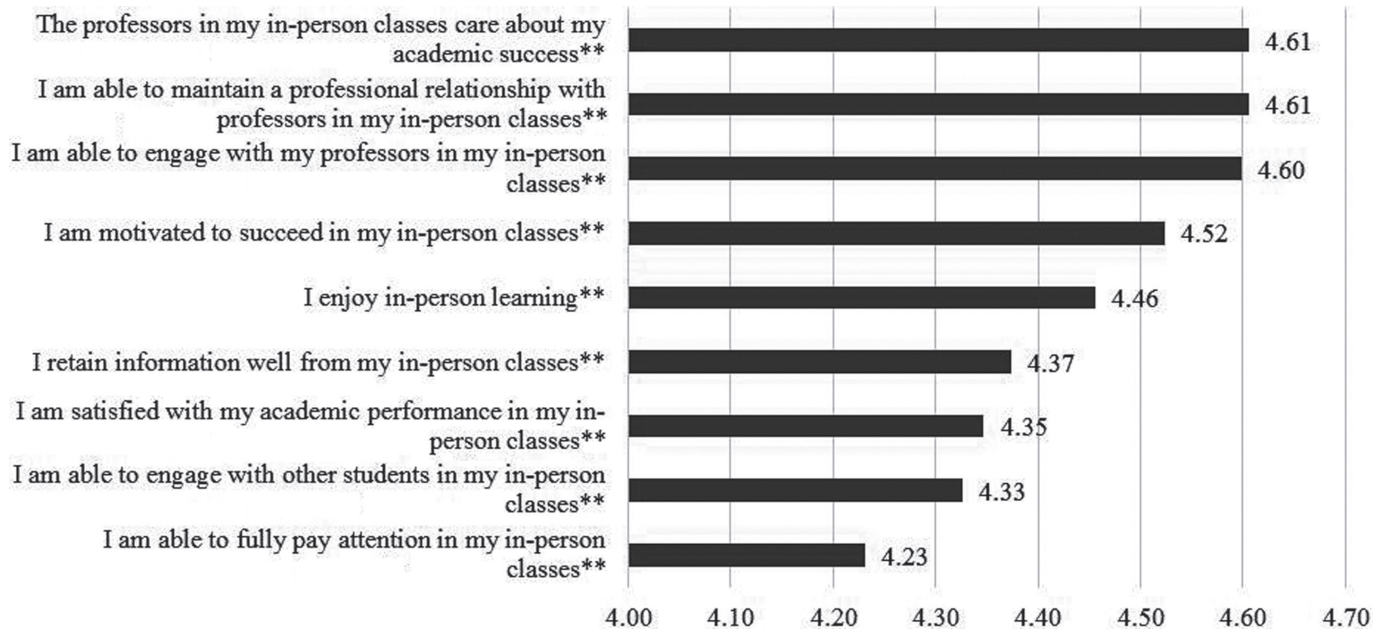
'satisfied with my academic performance in my online classes', and 'motivated to succeed in my online classes.' On the other hand, students have the highest negative experience (satisfaction) with 'enjoy online learning', followed by 'able to fully pay attention in my online classes', 'able to engage with other students in my online classes', and 'retain information well from my online classes.' Students perceive that they have a neutral experience with one factor, 'able to engage with professors in online classes.' The implications of these findings will be discussed later.

RO 2B addresses student perceptions of in-class learning experience. Figure 3 presents the mean values and one-sample t-test results for all factors. The findings indicate that students have a significant positive experience (satisfaction) with all learning factors during their in-person learning ( $p < .01$ ). Since the values range from a high of 4.61 to a low of 4.23 on 5-point scale, students have very high positive experiences during in-person learning with all the factors included in the study. Some of these findings are somewhat similar to those of online learning experience and some are different.

To accomplish RO3, paired t-tests were conducted to compare student perceptions of online versus in-person learning experiences for all the factors included in the study. The comparisons of these factors to determine an existence of GAPs (in-person – online learning) found statistically significant differences between students' in-person learning experiences and online learning



**Figure 2:** Students' Perception and Experience with Online Learning  
Scale: 1 = Strongly disagree and 5 = Strongly agree; p-sig. \*  $p < .05$ , \*\*  $p < .01$



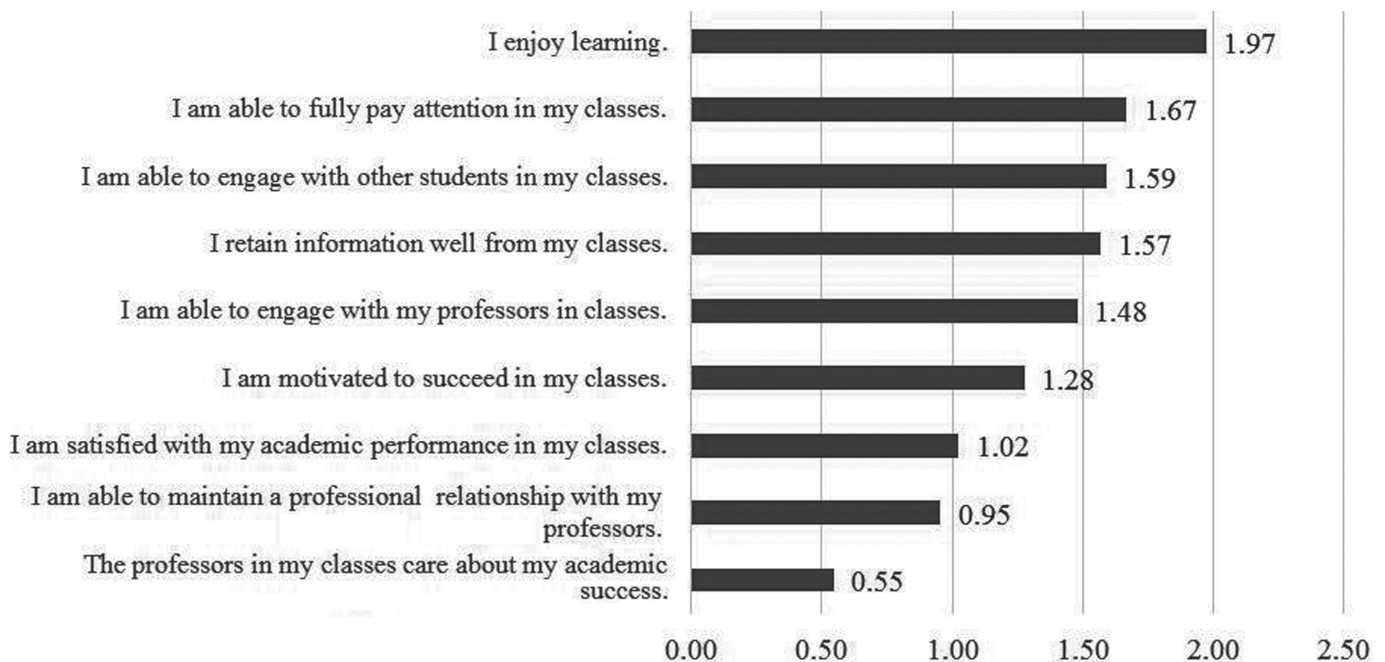
**Figure 3:** Students' Perception and Experience with In-person Learning

Scale: 1 = Strongly disagree and 5 = Strongly agree; \*\*  $p < .01$

experiences ( $p < .001$ ). As presented in Figure 4, the largest difference (GAPs) between in-person and online learning experiences is for 'I enjoy learning', and the lowest significant difference (GAP) is for 'the professors in my classes care about my academic success.' These significant differences (GAPs) for all factors indicate that students collectively had significantly higher positive experiences (satisfaction) with in-person

learning than with online learning. These findings could have important implications for students' learning and university administrations.

**RO4** investigates if the above factors were impacted by respondent demographics of gender, college, and class level. The comparisons for (a) importance of factors for academic success, (b) experience with online learning



**Figure 4:** Comparisons of Students' Perception and Experience with In-person vs Online Learning – GAPs (In-person – Online)

Scale: 1 = Strongly disagree and 5 = Strongly agree; All differences are significant at  $p < .001$

**Table 2:** One-way ANOVA Comparisons by Class Levels

<i>Academic Performance</i>	<i>1. Freshman</i>	<i>2. Sophomore</i>	<i>3. Junior</i>	<i>4. Senior</i>	<i>P-sig.</i>	<i>Mean Comparisons</i>
aq5. Having access to campus resources	4.18	4.34	4.31	3.74	0.015	2 > 4*; 3 > 4*
aq6. Being able to study in-person with classmates	3.93	3.73	3.48	3.08	0.022	1 > 4*
<i>Online Learning Experience</i>	<i>1. Freshman</i>	<i>2. Sophomore</i>	<i>3. Junior</i>	<i>4. Senior</i>	<i>P-sig.</i>	<i>Mean Comparisons</i>
bq2. I retain information well from my online classes.	2.82	2.41	2.71	3.32	0.004	4 > 2**
bq3. I am satisfied with my academic performance in my online classes.	3.39	2.71	3.40	3.84	0.001	4 > 2**
bq9. I enjoy online learning.	2.43	2.27	2.19	3.08	0.021	4 > 3*
<i>In-person Learning Experience</i>	<i>1. Freshman</i>	<i>2. Sophomore</i>	<i>3. Junior</i>	<i>4. Senior</i>	<i>P-sig.</i>	<i>Mean Comparisons</i>
cq8. I am motivated to succeed in my in-person classes.	4.81	4.39	4.46	4.53	0.036	1 > 2*

Scale: 1 = Very unimportant and 5 = Very important for aq5 & aq6; 1 = Strongly disagree and 5 = Strongly agree for bq2, bq3, bq9, cq8; p-sig.: \* p < .05, \*\* P < .01

and (c) experience with in-person learning by gender were conducted using two-sample independent t-test (not presented here). The results by gender found no significant difference between male and female students regarding these factors ( $p > .05$ ), which indicates that regardless of student gender, students have similar perceptions of all factors. The results of the one-way ANOVA determined the impact of college for factors of (a) importance of factors for overall academic success, (b) perception and experience with online learning and (c) perception and experience with in-person learning) were not significant ( $p > .05$ ). These findings suggest that students across all colleges have similar perceptions regarding importance of the factors for their academic success, and experience with online or in-person learning. The implications of all these findings will be discussed in the next section.

In addition, the one-way ANOVA analysis was conducted to examine the impact of class level on (a) importance of factors for academic success, (b) experience with online learning and (c) experience with in-person learning. The significant results are presented in Table 2 and non-significant ones are not presented. The ANOVA results were significant for two factors for academic success ( $p < .05$ ), three factors for online learning experience ( $p < .01$ ), and one factor for in-person learning experience ( $p < .05$ ). The post-hoc pairwise comparisons for the significant academic success factors (Table 1) show that sophomores and juniors place significantly higher importance on ‘having access to campus resources’ than seniors ( $p < .05$ ), and freshmen place significantly

more importance on ‘being able to study in-person with classmates.’

The post-hoc paired-wise comparisons for three online learning experience factors (Table 2) found that seniors indicate significantly higher experience (satisfaction) than sophomores for ‘retain information well from my online classes’ and ‘satisfied my academic performance in my online classes,’ and higher experience (satisfaction) than juniors for ‘enjoy online learning’. In addition, the post-hoc comparison for in-person learning experience shows that freshmen indicated significantly higher satisfaction than sophomores for ‘motivated to succeed in my in-person classes.’ Since all other comparisons are not significant, students have similar perceptions for academic performance, online learning experience, and in-person experience regardless of their class levels.

## DISCUSSION AND LIMITATIONS

This study intended to provide insight to students’ satisfaction with online learning compared to in-class learning experience. The study shows that, during the heavy pandemic period, while about 86% of students took 2 or more online courses, over 86% attended 80% or more of classes, and over 50% of students took 2 or more in-person course and 76% of them attended 80-90% of the in-person classes. In addition, the results provide some insights about the factors perceived important for students’ academic success. Students perceive that the self-motivation, engagement with professors, having access to campus resources and engagement with other classmates are the most important factors (in the order of importance) for their academic success, which are



consistent with prior research (i.e., Campbell, 2007; Elliot and Shin, 2002; Lo, 2010). Since most students took online courses, they may have found it difficult to engage with professors and peers. Additionally, they faced limitations like not being able to study in-person with a classmate or having access to campus resources that they may have benefitted from. Based on these findings, universities that are interested in offering online course must address these factors/issues that are important for students' academic success.

In addressing RO 2A for online learning, the study found that students indicate a significant positive experience (satisfaction) with only four areas of online learning, and they indicate an overall significant negative experience with online learning, which are consistent with prior research (Candarli and Yuksel, 2012, Spiro, 1995; Wang et al., 2018). These findings suggest that since student have mixed feelings about their online learning experience, while universities offering online learning could keep and/or improve the positive experience areas, they must address the negative experiences, especially the most negative experiences. Universities must find a way to make online learning enjoyable and beneficial for students.

The results regarding in-person learning show that students had an overwhelmingly positive experience with all areas covered in the survey, where mean values ranged from a low of 4.23 to a high of 4.61. These findings suggest that in-person is the preferred way of learning experience for students. This could be the result of having had in-person learning during their student tenure starting from kindergarten. The comparisons in Figure 3 identified significant differences or GAPS between all areas of online and in-person learning experiences. These GAPS confirm that in-person is the most preferred learning experience by students. These findings of the significant differences are consistent with those of prior studies (i.e., Candarli & Yursel, 2012). The existence of GAPS suggests that a) universities must find a way to offer a safe environment for in-person learning for their students' academic success, and b) if universities plan to offer online course, they must the overcome the GAPS that students perceive between online and in-person learning to make online learning experience more effective and enjoyable. Since student demographics seem to have a limited impact on students' academic performance, online, and in-person learning, this could help the university administrators

develop a successful learning experience without worrying about student demographics.

These findings have several managerial implications for universities. First, the study identified the factors that are important for students' academic success. Universities must consider these factors when designing educational strategies, whether online or in-person. Second, the results indicate that, given that students had significant negative experiences with parts of online learning, online learning must be improved for it to succeed. Since in-person learning experience is significantly more positive than online learning experience, and if universities want to offer online learning courses, they must remedy and/or improve the negative learning experience areas that are identified in this study, because they contribute to overall academic success. Students prefer in-person learning, potentially due to years of in-person learning.

While the results of this study offered some perspectives about students' online and in-person learning experience, these results must be considered within the following limitations. First, the study was conducted at one university. The same study must be conducted at different universities to increase the generalizability of the findings. Second, the sample size is relatively small. A larger sample size will improve the validity, reliability, and generalizability of the findings. Finally, the study was conducted toward the perceived end of the COVID-19 pandemic period. The new study could be conducted replicate these results after COVID-19 is over.

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# Impact of Technostress on Belgian Business Management Students

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## ABSTRACT

*Technostress, which is the stress resulting from the use of technology, is a term that appeared for the first time in 1984. However, with the Covid-19 situation, the situation around technostress has evolved significantly. This research investigated which technostress factors had an impact on Flemish business management students during the Covid-19 pandemic. We also looked at the consequences and the coping mechanisms that these students used to reduce technostress during Covid-19. We found that students had to deal with technostress especially when the Covid-19 situation forced universities to rely on technology even more. In particular, students experienced both techno-invasion and techno-overload. The most popular coping mechanisms amongst the students are self-distracting activities, by cooking/food and indoor sport activities. We also propose some recommendations to reduce student technostress.*

**Keywords:** Technostress, Covid-19 Impact, Stress Coping Mechanisms, Remote Learning, Business Management Education

## INTRODUCTION

Information technologies can also have negative effects on humans. One of these effects is technostress. “*Technostress is a form of occupational stress that is associated with information and communication technologies such as the internet, mobile devices, and social media*” (American psychological association, 2022). Despite there being a lot of research on technostress in the workplace, there is little to no research on technostress in an academic environment, i.e. its impact on higher education students. Students are constantly exposed to current and innovative technologies. Many students are hyper-connected to the internet and find it hard to cut back. The Covid-19 pandemic has also created a new phase of online teaching and learning, in which a wider range of students had to adopt online technology to be able to follow online classes, hand in homework, and even finish exams. Technostress in students can present itself not only in physical symptoms but also in emotional, behavioural, and psychological symptoms, which affects their motivation and educational performance on many levels.

In this research, the focus was the technostress experienced by third-year business students pre-, during and post-Covid-19. The main research question is: “What factors related to technostress had an impact on college business students during the Covid-19 pandemic?” The research focuses on the different types of technostress and the effects of the Covid-19 pandemic on student health, motivation, and productivity. In addition to that, the coping mechanisms and their popularity amongst students will be discussed.

This research aims to give more insight into the technostress factors influencing business students, the consequences on student productivity, motivation, and academic performance as well as technostress influence on their school-life balance. This research also gives an overview of the current existing coping mechanisms together with the most popular coping mechanisms amongst students. Finally, suggestions for students, educational institution and third parties will be made on reducing technostress and on coping mechanisms.

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## LITERATURE REVIEW

### What is Technostress?

Information and Communication Technologies (ICT) influence every aspect of people's daily life. Boundaries that used to exist between work- and private life all turn into a blur, where disconnecting from the outside world almost feels impossible. More so than ever before, with the Covid-19 pandemic, there is no longer a clearly defined boundary between school, work- and private life (Whitfield, 2021).

In relation to students, technostress can be described as a result of a higher academic demand for students to have digital skills to carry out their daily assignments. Because of the pandemic, students were suddenly forced to adapt to a remote studying environment that often led to study-home conflicts (Alvarez-Risco, 2021). During the Covid-19 pandemic, college students went from a physical and traditional study environment to a remote working environment in the lockdown. Consequently, one of the most important changes for students was the transformation to a virtual environment in which both students and teachers were forced to work in (Chakrapani et al., 2020; Tchounwou, 2021).

Although remote working or remote studying can have some positive outcomes, there are several negative consequences. Some positives can include improved performance, cutting the costs transportation, saving time and organizational resources, and increasing student satisfaction (Norhisham, 2021). These are all examples which gave some light to the situation. But there are other negative consequences that should also be highlighted. Particularly in relation to the wellbeing of students and employees. The remote working environment can cause stress, discomfort, and anxiety due to the constant use of the internet, email, direct messaging, and smartphones (Bondanini et al., 2020). In conclusion, some specific effects of the use technological tools on people's wellbeing during the Covid-19 pandemic are mandatory remote working, or technostress.

Technostress can be distinguished into five types: techno-insecurity, techno-invasion, techno-complexity, techno-overload and techno-uncertainty (Whitfield, 2021; Tarafdar et al., 2015).

**Techno-insecurity** is the feeling among ICT users that they will not be able to cope with the amount and advancements of technological equipment and applications as well as feeling threatened by other ICT

users who are better at it. Fear, confusion, and mistrust of technological applications represent a general disinclination and aversion of technology. Techno-insecurity impacts productivity due to fear of failure (Maier, 2014).

**Techno-invasion** is a condition where ICT users feel that they are connected to technology on a continuous basis. They have the feeling that they can be contacted anytime or should be active on it, resulting in an unclear boundary and an unhealthy relationship between a work-related and private-related context. The term 'invasion' here refers to the aspects of technology which invade a person's private life (Ingusci, 2021).

**Techno-complexity** results in ICT users feeling that they do not have enough knowledge, nor that they have the right set of skills to handle the technology, due to the difficulty that comes with it. With the consequences of having to use up their spare time to train and study the various aspects and features of ICT. The key point of techno-complexity is that the new dynamic world of technology is making it difficult for people to deal with, this can lead to feeling incompetent (Bondanini et al., 2020).

**Techno-overload** is the phenomenon of ICT users feeling forced to work overtime and at high speed. The acceptance of these technological changes requires time and effort for students to handle these new challenges. During the learning process they might feel insecure, stressed or incapable of handling all this knowledge and skills related to the new technological updates (Ingusci, 2021). Not only do ICT users feel like they should work overtime but also within more deadlines, forcing them to work faster. These factors make people feel distressed due to the larger amount of work within a shorter time period (Tacy, 2016). This type of technostress is also related to role overload, where according to ICT users too much is expected from them with a higher demand (Obrovac Sanqvist, 2020).

**Techno-uncertainty** is a condition where ICT users feel disturbed and overwhelmed by the endless shift and the need to upgrade their ICT equipment/applications (Tarafdar et al., 2015). The rapid changes make it hard for students to develop a base of experience for a particular system or application. This phenomenon makes it incredibly difficult for students to keep up with modern technologies that are often needed to perform their various tasks. At times, students feel frustrated



because their skills and knowledge become rapidly obsolete (Alvarez-Risco, 2021).

### **Covid-19 as an Amplifier for Technostress**

Technostress has existed for a long time, but since December of 2019, the world has been struck by the Covid-19 pandemic. Both private and public companies were forced to move to work from home. This has pushed companies to rely fully on technology. In many cases, this change has had to be made without any ICT preparation leading to an increase in negative effects on personal wellbeing and increased technostress. More technostress was observed in companies that heavily rely on technology and innovation, such as Education. It has also been reported that older users experience more technostress due to difficulty adjusting. Social media and other platforms have become the primary ways of communication. Individuals must work from home, without supervision, and in many cases on few ICT platforms, causing a lot of tension and exhaustion due to a challenging adaptation process (Srivastava, 2021).

The work-home conflict has escalated since the start of the pandemic, with an increase in work progress interrupted by home affairs, similarly, to interrupted household chores by work obligations. These situations can lead to increased confusion within the work-family interface, which can lead to technostress triggered by anxiety and workaholism.

### **Use of Technology in Higher Education**

The use of technology in educational institutions is not a new thing. It has already started a few years ago and it has brought many benefits for both employees and the students. Technology has allowed for easier communication between teachers and students (Chakrapani, et al., 2020). It has created more opportunities for international communication with other institutions and students. However, technology has its negative effects as well. It has been observed that the sudden increase in the use of technology decreases engagement in collaborative learning, student-to-teacher interaction, student motivation, and productivity and/or negative effects on the mental and physical health of the students (Alvarez-Risco, 2021).

Covid-19 and the ever-growing ICT technologies have forced a very rapid shift of the teacher-centred classroom to an individual learning environment. Due to classes from home the teacher/student connection was lost.

The lack of supervision, learning material online and a rapid change in study methods has led to less interaction between the students and teachers. This had many benefits such as the independency of the students and their ability to adapt to difficult situations, however it also adds a feeling of unknown and confusion to those who cannot deal with such events (Alvarez-Risco, 2021). Since the Covid-19 pandemic, the daily internet time dedicated to internet activities in higher education settings have significantly increased. Students had to spend more screen time on their devices and the internet platforms educational institutions use, to be able to follow classes or look for information. Higher education used their internet platforms such as Mijn Dinar and Canvas to post information, classes, and communicate. However, this increase has led to extended use of social media in combination with the use of the internet, forcing students to remain connected to the media platforms, causing negative effects on their academic responsibilities and life-school balance. This can lead to “technostress”, effecting the academical performance and motivation of students (Winarno, Kahpi, Salam, & Hermana, 2021).

Technostress in students affects their ability to complete homework and study for tests. Techno-overload in the form of excessive communication and way too many instructions received online, lowers students’ productivity and affects their academic performance (Alvarez-Risco, 2021). Universities often use multiple platforms for messages and information publication, which makes it difficult to access, find, manage, and process the information, contributing to technostress. Free social media time is often combined with other online educational obligations. As a result of such mix up, students have developed a sense of exhaustion due to high levels of confusion and difficulty setting priorities, which leads to decrease in motivation. The combination of the virtual overload and the everlasting urge to stay connected leads to technostress that is based on exhaustion, fatigue and a desire to disconnect from technology (Alvarez-Risco, 2021).

Technostress can manifest itself in different ways, including confusion, fear, technophobia, lack of sleep, psychological symptoms, but the one that has been experienced the most is anxiety. Techno anxiety is a negative emotional state that can interrupt work or study patterns in a negative way. Students experiencing high levels of stress face high health risks such as eyestrain,



backaches, headaches, stiff shoulders, increased blood pressure, heart diseases, diabetes, cancer, sleeping problems, depression, fatigue, and even a reduction in life expectancy. The behavioural causes include insomnia, unwillingness, and uncooperativeness. Emotional aspects are depression, irritability and having a high state of anxiety when separated from a computer monitor (Chakrapani, et al., 2020).

### Coping Mechanisms

To understand the coping mechanisms of technostress among students, an understanding of the concept of “coping mechanisms” is necessary. Coping mechanisms are cognitive and behavioural efforts to manage internal/external demands that exceed the resources of the person (Jena, 2015).

**Table 1:** Coping Mechanisms (Jena, 2015)

<i>Coping Mechanism</i>	<i>Description</i>
Confrontive	Aggressive efforts to alter the situation with hostility and risk-taking
Distancing	Cognitive efforts to detach oneself from problem
Self-controlling	Behaviour modification by efforts to regulate one's feelings and actions
Seeking social support	Informational support, tangible support and emotional support from others
Accepting responsibility	Accepting responsibility for everything that happens
Escape-avoidance	Wishful thinking and behavioural efforts to escape or avoid
Planful problem-solving	Deliberate efforts to alter the situation
Positive reappraisal	An efforts to create positive meaning by focusing on personal growth

Eight coping mechanism were identified by Jena (2015), as shown in Table 1. Coping strategies consist of two efforts namely cognitive and behavioral. These strategies can help to manage stress. Under stressful situations, people may enact certain coping strategies and their coping strategy used in such situation may vary because of their different personalities (Jena, 2015).

### RESEARCH METHOD

To be able to gain an overview of different factors, consequences, and coping mechanism a survey among the third, i.e. final year business students at Artevelde University of Applied Sciences was chosen. These

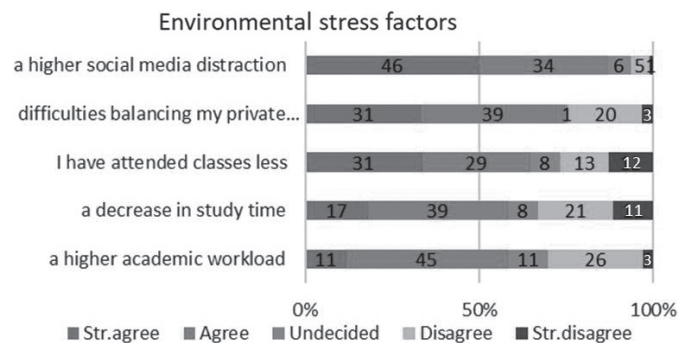
students share a common experience, Covid-19. All the students had a normal first semester that was later interrupted by the pandemic, resulting in distance learning as from mid-2019. Third year students have faced less measures this year (2022): they were able to go abroad and work at their internship companies, a welcome change after two long years.

### SURVEY RESULTS

Ninety-four (94) students responded to the survey. Of these, 58% identified as female. 79% of the respondents studied mostly from home, with only 12% in a public space and the remaining 9% in a dorm room. We first look at the main technostress factor, namely the type of techno-problems which were experienced. Thereafter, consequences and coping mechanisms are discussed.

#### Environmental Stress Factors

It is clear from the survey that the students experienced various environmental factors leading to increased stress during the reported period (2019–2022). The top two environmental experiences leading to stress were the increased distraction of social media and the difficulties students experienced balancing their private lives with their school life during Covid-19. The fact that they had to attend classes less was a minor factor whereas they did, on average, not experience a decrease in study time or a higher academic workload (Fig. 1).



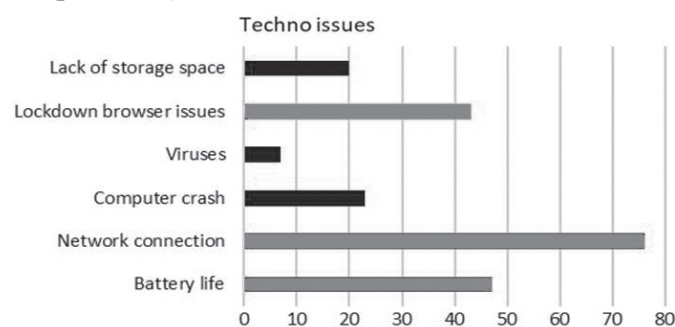
**Figure 1:** Environmental Stress Factors Experienced by Students (% reported)

#### Techno-Problems

By contrast Techno-problems were the biggest contributor to techno-stress (see Figure 2). The most common difficulties experienced were due to internet connection or a glitch in the software. Even though from the 94 people asked, 95% of them felt that they have enough technological skills to use the ICT tools that the

school provides. Many also didn't feel intimidated by new technologies and the majority felt confident using new software. Such issues as program glitches, unstable internet connection or equipment malfunction are not entirely in the hands of students to improve or to fix. This goes to show that the majority didn't experience technological issues due to their lack of technological skills but rather due to technological errors they were not able to fix themselves or in other words, techno-complexity, and a continuous need to seek technical help when faced with a techno problem.

Interestingly, female students reported a significantly lower confidence in having to use new software ( $t$ -value = 3.9834;  $p = 0.00015$ ) even though their self-reported technological skill level showed no difference. And, in fact, the female students experienced less frequent tech issues than the male students (although not significantly so ( $p = 0.066$ )).



**Figure 2:** Techno-Issues Experienced by Students (% reported)

### Impact of Stress Factors

The stress-causing experiences during Covid-19 has a statistically significant impact on the key academic outcome indicators as reported by the students (Table 2). In particular, the higher academic workload and the difficulty in balancing their private versus their school life negatively impacted their study motivation, productivity and ultimately academic performance (Note that it would have been ethically not feasible to actually identify and measure the academic performance of the individual surveyed students). Interestingly, the lower class attendance also affected their motivation and performance negatively, but it did not affect their productivity significantly; presumably by allowing them to substitute class (and travel!) time with more study time.

This probably explains why study time was not an issue. Although students did experience more social media

distractions (see above), it did not negatively impact their outcomes; this can possibly be explained that the use of social media, while a distraction, is also a strong coping mechanism that allows them to deal with the experienced stress.

**Table 2:** Negative Stress Factor Impacts ( $r^2$ ; grey = significant)

Negative Impact on My:	Motivation	Productivity	Academic Performance
Higher academic workload	0.4088	0.4094	0.3976
Decreased study time	0.1213	0.0567	0.0869
Private/school life balance	0.3072	0.4527	0.4031
More social media distractions	0.1720	0.1456	0.0756
Lower class attendance	0.4177	0.2514	0.3297

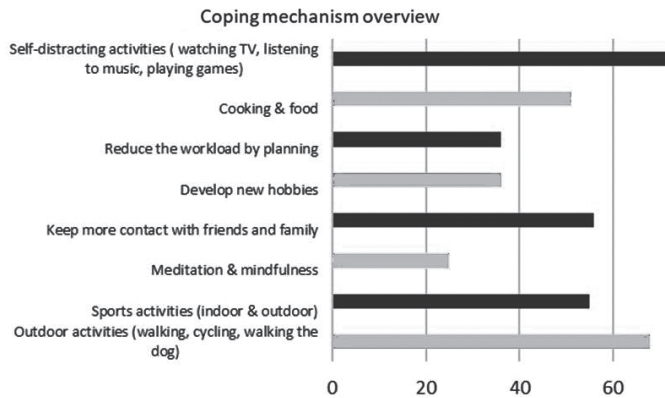
### Coping Mechanisms

After a better understanding of the technostress factors and its consequences, it is crucial to look at the coping mechanisms that help reduce technostress levels in students. Following analysis gives a better overview of the most popular coping mechanisms as well as some interesting insights on the coping mechanism survey findings.

According to the survey, the majority of the respondents, 72 out of 94 chose the self-distracting activities as the main coping mechanisms for dealing with technostress. Those activities are for example watching TV, listening to music, playing games. Closely followed by other two coping strategies: cooking or food and sport activities. Keeping more contact with family and friends is also one of the most popular coping mechanisms. 56 out of all participants have indicated this as their preference. Sport or active activities were also one of the most popular coping mechanisms. This is self-explanatory and is motivated due to Covid-19 measures. Listed activities for this coping mechanism were taking a walk, biking, or walking the dog. These activities were also one of the only allowed outside activities during the full lockdown periods during Covid-19.

A few of the less popular coping mechanisms were Mindfulness, Planning and developing new hobbies. These coping mechanisms are in general more beneficial in reducing stress levels in personal and

educational settings. Mindfulness and developing of the new hobbies are helpful in calming the body and mind. It also is beneficial to help minimise the technological aspect in our lives. Planning as a coping mechanism could be beneficial in improving motivation and academic productivity. It is interesting to note that even though these 3 coping mechanisms would be very helpful in reducing some major technostress effects such as physical aches, or mental exhaustion, they were the least popular amongst students.



**Figure 3:** Techno-Stress Coping Mechanisms Used (% reported)

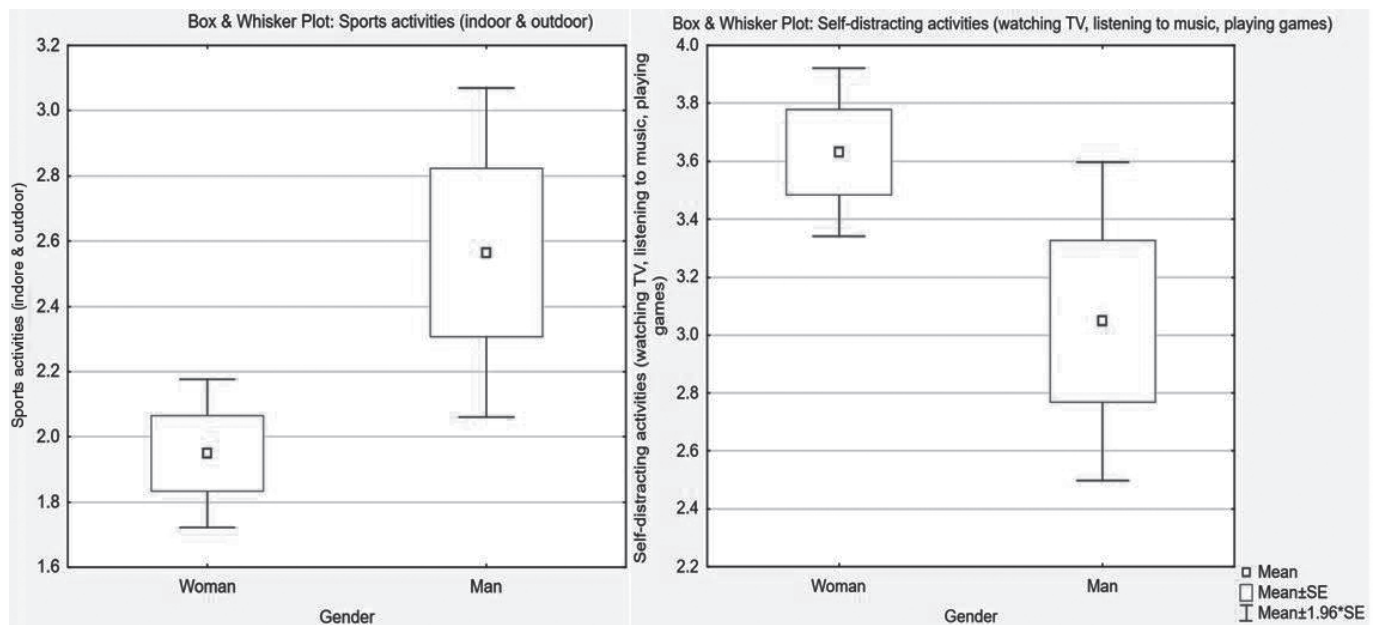
Interestingly, there was a significant gender difference in two activities with women significantly more often opting for sports activities ( $t$ -value = 2.48216;  $p$  = 0.0159) and less often for self-distracting activities (watching TV, playing games, listening to movies) ( $t$ -value = 2.03004;  $p$  = 0.0470). Refer to Fig. 4 for the relevant box-and-whiskers plots.

## RECOMMENDATIONS

Following our findings, we wish to make some suggestions and recommendations to reduce technostress experienced by students in higher education. With these recommendations this team wants to point out where there is room for improvement when it comes to technostress and students.

### Improvements to the Digital Learning Environment from Home

In case of the digital learning environment at home, the school should provide students with enough supervision, feedback, and communication, this is key to reduce the effects of techno-overload. For example, during a remote study and learning period, the educational institution could implement a regular feedback session or questions & answers session into their lesson schedule. Educational institutions should also reduce the number of different informational platforms used and instead only pick a few specific ones to make study information more accessible and easier to manage. When there are just one or two platforms that students can access for information, they are less likely to feel overwhelmed by a constant stream of information. To reduce the negative effects of techno-invasion educational institutions could also provide safer and Covid-19 proof study spaces, such as empty rooms or aulads. This will allow students to stay in the “learning environment” with limited technological distractions leading to higher focus, motivation, and productivity.



**Figure 4:** Gender Differences in Using Techno-Stress Coping Mechanisms

### **Reducing Negative Influence from Social Media on People's Mental Health**

Social media had a big impact on students studying during the Covid-19 period. In this case, it was a big cause of distraction. A digital platform was used as the main form of communication since asking questions to teachers or asking advice from fellow students in person was not possible anymore. Other than a form of communication, it was also used by students to relieve negative feelings of isolation. It was considered as a form self-distracting coping mechanism. But the use of social media during the pandemic can also be questioned, there is a likelihood that social media had a negative influence on people's mental health during this period. This could be an interesting topic to further investigate.

### **Avoiding Techno Problems**

Because of the worldwide lockdowns and regulations, everything was forced to be conducted online. This left people with limited technological skills struggling. Not only the ones with restricted knowledge and skills experienced difficulties, but also tech savvy people. Because even for those, technology nowadays evolves fast. So, the suggestion is to work on improving the technological skills of individuals. This can be done on their own initiative, or by institutions such as schools or companies. Providing them with classes and workshops that can ease them into the technological world. When it is done on an individual basis, the person should take their time and when needed, seek help from others. Another recommendation regarding this topic is to ensure the use of good working devices. Also, to make sure to use a safe and stable network in order to lower the chances of sluggish and slow connections, since this causes a lot of stress during classes or meetings.

### **Adopt the Best Coping Strategy**

Adopting a good coping strategy for each situation will help lessen the technostress levels amongst college business students. Every student has their own way of dealing with stress. Students should get informed on the benefits of different coping mechanisms and strategies to be able to choose the right one to successfully mitigate the technostress effects. Finding the right balance can be challenging for students. That's why it is recommended for schools and learning institutions to guide students in choosing the best coping strategy.

Educational institutions can implement mindfulness sessions and provide more information on the best coping mechanisms and their benefits.

As for individuals, they are strongly recommended to do their own research on the different types of coping mechanisms. How to engage in them, in what situation and the timeframe. For example, when an individual is dealing with techno-overload, it is advisable to take some time off, away from technology, if possible. Instead, go for a walk, participate in sport activities, etc. The most essential part that can be taken from this, is that each individual should know what coping mechanism suits them and for what situation.

### **CONCLUSION**

Technostress can have many negative impacts on a person, such as: confusion, fear, technophobia, lack of sleep, and many more. This interferes with the overall wellbeing of students, resulting in a decrease in study productivity, motivation and performance as evidenced in this study. Additionally, it can have a negative impact on a person's health.

To answer the main research question: "*What factors related to technostress had an impact on college business students from AUAS during the Covid-19 pandemic?*", there are a couple of elements that played a role. Higher academic workload, the difficulties of balancing private life versus university life, and the reduced ability to attend classes all affected student motivation, productivity and academic performance.

Another element that can influence students is the working environment. Most students stated to be studying and working from a private or open space at home. That did not seem to have a significant effect on the student's general academic performance. 48% of the students experienced negative effects of the study environment on their productivity. The following 39% thought that the working space influenced their motivation. Lastly 25% stated that it affected their performance. This shows that students' motivation and productivity are affected due to techno-invasion and techno-overload simultaneously at home, but also by an unsupervised digital home environment with more technological distractions. Social media had also a quite big role in the productivity of the students. The fun and pleasant distractions that come from social media offer a light relief to people, and students, who were told to follow classes online at home.



In addition to that, a negative effect in productivity and motivation can also be seen in the survey results of the study time and attended classes. A vast majority of the students have agreed to experience a decrease in their study time and the number of classes they have followed in comparison with the pre Covid-19 period.

The other factor that could have caused technostress is the technological skills of the students. However, in our research this was *not* found to be a problem. Of the students surveyed, 95% believed that they had the skills needed to use the technological tools provided by the school. Only 19% of the students felt intimidated when using modern technologies. Meaning that the technological skills are not a huge driver of technostress for students across the business programs at AUAS. In this case students were faced with technological issues that were not related to the level of their techno skills but rather to the working of the technology itself, such as bad internet connection or internal errors in the platforms they used.

To deal with the problems resulting from technostress, people revert to coping mechanisms, or cognitive and behavioral efforts to manage internal and external demands that are exceeding the resources of the person. According to the survey, the majority of the respondents, namely 72 out of 94 chose the self-distracting activities as the main coping mechanisms for dealing with technostress. Closely followed by other two coping strategies: cooking or food and indoor sport activities. These results are a natural response to the survey results on the most frequent study environment.

Keeping more contact with family and friends is also one of the most popular coping mechanisms. Sixty percent of participants indicated this as their preference. Sport or active activities outside were also one of the popular coping mechanisms. This is self-explanatory and is motivated due to Covid-19 measures.

A few of the less popular coping mechanisms were mindfulness, planning and developing new hobbies. It is interesting to note that even though these three coping mechanisms would be very helpful in reducing some major technostress effects such as physical aches, or mental exhaustion, they were the least popular.

The survey results also suggest that the above chosen coping mechanisms, if implemented incorrectly, can also be placed at the level of the factors that have negatively influenced students during Covid-19.

Some of these coping mechanisms can also lead to addictions.

Based on the findings and the literature, we proposed a number of recommendations for universities and students to decrease the levels of techno-stress and improve their ways of coping with it. In particular, we suggested improvements to the home digital learning environment, using social media in a positive manner, working to avoid common and solvable techno-problems and giving guidance with respect to possible coping strategies and mechanisms best suited to the individual student.

This research was only conducted at one educational university. Future research could validate the findings in other settings, i.e. other universities and different geographies. Additionally, now that much of the world has shifted its Covid-19 response significantly, with a lower emphasis on remote learning, the causes, levels and impacts of techno-stress are likely to have shifted as well. Thus, follow-up research is also important.

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# Impact of Green Legislations on Market Returns

## *An Event Study*

Amarjeet Kaur Malhotra\*, Sunint Bindra\*\* and Monika Bhatia\*\*\*

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### ABSTRACT

**Purpose** – The axle of this research is to empirically study the impact of the ‘Announcement of Energy Policy Act of 1992’ on the abnormal market returns of selected 56 US based companies engaged in green economic activities.

**Design/Methodology/Approach** – This study employs the event study approach on the market returns of selected green corporations as classified by the NAICS.

**Findings** – Event study results show that the green legislation announcements like Energy Policy Act of 1992, do impact the abnormal market returns of firms carrying green activities. However, the impact is not the same for all the selected 56 corporations and is not for the long term or even significant. The explanation for this could be green companies generally make investments in projects where the gestation period is longer than usual and the pay offs are likely to be received during medium to long term. Therefore, this is a good reason to believe that the stock price and corresponding market returns would be less responsive to the green events.

**Originality/Value** – Impact of news announcements and/or events on market returns has been though widely studied in the past, but there are a very few studies which have studied the impact of announcement of green legislation on the market returns of companies involved in green activities operating in the United States of America, thus a novel study.

**Keywords:** Green Economy, Green Economic Activities, Green Finance, Market Returns, Cumulative Abnormal Returns (CAR), Cumulative Average Abnormal Returns (CAAR)

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### INTRODUCTION

Green growth is a strategic approach to ensure that growth in economic activities like employment and income generation is driven by the principles of green economy. In other words, the growth in these economic variables is carried while minimizing the impact on environment. Xuguang Song et al. (2019) say that the increasing concern on protection of natural resources and environment has led to a shift from targeting economic growth to green economic growth. When an economy involves its financial sector in the transformation process towards achieving low carbon and efficient utilization of resources; it is known as green finance. According to Soundarrajan P. & Vivek N. (2016) Green finance is a center piece of the low carbon green development, since it weaves together the financial industry, ecological improvements and economic growth.

Governments across the world have been taking many initiatives including introduction of legislations for encouraging green economic activities. United States of America (USA) has also introduced 16 such legislations during the period of 1990 to 2016. These legislations concern industries ranging from energy to automobile. Several studies in the existing literature (e.g. Fama & French 2007; Gollier & Pouget 2014; Heinkel et al. 2001; Oehmke & Opp 2020) suggest that investor’s preference for companies’ involved in green activities affects the stock price and market returns. These effects could range from positive to negative or even mixed. Ang et al. (2006) studies performance of low-carbon funds and idiosyncratic risk in their study and concluded that out-performance of green funds need not to be necessary a compensation for higher idiosyncratic risk.

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Literature further suggests that stock price of most of the firms are very responsive to the related news items especially in the short run. Therefore, there is a good reason to believe that the market returns of companies engaged in green economic activities is also likely to be responsive to the news announcements including the announcements of green legislations. Further, Campbell & Shiller (1988) explained in their study that the expectations for changes in per-share earnings affect stock returns. Fried & Givoly (1978) in their seminal work concluded that the market analysts are very influential players in the working of financial markets. The forecasts by these analysts about the market returns, stock prices can depict valuable information about the expected changes in market expectations even in the case of any news of events including announcements of legislations affecting any industry. The revisions about the market forecasts by the analysts are considered as proxy to project the market's expectations about a firm (Fried & Givoly, 1982; Brown & Rozeff, 1978). This discussion sets the context for this study, where we want to see the effect of the event 'announcement of legislation' on the market returns of the companies classified as green corporations by the North American Industry Classified System Codes (NAICS) issued by the US Bureau of Labour Statistics.

The further text is organized into five sections. Section two highlights the motivation for the study; section three presents the literature review and section four lays down the objectives of the study. Whereas, section five and six briefs the research method and discussion on the statistical results respectively. The last section presents the conclusions.

## **MOTIVATION FOR THE STUDY**

There are many studies which argue that the financial markets reward green activities including adopting green legislations. This rationale becomes the premise for studying the impact of announcement of green legislation on the stock price of the companies affected by that legislation. If this hypothesis is correct, the companies which carry green economic activities should see favorable returns and a positive correlation between their stock price and announcement of green legislations by the federal government. Investors often look at factors other than pure financial indicators when making investment decisions.

## **LITERATURE REVIEW**

According to the Intergovernmental Panel on global climate change Special Report on warming (2018), global climate change and warming create an elementary threat to multifariousness, the oceans (through acidification), weather phenomena, and also the world economy. Businesses are not any exception to those threats as they're doubtless to encounter uncertainty and alter in demand, further as higher levels of risk and operational prices arising from additional extreme weather. Thus, all enterprises got to assess and act on the uncertainty of global climate change, remodel businesses, and uncover opportunities to avoid going bankrupt. Linnenluecke et al. (2016) declared that "this analysis field engages with global climate change together of the foremost pressing considerations facing humanity, and brings along monetary and science analysis" and advised that "it offers an expensive avenue for future research on however monetary decision-making relates to the requirement to act on environmental concerns".

Several studies are conducted on carbon finance to handle the potency of associated monetary instruments on environmental protection. completely different environmental policies square measure thought-about as useful tools that may be wont to cut back greenhouse emission emissions at all-time low value (Abolhosseini and Heshmati, 2014) and attract a better level of capital associated with renewable energy sources (Criscuolo and Menon 2015). Moreover, monetary establishments and monetary innovations have a very important and larger role to play within the transition to lower-carbon energy (Hall et al., 2017; Pathania and nuclear physicist, 2014). Linnenluecke et al. (2015a) examined many studies on {climate change global climate change temperature change} that they coupled to accounting and finance literature and located that accounting and finance will support organizational climate change adaptation. additionally, Linnenluecke et al. (2015b) studied the divestment campaign and argued that divestment by itself isn't enough to mitigate the consequences of global climate change.

There square measure 2 sides to the talk concerning the influence of environmental regulation. consistent with Stewart (1993), companies in operation in countries wherever rules don't seem to be tight or not implemented don't incur a lot of compliance prices. Thus, the author believes that environmental regulation incorporates a negative impact on international fight. Moreover, tight



restrictive social control not solely results in higher prices however additionally pushes firms' capital resources aloof from alternative potential comes to take a position in inexperienced technologies—as a result, future productivity growth might diminish. The negative impact of environmental regulation on productivity might arise as a result of company's square measure forced to fits “non-productive” activities like waste treatment, disposal management, and auditing activities (Lanoie et al., 2008; Christainsen and Haveman, 1981; Grey and Shadbegian 1993).

On the opposite hand, studies are conducted on the impact of environmental regulation on risk and come available markets. Dowell et al. (2000) and Halkos and Sepetis (2007) argued that companies with improved environmental management systems might expertise a discount in perceived risk and boost their market values. They recommend companies that fits environmental regulation square measure doubtless to supply improved securities market performance and note that no proof is on the market to support the proposition that companies following lower native environmental standards might save production prices. They additionally note that companies moving downward from existing higher environmental standards square measure doubtless to violate company routines, which might value them additional once creating a brand new investment. Another positive impact of compliance with environmental standards is AN increased public image, that boosts worker morale and company name. Last, however not least, they argue that companies will cut back them in operation prices and eliminate pollution by ever-changing production processes and applying trendy “eco-efficiency” technologies with high resource productivity. In AN Australian market-based study, Ramiah et al. (2013) found that abnormal returns square measure coupled to environmental announcements. They show that environmentally-friendly companies tend to expertise positive abnormal returns whereas polluting companies' expertise unfavorable results once the target of environmental regulation is to penalize polluters.

## RESEARCH OBJECTIVES

The overall objective of the study is to measure the impact of announcements of green legislations on the stock price of selected green companies, with the following sub-objectives:

1. To study the overall impact of announcements of selected green legislation on the stock price of all the companies operating in selected green sectors.
2. To study the impact of announcement of Energy Policy Act of 1992 on the stock price of selected firms carrying green activities.

## RESEARCH METHOD

This section discusses the research method including the selection of sample, statistical tool used for the purpose of this study.

### Selection of Model

This is an empirical study where the event study has been used to examine the abnormal changes in stock price of sample firms after a specific event occurs. Here, the specific event represents an announcement of a green legislation. Han and Ming (2018) are considered to be pioneer in making the event study method very systematic. According to them the event study can be approached using three models for calculating abnormal returns: the average adjusted return rate model; the market index adjusted return rate model; and the market model. All the three models have their own advantages and limitations. According to Klein and Rosenfeld (1987), the average adjusted rate of return model shows a large deviation especially when a bull or bear market happened on the day of an event. Huan and Li (2018) say that the market index adjusted returns model assumes strong relationship, which may not be true in most of the cases, thus has a limitation. Most of the researchers including Huan and LI (2018) claims that the market models have great predictive power and are most commonly used, hence been selected for this study.

The model used to calculate normal returns is:

$$R_{i,t} = \alpha_i + \beta_i R_p M_{i,t} \quad \dots(1)$$

The model used to calculate abnormal returns is:

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_p M_{i,t}) \quad \dots (2)$$

The model used to calculate the cumulative abnormal rate of return is:

$$CAR_{i(t_1, t_2)} = \sum_{t_2}^{t_1} AR_{i,t} \quad \dots(3)$$

Where,  $R_{i,t}$  donates the return rate of stock on the trading day. The returns rate is calculated by dividing the difference of closing and opening stock price with

that of opening stock price of the date in consideration. The market return or in other words, the return for the entire S&P 500 index is also calculated in the same manner. The market return rate of the trading market is denoted by  $t, R_p, M_{i,t}$ . Further,  $\alpha_i$  and  $\beta_i$  are the regression coefficients of the daily return rate of the stock  $i$  and the market return rate. The expected normal return of individual stock  $i$  can be calculated, if  $\alpha_i$  and  $\beta_i$  remain stable during the estimation period.  $Ar_{i,t}$  represents the average abnormal return rate of stock  $i$  on the trading day  $t$ , obtained by subtracting the expected return from the actual return.  $CAR_{i(t_1,t_2)}$  is the cumulative abnormal return rate of stock  $i$  in the event window period  $(t_1, t_2)$ .

Event studies parameters were set to an estimation window and an event window from –10 days to 10 days post-event; the market model was used for estimating abnormal returns. Data points include day relative to event date, daily total return, daily abnormal return, cumulative total return, and cumulative abnormal return, mean total return, mean abnormal return, mean cumulative abnormal return, mean cumulative abnormal return at the end of event window, and corresponding  $t$  statistics. Finally, a two-tailed linear regression model was run having cumulative abnormal returns as dependent variable and time dummy as independent variable. The justification for selecting a two-tailed regression was based on the reason that the green announcements may have positive or negative impact on the stock returns of the selected firms. Further, Control variables like firm identifier and dividend at micro level and federal interest rates and exchange rate of dollar to Japanese Yen at macro level were also considered in the regression model. However, the  $p$ -values for all these selected variable than the time dummy were more than 0.05, suggesting us to exclude these variables from the model.

### Sample Selection

The United States Bureau of Labor Statistics has classified the green economic activity generated by green goods and service (G&S) industries. Specifically, they provide classification criteria for 863 North American Industry Classification System (NAICS) codes including a binary for contributing to green economic activity, category of green economic activity, definition of green output, and the green good or service provided. As per our research plan, we decided to restrict our study to those companies which are engaged in the renewable energy-green activity. We filter for

NAICS codes that meet the criteria of contributing to green economy activity and have “renewable” energy as their category of green economic activity. So, we first used the NAICS code filter ‘y’ for green companies and then applied another filter ‘1’ to identify companies in the area of renewable energy. A total of 56 companies which met these criterions were finally included in the study.

Since the year 1970; 58 pieces of prominent environmental reforms have been passed by US legislative bodies, primarily at the federal level. Of these, 17 have been passed from 1990–2016 (most recent federal legislation). From these 17 legislative announcements, we identify the announcement that is most pertinent to renewable energy – the Energy Policy Act of 1992 and defined it as our event for this study.

### EMPIRICAL RESULTS AND DISCUSSION

This section discusses the results of statistical tools like descriptive analysis, regression and event study applied in this article.

**Table 1:** Impact of the Announcement of Selected US Green Legislations on the Stock Market Value

Event Window	Energy Policy Act of 1992	
	CAAR	$t$ -Value*
(–10, 0)	–0.007055732647	–0.7233296525
(0, 0)	–0.01314914017	–1.079872394
(0,+10)	0.01492845772	0.8491242858

CAAR stands for cumulative average abnormal return. The abscissa represents the industry, and the ordinate represents the event window. \* at 5% level of significance.

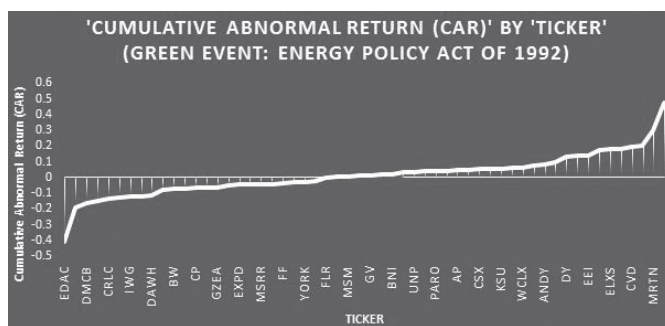
Table 1 shows that the Energy Policy Act (EPAct) of 1992 has negative impact on the cumulative average abnormal returns values 10 days prior to its date, but the impact became more negative on the date of the announcement of the event. However, the impact was very short term and the cumulative average abnormal returns became positive post 10 days window of the event. This suggests that market initially discounted this green announcement, however adjusted very soon. The second event marked above is the announcement of the Kyoto Protocol of 1997 and the response of the market to this event was significantly negative on the date of the announcement of the event and became even negative after 10 days of the date of announcement. Whereas, the announcement of Energy Policy Act of 2005, which was an amendment to the original act of 1992 was taken very positively in the market and resulted into positive

cumulative average abnormal returns on the day of the announcement and the returns were even better after 10 days past the announcement. Events four here refers to the Energy Independence and Security Act (EISA) announced in 2007. Our results show that the CAAR value was negative during the window of 10 days prior to the announcement and became even more negative after 10 days of the announcement of the event. Our results are statistically significant as the p values for all the observed events are less than 0.05, indicating that these are not random results and the model could capture the change in the stock returns due to these green events.

Above figure is showing the regression results for all the four selected green events on the firms carrying green activities in the sectors like environment, renewable energy and other allied activities.

**Table 2:** Descriptive Statistics for Daily Stock Return and Market Return (Green Event: Energy Policy Act of 1992)

	Daily Stock Return	Market Return
Mean	0.002933	0.002306
Standard Error	0.00154	0.000122
Median	0	0.0017
Mode	0	0.0003
Standard Deviation	0.052762	0.004165
Sample Variance	0.002784	1.73E-05
Kurtosis	16.70749	-0.82058
Skewness	1.367836	0.045979
Range	0.794118	0.0144
Minimum	-0.29412	-0.005
Maximum	0.5	0.0094
Sum	3.443494	2.7074
Count	1174	1174
Count	1174	1174



**Figure 1:** Depicting Values of CAR for the Green Event: Energy Policy Act of 1992

Figures 1 and Table 3 explain the cumulative abnormal returns (CAR) for the selected firms identified with their ticker numbers and grouped into selected industries.

The regression results shows that out of 56 green firms carrying green activities; 24 firms reacted negatively and 32 firms reacted positively. If we further analyze the response of the event across all firms in this green sector, the explanation for this seems that the firms working in sectors like transportation and manufacturing reacted negatively and other firms from the sectors like industrial machinery went down. The Table 3 shows that the mean stock returns for all the observations are positive though the returns pre and post windows to the event date could be negative.

**Table 3:** Regression Output for the Green Event: Energy Policy Act of 1992

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.00552	0.003637	-1.51825	0.012922
Time Period	0.001867	0.00527	0.354363	0.048

R value = 0.0001069; Adjusted R Square = -0.0007447; Significance F = 0.00 (< 0.05)

Table 3 depicts results of regression output of cumulative abnormal returns against the time period for the Energy Policy Act of 1992, where we intended to see the impact of time period on the cumulative abnormal returns. We reject the null hypothesis that time period does not affect the cumulative abnormal returns as the P value is less than 0.05, indicating the fitness of the model. The negative value for the coefficient intercept indicates that the announcement of the event negatively affected the stock returns of the selected companies, though this negative impact is very minimal. As we know that the t-statistic measures how many standard errors the coefficient is away from zero. The t-statistic measures how many standard errors the coefficient is away from zero. Generally, any t-value greater than +1.96 or less than -1.96 is acceptable. The higher the t-value, the greater the confidence we have in the coefficient as a predictor. Here the t-value is -1.51825 gives us the confidence in the time period as a predictor. Overall, the impact of the green announcement in consideration is almost negligible.

## CONCLUSION

This paper measures the impact of announcements of Energy Policy Act of 1992 in the United States over the market returns of the stock price of selected 56 companies. Event study results show that the green legislation announcements do impact the abnormal market returns of firms carrying green activities. However, the impact

is not the same for all the selected companies and is not for the long term or even significant. The explanation for this could be green companies generally make investments in projects where the gestation period is longer than usual and the pay offs are likely to be received during medium to long term. Therefore, this is a good reason to believe that the stock price and corresponding market returns would be less responsive to green events. Another justification could be that many people don't understand the technical nuances of the implications of green legislations and may respond in unpredictable manner. These results coincide with the results presented by Roberto Saco (2018). This work can further be extended by including more green activities, control variables and firm characteristics in the model.

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**Table:** Depicting Cumulative Abnormal Returns (CAR) for all the Selected Companies

Results for Event 1 dated 24/10/1992			
S. No.	Ticker	Cumulative Abnormal Return (CAR)	Cross-sectional t-statistic for Abnormal Return
1	DOCP	0.039100406	−0.723329653
2	DMCB	−0.158178071	0.721924743
3	CP	−0.062856247	0.389484567
4	CE	0.075545019	−1.121231699
5	PATI	−0.123234393	−0.122822716
6	DD	−0.044133685	−0.645495325
7	UNTH	−0.038392742	0.063538463
8	MSRR	−0.038707678	1.122910542
9	CVD	0.195837806	−0.770440266
10	DY	0.134892467	−0.974804061
11	ELXS	0.180398345	−0.437839184
12	ALE	−0.061908899	−0.321488453
13	KSU	0.059603782	0.346590016
14	AMRC	−0.069503461	0.547235589
15	ANDY	0.081605001	1.04550955
16	WX	−0.119796082	−1.345163341
17	BARR	−0.144067114	−0.725849734
18	AP	0.049386543	1.331621253
19	CRLC	−0.131397043	1.146497038
20	CPL	−0.028635893	0.194206828
21	IWG	−0.121394542	1.048647449
22	FLR	0.003849536	
23	FLA	0.018404357	
24	GV	0.016825169	
25	IFF	0.058762179	
26	TAM	0.138813915	
27	MSM	0.010500171	
28	UNP	0.037352916	
29	BNI	0.01950574	
30	MTSC	0.03494189	
31	MOCO	0.014242811	
32	SPZN	−0.022205904	
33	BW	−0.069679533	
34	GHW	0.202209012	
35	NGEN	0.172668212	

<i>S. No.</i>	<i>Ticker</i>	<i>Cumulative Abnormal Return (CAR)</i>	<i>Cross-sectional t-statistic for Abnormal Return</i>
36	PARO	0.04028153	
37	CSX	0.058596217	
38	NSC	0.050351605	
39	VTS	0.183321146	
40	AIT	-0.079305356	
41	DAWH	-0.112972197	
42	FF	-0.033061923	
43	ARG	0.040522717	
44	EEI	0.143082905	
45	MRTN	0.301642804	
46	PCL	0.006687818	

<i>S. No.</i>	<i>Ticker</i>	<i>Cumulative Abnormal Return (CAR)</i>	<i>Cross-sectional t-statistic for Abnormal Return</i>
47	GZEA	-0.060499753	
48	CHC	-0.185653944	
49	TRMB	0.476754853	
50	CTRL	0.060898726	
51	WCLX	0.062487597	
52	YORK	-0.028603586	
53	DSPT	-0.047370551	
54	EDAC	-0.405885497	
55	EXPD	-0.044595052	
56	NANO	0.098959584	



# Effect of Consumer's Demographic Profile on Perceived Brand Personality

## *A Study of Food and Beverages*

Nidhi Sheoran\* and Nisha Chaudhary\*\*

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### ABSTRACT

**Background:** The present study intends to understand the effect of demographic profile on perceived brand personality by taking the food and beverage industry into context. Brand personality is characteristic of a brand that makes it more effective to its customers. It is something that customers identify with due to its similarities with human qualities. A brand with a prominent brand personality will eventually attract more customers and ensure their loyalty as well.

**Methodology/Design:** This paper covers the relationship between demographic profile of the consumers and the perceived brand personality. The study was conducted on a sample of 666 consumers of selected food and beverages brands; out of which only 546 responses were used for data analysis, after checking the normality of the data by applying outliers test. The area of the study was limited to Haryana state, and mode of data collection was either online through emails or by posting questionnaire link on social media platforms, or in person. The analysis was done using one-way ANOVA and descriptive statistics tables along with the interpretation.

**Findings:** Out of five demographic profiles only age and income of the consumer affects how they perceive the brand personality. While education, occupation and gender have no significant impact on perceived brand personality.

**Originality/Value:** This study is among the few who focuses on how customer with different demographic profile perceives brand personality. The outcomes are of great use for customers, Marketers and researchers.

**Keywords:** Demographic Profile, Brand Personality, Food and Beverages

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## INTRODUCTION

### Brand Personality

Brand personality is the typical characteristic of a brand that makes the particular brand noticeable among a series of competitors. The traits of a brand are usually reflective of the personality traits of humans. According to Aaker (1997), brand personality is "...set of human characteristics associated with the brand." Plummer 2 (1984) has stated that "brand personality might be operative in understanding brand choice"; on the other hand, Kapferer has opined that it is a sub-system of brand equity. Brand personality usually helps in creating the preference for a brand in the minds of the purchaser. Consumers prefer a brand whose traits match their personality or display such traits that they wish to possess. Aaker's (1997) brand personality scale has talked extensively about the dimensions of

brand personality – which are five in number namely, sincerity, ruggedness, sophistication, excitement, and competence. Each of the five dimensions encompasses facets which are in total 15 in number.

### The Food and Beverage Industry

The food and beverage industry consists of the food joints that are available around the world. It also involves various services, along with some products. The food industry is one of the most important industries. The trends in the food and beverage industry need to take a lot of information. The industry is rapidly changing owing to the extremely rapid changes of the world. The food and beverage industry have occupied a share of 44% which is truly commendable. The industry is increasingly attempting to differentiate to cater to the needs of a wide range of audiences.

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## Trends and Growth in the Food Beverage Industry

The 'food and beverage industry' includes cafeterias, fast-food joints, delis, cafes pubs, restaurants, catering businesses, food manufacturing operations, and food transportation services and functions of the sector include packaging to preparing, transporting, serving, and more. The primary role of the food and beverage industry is in expanding the economic opportunities whilst providing valuable service to a sector. The food and beverage industry open up services and jobs for multiple levels of society.

## LITERATURE REVIEW

### Brand Personality

"Kakati and Deorah (2019) conducted a primary research study to examine the relationship between brand attractiveness and brand personality of local, national, and global brands in the Indian processed foods industry. The objective was to define the attractiveness of brands, quantifying them for three brands and finding out the association with brand personality. the three brands chosen were Purabi, Amul Taaza, and Nestle a+ nourish as the local, national and global brands respectively. The study was conducted on 250 participants residing in Guwahati, Assam". "Data was assembled with a 7-point Likert scale questionnaire and interpreted with the use of descriptive statistics, exploratory factor analysis, Cronbach's alpha, multiple regression, and one-sample t-test. The results of the study indicated that local brand enjoys brand attractiveness more than global and national brands which were consistent with the findings of Stubbs (1999), Schulling and Kapferer (2004). The qualities of easy availability, recall, and the association was implicated. The national brand although had low brand attractiveness, it has promising personality dimensions like original and reliable. The global brand, similarly, was related to significant personality traits like uniqueness. The global brand has higher brand attractiveness than the national brand. The lack of brand personality in the case of the local brand was implicated in positioning strategies". "Robertson et al. (2019) studied the dimensions of brand personalities created by employees of business-to-business firms concerning social media. The study also intended to understand how these brand personalities created differences between 28 high-rank and low ranks; high rate and low-rated brands based on reviews. Content analysis was done on 6300 written employee reviews available on social media

platforms. The data were treated with Brainwatch as reference and ANOVA to spot differences in personality dimensions of differently rated and ranked brands. The findings indicated that there existed significant differences between low-rated and high-rated brands as well as employers in terms of brand personality. However, no significant relationship between business-to-business firms based on their rankings or ratings was found. Social media presence was not implicated in the rating of the brands". "Wu and Chen (2019) conducted a study to find out the relationship between 3 variables namely, brand image, brand personality, and brand identification. The brand taken into consideration for the research study was Volvo. The sample consisted of 1032 respondents from 5 Taiwanese cities. The survey questionnaire was used for data collection. The analysis of data was done with structural equation modeling and confirmatory factor analysis with the help of AMOS software. The results of the study implicate that brand identification was positively influenced by brand image; brand personality positively and significantly had an impact on brand identification. However, brand personality did not exhibit any mediating effect on the link between brand identification and the image of the brand. Brand identification was found to be influenced directly by brand image and not through the personality of the brand. The brand image-identification path was seen to be more relevant and greater than the brand image-personality-identification channel".

### Research Gaps

The literature review comes up with the inference that there are numerous studies available on the brand personality but still there is few research gaps which have been identified by the researcher based on that objectives of the study have been framed out.

The studies including the demographics features of consumers are also limited related to the brand personality.

## RESEARCH METHODOLOGY

After detailed literature reviews we found out different demographic profiles that are affecting brand personality have been identified. By making use of review of literature a questionnaire was designed and after pilot survey data has been collected for further analysis.



## Objectives of the Study

1. To study the effect of customer demographic profiles on perceived brand personality.
2. To suggest ways on how customer can be made more aware about brand personality.

## Research Questions

The research paper aim to answer some research questions which are derived from literature review.

- RQ1: How brand personality and a customer loyalty are related to each other, and how it affects their perception about brand personality?
- RQ2: How food and beverages companies can make its brand personality appealing to customers of different demographic profiles?

## Hypothesis

Hypotheses have been formulated to have an in-depth analysis of the data:

- H01: There is no significant impact of consumers' demographic characteristics on perceived brand personality.
- H1.1: "Age of a customer has no significant impact on perceived brand personality."
- H1.2: "Gender of a customer has no significant impact on perceived brand personality."
- H1.3: "Education of a customer has no significant impact on perceived brand personality."
- H1.4: "Income level of a customer's has no significant impact on perceived brand personality."
- H4.5: "Occupation of the customers has no significant impact on perceived brand personality."

## DATA COLLECTION AND ANALYSIS

### Demographic Profile and Perceived Brand Personality

- **H01:** There is no significant impact of consumers' demographic characteristics on perceived brand personality.

This section covers the relationship between demographic profile of the consumers and the perceived brand personality. The analysis was done using one-way ANOVA and descriptive statistics tables along with the interpretation.

- **H1.1:** "Age of a consumer has no significant impact on perceived brand personality."

**Table 1:** Perceived Brand Personality (Age of consumer) Customers

	Customers	Avg	SD	SE	95% Confidence		Least	Highest
					Lower Bound	Upper Bound		
16-20	73	119.7123	15.25112	1.78501	116.1540	123.2707	73.00	150.00
21-25	329	121.3465	15.21698	.83894	119.6961	122.9969	78.00	157.00
26-30	137	119.9781	16.54516	1.41355	117.1827	122.7735	73.00	153.00
31-35	7	102.1429	19.97022	7.54803	83.6735	120.6122	83.00	141.00
Total	546	120.5385	15.73844	.67354	119.2154	121.8615	73.00	157.00

Consumers from 21 to 25 years of age group have highest mean score for the perceived brand personality, followed by the consumers from 26 to 30 years of age group. While the lowest mean score for the perceived brand personality was among consumers from age group of 31 to 35 years. This signifies that consumer's age group wise there is a difference in the perceived brand personality. Young consumers have perceived the brand personality highly, while consumers from 31 to 35 years have perceived it lowest.

**Table 2:** Perceived Brand Personality (Age of consumer)

ANOVA					
	Total of Squares	df	Average Square	F	Sign.
Between Sets	2676.443	3	892.148	3.654	.012
Inside Sets	132319.249	542	244.131		
Total	134995.692	545			

F-test value 3.654, with a corresponding sig. value 0.012, clearly signifies that null hypothesis which states that Age of a consumer has no significant impact on perceived brand personality, got rejected. The perceived brand personality was found to be significantly different among different age group of consumers. Hence, age of the consumer affects how they perceive the brand personality.

- **H<sub>1.2</sub>:** "Gender of a consumer has no significant impact on perceived brand personality".

**Table 3:** Perceived Brand Personality (Gender of the consumer)

	Customers	Avg	SD	SE	95% Confidence		Least	Highest
					Lower Bound	Upper Bound		
Male	384	120.7526	16.10649	.82193	119.1365	122.3687	73.00	157.00
Female	162	120.0309	14.86562	1.16795	117.7244	122.3373	78.00	155.00
Total	546	120.5385	15.73844	.67354	119.2154	121.8615	73.00	157.00

From the mean value of the perceived brand personality it can be inferred that both the male and female consumers have shown similarity. Both male and female consumers have perceived the brand personality equally, without any difference.

**Table 4:** ANOVA-Perceived Brand Personality  
(Gender of the consumer)

ANOVA					
	Total of Squares	df	Average Square	F	Sign.
Between Sets	59.349	1	59.349	.239	.625
Inside Sets	134936.343	544	248.045		
Total	134995.692	545			

F-test value 0.239, with a corresponding sig. value 0.635, clearly signifies that null hypothesis which states that gender of a consumer has no significant impact on perceived brand personality, got accepted. The perceived brand personality was found to be insignificantly different among male and female consumers. Hence, gender wise there is no such impact over how consumers perceive the brand personality.

- **H<sub>1.3</sub>:** “Education of a consumer has no significant impact on perceived brand personality.”

**Table 5:** Perceived Brand Personality  
(Education of the consumer)

	Customers	Avg	SD	SE	95% Confidence		Least	Highest
					Lower Bound	Upper Bound		
Undergraduate	11	114.7273	19.55040	5.89467	101.5931	127.8614	73.00	136.00
Graduate	41	118.6341	17.29126	2.70044	113.1764	124.0919	85.00	152.00
Post Graduate	389	120.2519	15.32494	.77701	118.7243	121.7796	73.00	156.00
Others	105	122.9524	16.09072	1.57029	119.8384	126.0663	83.00	157.00
Total	546	120.5385	15.73844	.67354	119.2154	121.8615	73.00	157.00

Consumers who were professionals, diploma holders or other educational background have highest mean score for the perceived brand personality, followed by the consumers who were post graduate. While the lowest mean score for the perceived brand personality was among consumers who were undergraduate. This signifies that education wise there is a difference in the perceived brand personality. Highly educated consumers have perceived the brand personality highly, while less educated consumers have perceived it lowest.

**Table 6:** ANOVA-Perceived Brand Personality  
(Education of the consumer)

ANOVA					
	Total of Squares	df	Average Square	F	Sign.
Between Sets	1163.925	3	387.975	1.571	.195
Inside Sets	133831.767	542	246.922		
Total	134995.692	545			

F-test value 1.571, with a corresponding sig. value 0.195, clearly signifies that null hypothesis which states that education of a consumer has no significant impact on perceived brand personality, got accepted. The perceived brand personality was found to be insignificantly different among different age group of consumers. Hence, education of the consumer does not affect much on how they perceive the brand personality.

- **H<sub>1.4</sub>:** “Income level of a consumers has no significant impact on perceived brand personality.”

**Table 7:** Perceived Brand Personality  
(Income level of the consumers)

	Customers	Avg	SD	SE	95% Confidence		Least	Highest
					Lower Bound	Upper Bound		
Less than 1 lakh	20	111.2000	19.98052	4.46778	101.8488	120.5512	73.00	144.00
1–2 lakhs	36	118.8056	13.80646	2.30108	114.1341	123.4770	89.00	150.00
2–3 lakhs	62	120.4516	14.97394	1.90169	116.6489	124.2543	83.00	141.00
3–4 Lakhs	169	119.2722	14.92989	1.14845	117.0049	121.5394	86.00	153.00
More than 4 lakhs	259	122.3475	16.07187	.99866	120.3809	124.3140	73.00	157.00
Total	546	120.5385	15.73844	.67354	119.2154	121.8615	73.00	157.00

Consumers who were family income of more than 4 lakhs per month, have highest mean score for the perceived brand personality, followed by the consumers who were having family income of 2 to 3 lakhs per month. While the lowest mean score for the perceived brand personality was among consumers whose family income was less than one lakh per month. This signifies that family income wise there is a difference in the perceived brand personality. Highly earning consumers have perceived the brand personality highly, while less earning consumers have perceived it lowest.

**Table 8:** ANOVA – Perceived Brand Personality  
(Income level of the consumers)

ANOVA					
	Total of Squares	df	Average Square	F	Sign.
Between Sets	2971.293	4	742.823	3.044	.017
Inside Sets	132024.399	541	244.038		
Total	134995.692	545			

F-test value 3.044, with a corresponding sig. value 0.017, clearly signifies that null hypothesis which states that monthly family income of a consumer has no significant impact on perceived brand personality, got rejected. The perceived brand personality was found to be significantly different among consumers with different level of family

income per month. Hence, monthly family income of the consumer affects how they perceive the brand personality.

- **H<sub>1.5</sub>:** "Occupation of the consumers has no significant impact on perceived brand personality."

**Table 9:** Perceived Brand Personality  
(Occupation of the consumers)

	Customers	Avg	SD	SE	95% Confidence		Least	Highest
					Lower Bound	Upper Bound		
Services	72	122.6389	12.76362	1.50421	119.6396	125.6382	88.00	153.00
Business	241	120.4606	15.98800	1.02988	118.4318	122.4893	73.00	157.00
Homemaker	135	118.7333	16.16159	1.39097	115.9822	121.4844	82.00	155.00
Student	74	120.7838	16.88987	1.96341	116.8707	124.6968	84.00	150.00
Professionals	24	124.4167	14.93731	3.04907	118.1092	130.7241	98.00	156.00
Total	546	120.5385	15.73844	.67354	119.2154	121.8615	73.00	157.00

Consumers, who were professionals, have highest mean score for the perceived brand personality, followed by the consumers who were from service class. While the lowest mean score for the perceived brand personality was among consumers who were homemaker. This signifies that occupation wise there is a difference in the perceived brand personality. Professional consumers have perceived the brand personality highly, while less homemakers have perceived it lowest.

**Table 10:** ANOVA – Perceived Brand Personality  
(Occupation of the consumers)

ANOVA					
	Total of Squares	df	Average Square	F	Sign.
Between Sets	1124.432	4	281.108	1.136	.339
Inside Sets	133871.261	541	247.451		
Total	134995.692	545			

F-test value 1.136, with a corresponding sig. value 0.339, clearly signifies that null hypothesis which states that occupation of a consumer has no significant impact on perceived brand personality, got accepted. The perceived brand personality was found to be insignificantly different among consumers with different type of occupation. Hence, occupation of the consumer does not have much impact over how they perceive the brand personality.

## DISCUSSION, SUGGESTIONS AND CONCLUSION

### Findings for the Hypothesis

H01: There is no significant impact of a brand personality over the consumers' purchase decision towards the food and beverages products.

- **H<sub>1.1</sub>:** "Age of a consumer has no significant impact on perceived brand personality."

Consumers from 21 to 25 years of age group have highest mean score for the perceived brand personality, followed by the consumers from 26 to 30 years of age group. While the lowest mean score for the perceived brand personality was among consumers from age group of 31 to 35 years. This signifies that consumers age group wise there is a difference in the perceived brand personality. Young consumers have perceived the brand personality highly, while consumers from 31 to 35 years have perceived it lowest. F-test value 3.654, with a corresponding sig. value 0.012, clearly signifies that null hypothesis which states that Age of a consumer has no significant impact on perceived brand personality, got rejected. The perceived brand personality was found to be significantly different among different age group of consumers. Hence, age of the consumer affects how they perceive the brand personality.

- **H<sub>1.2</sub>:** "Gender of a consumer has no significant impact on perceived brand personality."

From the mean value of the perceived brand personality it can be inferred that both the male and female consumers have shown similarity. Both male and female consumers have perceived the brand personality equally, without any difference. F-test value 0.239, with a corresponding sig. value 0.635, clearly signifies that null hypothesis which states that gender of a consumer has no significant impact on perceived brand personality, got accepted. The perceived brand personality was found to be insignificantly different among male and female consumers. Hence, gender wise there is no such impact over how consumers perceive the brand personality.

- **H<sub>1.3</sub>:** "Education of a consumer has no significant impact on perceived brand personality"

Consumers who were professionals, diploma holders or other educational background have highest mean score for the perceived brand personality, followed by the consumers who were post graduate. While the lowest mean score for the perceived brand personality was among consumers who were undergraduate. This signifies that education wise there is a difference in the perceived brand personality. Highly educated consumers have perceived the brand personality highly, while less

educated consumers have perceived it lowest. F-test value 1.571, with a corresponding sig. value 0.195, clearly signifies that null hypothesis which states that education of a consumer has no significant impact on perceived brand personality, got accepted. The perceived brand personality was found to be insignificantly different among different age group of consumers. Hence, education of the consumer does not affect much on how they perceive the brand personality.

- **H<sub>1.4</sub>:** “Income level of a consumers has no significant impact on perceived brand personality.”

Consumers who were family income of more than 4 lakhs per month, have highest mean score for the perceived brand personality, followed by the consumers who were having family income of 2 to 3 lakhs per month. While the lowest mean score for the perceived brand personality was among consumers whose family income was less than one lakh per month. This signifies that family income wise there is a difference in the perceived brand personality. Highly earning consumers have perceived the brand personality highly, while less earning consumers have perceived it lowest. F-test value 3.044, with a corresponding sig. value 0.017, clearly signifies that null hypothesis which states that monthly family income of a consumer has no significant impact on perceived brand personality, got rejected. The perceived brand personality was found to be significantly different among consumers with different level of family income per month. Hence, monthly family income of the consumer affects how they perceive the brand personality.

- **H<sub>1.5</sub>:** “Occupation of the consumers has no significant impact on perceived brand personality.”

Consumers, who were professionals, have highest mean score for the perceived brand personality, followed by the consumers who were from service class. While the lowest mean score for the perceived brand personality was among consumers who were homemaker. This signifies that occupation wise there is a difference in the perceived brand personality. Professional consumers have perceived the brand personality highly, while less homemakers have perceived it lowest. F-test value 1.136, with a corresponding sig. value 0.339, clearly signifies that null hypothesis which states that occupation of a consumer has no significant

impact on perceived brand personality, got accepted. The perceived brand personality was found to be insignificantly different among consumers with different type of occupation. Hence, occupation of the consumer does not have much impact over how they perceive the brand personality.

## CONCLUSION

Out of five demographic profiles only age and income of the consumer affects how they perceive the brand personality. While education, occupation and gender have no significant impact on perceived brand personality.

## RECOMMENDATIONS OR SUGGESTIONS

1. People usually go for the reliable brands, as food and beverage have direct impact on their health, and a single negative word of mouth marketing may have huge impact on the brand reputation.
2. Food and beverage brands, need to focus on the packaging, and their features in such a way that it can attract to the consumers with different personality traits.

## LIMITATIONS AND FUTUREIMPLICATIONS

The current study has following limitations and future scope for researchers:

1. The study is limited to the Haryana state only, which can be extended to other states as well, or a cross sectional study can be conducted for other states also.
2. Current study was conducted for food and beverage brands only, while same can be extended to the other brands or products as well.

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# Analyzing the Effect of Social Media Influencers on the Purchase Decision of Consumers

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## ABSTRACT

**Overview:** As social media becomes the major source of travel-related information for passengers hence, tourist service providers are increasingly collaborating with social media influencers (SMIs) as part of their digital marketing strategy. Social media influencers develop and distribute social media content to customers. Currently, most consumers utilize e-servicescape platforms and user-generated content (UGC) to locate hotel reviews, ratings, and photographs before making a purchase choice. At this point, customers might be persuaded by a group known as 'Influencers'.

Social Media Influencers do not gain an impact by being associated with a certain brand. They just have an online reputation that others appreciate and trust. Indeed, many SMIs do not use their influence to further their promotional activities. The impact of an SMI travels swiftly through its social media outlets. Whether favorable or bad, it has a quick impact on the views of their followers. This, in turn, influences their behavior, which, in an ideal marketing situation, results in the purchase of a product/service.

According to a 2019 survey conducted by The Influencer Marketing Hub, businesses receive an average return on investment (ROI) of 5x what they spend on influencer marketing, with some firms earning 20x their cost.

**Purpose:** Most of the time, influencers' material may readily convince their viewers' judgment. Hotels use influencers as the face of their advertisements because influencers endorse opinions about their products, which are shared on social media platforms and help spread viral conversations about the hotel brand online, and this has completely changed the way guests make their accommodation decisions.

**Design/Methodology/Approach:** This study aims to find the correlation between consumer decisions and the e-servicescape by social media influencers along with analyzing the effect of the sponsored content shared by many SMIs concerning the organic content shared by them on consumer decisions.

**Research Implications:** This study is aimed to help hotels choose an optimum strategy for social media interaction with consumers, adequate involvement of SMIs in marketing communication, and designing a satisfying consumer and hotel communication strategy.

**Keywords:** Social Media, Social Influencers, E-servicescape, Hotel, Customer

## INTRODUCTION

The speed at which communication and information technology have advanced recently has unquestionably changed how corporate operations are conducted. Marketers use digital technology to develop novel approaches to communication and engagement with potential customers as consumers increasingly adapt to the convenience of the digital environment (Kim et al., 2021). To contact potential customers

more effectively, electronic communication channels, social media, and word-of-mouth have taken over (Poturak & Turkyilmaz, 2018). It is not surprising that marketers have turned to social media as one of the most significant marketing communication platforms given the projection that there would be 3.29 billion social media users worldwide in 2022 (Appel et al., 2020).

Electronic word-of-mouth (eWOM) has increasingly replaced traditional word-of-mouth (WOM), which

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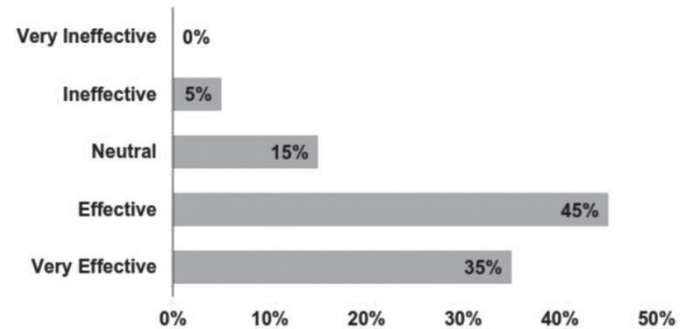
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often entailed physical/face-to-face exchanges and interactions (Siddiqui et al., 2021). In eWOM, people share their thoughts and experiences with various goods and services they have used via social media and other online channels (Shashikala et al., 2020). Many of them have a sizable fan base and can shape the attitudes and actions of potential customers. They are referred to as “social media influencers,” or more accurately, “opinion leaders” (Vrontis et al., 2021). According to statistics, about 50% of internet users follow and depend on social media influencer accounts. This allows advertisers to disguise their adverts through influencer endorsements and more successfully reach the consumer (Hudders et al., 2020; Lee P-Y et al., 2021). According to studies, 82% of customers would take an influencer’s advice because they view them as more informed and trustworthy than corporate marketing (Berger and the Keller Fay Group, 2016; Vrontis et al., 2021). Customers also readily consider an influencer’s perspective since it typically contains the information they are looking for rather than the constant barrage of marketing messages. However, given the abundance of internet viewpoints, it is up to the customer to select the one that they respect or trust the most.

Nowadays, it’s increasingly popular for food enthusiasts and restaurant customers to write about and evaluate their dining experiences on online platforms. This attracts and influences many food enthusiasts’ eating choices (Puspita & Hendrayati, 2020). In the food and beverage business, blogging has thus inadvertently evolved into a useful tool for marketing and brand promotion. Recent years have seen a rise in the practice of restaurants and other food and beverage companies working with influential food bloggers to promote their goods and services to their audience.

Companies are paying increasing attention to social media influencers, who may be seen as a new breed of opinion leader who is listened to by many people. As a consequence of brands realizing the increasing effect influencers have on followers, more businesses have partnered with influencers to reach more prospective consumers. Influencers may help a business become more well-known and valuable, according to studies. 2019 (Mediakix) As shown in Figure 1, influencer marketing, a relatively new form of advertising, is becoming increasingly recognized by marketers as a highly effective method of brand promotion. 2019 (Mediakix) Although the concept of influencer

marketing is not new, the research topic is still relatively young.



**Figure 1:** How Effective is Influencer Marketing?

Source: Mediakix, 2019

## LITERATURE REVIEW

When a new product or service is likely to fall short of the consumer’s expectations or they are unsure about it, they may decide to reduce that risk by asking previous customers about their expertise and experiences with the product or service (Pihlaja et al., 2017; Simonson & Rosen, 2014; Smith et al., 2005). Numerous studies demonstrate that word-of-mouth (WOM) has a substantial impact on how consumers decide what to buy (Brown & Reingen, 1987; Wulff et al., 2015). Before recently, customers used conventional WOM to influence their purchasing decisions, asking their immediate relatives and friends for advice before making a choice (Nam and Dân, 2018; Nielsen, 2012). The introduction of the internet and social networking sites led to significant adjustments in how consumers made decisions and how marketers carried out their strategies.

Using emails, social media, and eWOM, digital marketing provides technologically-enabled methods for connecting with and interacting with target consumers (Kim et al., 2021; Poturak & Turkyilmaz, 2018). The usage of the internet as the medium distinguishes WOM from eWOM. While traditional WOM typically occurs inside a consumer’s current, well-known network, eWOM typically comes from sources that are unknown to the user (Bronner & Hoog, 2010; Cheung & Thadani, 2010; Xie et al., 2011). Since social media has ingrained itself into people’s daily lives, it has aided in the popularity of eWOM (Shashikala et al., 2020). According to studies, potential customers view information shared by other users as being more reliable than adverts or information shared by marketers (Kwon et al., 2021).

Today, more and more people rely on internet restaurants and food reviews to learn about the establishment and get feedback on the menu items before they go out to eat (Kwon et al., 2021). Many more people use social media to share their personal experiences—whether they are favorable or unfavorable—for the benefit of others. However, there isn't much scholarly research on this subject has been done in this area. When taking a closer look at the few studies conducted in the food and beverage sector, it becomes clear that the majority of them (Leong et al., 2021; Park, 2017; Schuckert et al., 2016; Yang, 2016) explored eWOM from a variety of perspectives, but very few of them did so from the viewpoint of influencer characteristics and skills. Specific to Malaysia, among various studies conducted on eWOM (Leong et al., 2021; Septianto and Chiew, 2018; Wan Ismail et al., 2019), the travel industry has been the most prominent one (Hua et al., 2017; Leong et al., 2017; Mohd Isa et al., 2019).

### **The Concept of Social Media Influencer**

SMIs are regular people who have developed social media profiles to sway the opinions of their followers (Laura Peltola, 2019). They are social media users who have built a name for themselves as experts in a certain field. They frequently share their narratives and opinions on a wide range of subjects on their preferred social media platforms, many of which revolve around topics about products and brands (Gillin, 2008), building enormous fan bases of ardent, engaged people who closely follow their viewpoints (Carolina Stubb, 2019).

Social media influencers are defined by De Veirman and colleagues (2017) as those who have amassed a sizable social network of followers. They also represent a brand-new class of endorsers or opinion leaders who use social media to influence the opinions of their audience (Freberg, Graham, McGaughey, & Freberg, 2011). They are social media content producers that use blogging, vlogging (video blogs on sites like YouTube), or short-form content creation to provide information while promoting certain companies to build a following and increase brand recognition. They share traits with conventional opinion leaders, such as being receptive to ideas, assuming the role of a discussant, and commanding respect and influence among their followers. In addition, they are respected for knowing what is appropriate and current in various fields.

### **The Impacts of Influencers on Customers and Brands**

The importance of social networking sites is rising in the lives of typical consumers, and they are one of the key components of a communication plan. According to Mangold and Faulds (2009), social media will play a significant role in upcoming integrated marketing strategies as firms would no longer simply speak to consumers directly but would also engage in cross-brand communication through social media. This suggests that social media influencers play a significant role in the advertising and marketing sectors, while the impact of online word of mouth is nonexistent (Carolina Stubb, 2019).

The best way for a business to reach a consumer is through influencers. As is well known, satisfied consumers' favorable evaluations, for instance through EWOM on SNS networks, might influence others to purchase the product (Emad Abdulwhab Salem, 2018). This is what makes the trend so well-liked and prosperous: influencers have great social clout and reputation due to their candor and honesty with clients (Buyer, 2016). Influencers have the exceptional capacity to connect with specialized populations that have previously been out of reach, whereas mainstream marketing typically targets broad markets (Ledbetter, 2017).

The direct voice of an influencer and the trust that customers have in that person is infused into the brand through the two dialogues that are built for the firm through social media sources, even if a brand does not have total control over its online communication (Booth and Matic, 2011). The reputation a business builds through its social media influencers promotes brand loyalty and allows for the development of direct ties with its core customers (Morgan Glucksman, 2017).

## **INFLUENCER MARKETING**

### **The Concept of Influencer Marketing**

The method that advertisers contact customers has been significantly changed by the rise of digital and social media (Kumar & Gupta, 2016). Businesses understand the strategic value of collaborating with social media influencers to reach new audiences which are their prospective consumers (Childers et al., 2018). Influencer marketing, which Brown and Hayes (2008) define as "the identification and utilization of certain important persons influencing potential consumers of a brand or



product to aid the company's marketing operations," can be a useful eWOM technique.

Followers can interact with influencers' daily actions, experiences, ideas, and feelings via social media. To increase brand awareness and brand image among influencers' large followings, businesses and marketers work with influencers (e.g., by providing them samples of items to test, planning events for them to attend, or paying them directly). Influencer marketing is the name for this novel form of advertising (De Veirman et al., 2017). As an alternative, writers of the book *Influencer Marketing for Dummies* described influencer marketing

as the art and science of persuading people with online influence to share brand messaging with their audiences through paid content (Sammis, Lincoln, and Pomponi, 2016).

The idea behind influencer marketing is that when an influencer shares something, their audience is immediately inspired to take action. Something as simple as seeing and memorizing a brand name is an example of a modest action that may be taken (which may lead to brand recognition, closeness, and purchasing a future date). A person may take quick action by leaving a comment on a sponsored blog post



**Figure 2:** Instagram Page of Deepika Rathore @thatgypsy.girl;

Source: Author

or forwarding an influencer's message to their friends on other social media platforms. By clicking the "Buy Now" link, a viewer may occasionally be persuaded to buy a product that has been reviewed. An influencer marketing program may seek to increase each of these behaviors (Sammis, Lincoln, and Pomponi, 2016). A famous example is the watch brand Daniel Wellington which has frequently collaborated with social media influencers to build brand recognition and a positive word-of-mouth outlook.

### **Influence of Social Media on the Hotel Consumer Decision Journey**

The DMP occurs in the pre-travel phase as part of the wider Consumer Decision Journey (CDJ) in which consumers undergo four stages:

1. Consider,
2. Evaluate,
3. Buy, and
4. Enjoy.

Advocate, Bond 2009; Court et al. According to Court et al. (2009), customers add and remove companies from a "group of favorites" while still in the "Evaluation stage" rather than methodically reducing their options until they have decided what to buy. Before making a purchase choice, customers enter the assessment stage where they begin to gather and digest information from a variety of sources to satisfy their shopping needs (Ayeh et al., 2012). However, this evaluation procedure reveals new challenges in the choice of hotels and lodging (Baruka and Civre, 2012).

Due to their intangible nature, hotel products and services make the buying decision highly emotional and hard to replicate (Kwon et al., 2011). Hotel providers are no longer unrivaled experts on the features or quality of brands and products. Instead, online reviews about hotels play a significant role in assisting contemporary consumers' evaluation stage, by providing positive and negative reviews and indirect customer-to-customer communication through blogs and review sites (Fotis et al., 2012; Hudson and Thal, 2013). This is grounded in the principal foundations of consumer behavior, i.e. that consumers have the power to influence each other (Haywood, 1989). While it is accepted that social media have the potential to influence travelers in their final purchase decision (Ayeh et al., 2012; Fotis et al., 2012), the specifics of how this process might unfold

and behavior is influential are less explored. While social media are primarily used to assist consumers with inspiration, limiting choices, and verifying decisions (Gretzel and Yoo, 2008), hotel reviews are used to form a 'consideration set' of possible choices (Singh and Torres, 2015).

Both positive and bad reviews from guests can have an impact on a hotel's decision-making process since they raise knowledge of the property and alter guests' perceptions of it (Vermeulen and Seegers, 2009). For instance, Verma et al. (2012) discovered that hotels with unfavorable reviews are less likely to be booked by potential guests, while Almana and Mirza (2013) show that higher review ratings can influence consumers' decisions to buy. While recent research has shown the major role of social media in the DMP, there is still a lack of knowledge about the intricate details that define the CDJ, particularly the "Evaluation Stage." Cox et al. (2009) argue that the role of UGC in the traveler's behavior and DMP is one of the most unclear and under-researched topics. While a large body of research (e.g. Gretzel et al., 2007, Gretzel and Yoo 2008, Vermeulen and Seegers 2009, Murphy and Chen 2014) has examined the influence of online reviews or specific platforms (e.g. TripAdvisor) on decision-making, there is still a dearth of studies that take wider social media platforms on the CDJ into account.

Thus, this study promotes the need for a more nuanced knowledge of how various social media platforms affect the CDJ and how they affect the decision to book a hotel (Constantinides and Fountain 2008). While earlier research created frameworks for the CDJ, there are currently no models that capture the hotel consumer decision journey through social media while taking the unique characteristics of the hospitality setting into account. Based on this justification, this study seeks to construct a useful model of the hotel consumer decision journey through social media and analyze the hotel DMP through a qualitative in-depth approach.

## **CASE STUDIES**

### **Marriott Rewards Snapchat Ads**

To attract a younger audience to Marriott's International Rewards Program, the hotel chain teamed up with four social media personalities (Millennials and Gen Z). For a week, each of these influencers seized control of Marriott's official Snapchat account to share their travel tales from Berlin, Seoul, Dubai, and New York.





**Figure 3:** Social Media (YouTube) Page of Marriott Featuring “Moxy”

*Source:* Author

This campaign, according to Snapchat Business, resulted in a total of 934k minutes viewed and raised brand awareness by 6%. To reach its target audience, the campaign was able to increase brand recognition and participation in its rewards program.

### **Moxy Hotels “Do Not Disturb” Campaign**

Moxy Properties collaborated with YouTube and social media star Taryn Southern in 2015 to market their line of hotels. They collaborated to create the eight-episode series *DO NOT DISTURB*, which was released on Moxy’s official YouTube page.

Taryn conducts interviews with other well-known influencers and celebrities in the series’ hotel rooms.

Moxy used this strategy to lure young Millennials to their stylish, affordable hotels. The web series received over 135,000 Instagram engagements by the end of 2015, according to The Moxy Hotel. Due to the campaign’s success, Moxy Hotels and Southern collaborated to create a second season of the web series the following year.

### **Qantas Airlines Hires an Influencer to Their Marketing Team**

One of Australia’s most well-known travel experts, Nicole Warne (Gary Pepper Girl), was hired by Qantas

Airlines to work as one of their digital consultants. The airline has been able to refresh and generate relatable content for its audience because of her expertise in content development. Nicole regularly blogs about the airline as part of their collaboration, broadening their global reach.

“I Will Find You and I Will Make You Hungry”

– **Aman Sirohi**

First Food blogger with a Blue Tick

One of the industry’s forerunners in India, particularly in vegetarian food blogging, is Amar. He began blogging in 2014, and as of this writing, he is the only food blogger in India who has both his Instagram and Zomato accounts verified. This may prompt everyone to wonder what exactly makes him so unique. He is unique because of his unique and extremely raw style, so to speak. His blog bears a striking similarity to a virtual restaurant with delectable food showcased and clever remarks explaining the flavors. That is what distinguishes him.

Praise of what is often praised is not the point of blogging. Personalization is key. It has to do with sincerity. This is quite evident from his most recent piece about the most well-known Phirni of Amritsar. What makes him more charming and genuine is his expression to this phirni, “What a letdown that was.”



**Figure 4:** Instagram Page of Amar Sirohi @foodie\_incarnate

Source: Author

## CONCLUSION

In the social media age, consumers go from being brand supporters to content creators for brands, from casual brand endorsers to micro-celebrities looking to become social media influencers (Hearn & Schoenhoff, 2016). Some of these meso- and micro-celebrities have been successful in building a loyal fan base that is eager to hear their recommendations. By establishing mutually beneficial connections with social media influencers who are compatible with their businesses, marketers can benefit from these influencers' capacity to engage large/targeted audiences with relevant content. When used properly, these influencer marketing techniques can produce far higher returns on investment than the

usage of branded content or conventional advertising. The enormous potential for message amplification and targeting offered by travel social media influencers has been recognized by travel marketers. Influencers find the travel and tourism sector to be a particularly appealing target due to the promise of travel benefits and the opportunity to align one's brand with appealing travel and tourism brands. How to convey authenticity when influencers are paid for their endorsements or content is an issue that both travel marketers and influencers encounter.

The development of an influencer marketing industry with higher levels of influencer professionalization, new types of intermediaries that facilitate exchange



processes, and new technological tools being developed to support the various aspects of influencer marketing is an intriguing trend in the field. Both simplify and improve the ability to track influencer marketing. Thus, it is critical for travel and tourism marketers to stay current on influencer marketing trends. The phenomenon of travel and tourism influencer marketing has not been thoroughly studied, despite its importance and usefulness. As a result, significant concerns about how to understand the influence and create successful influencer campaigns remain unresolved. Additional issues that should be researched to inform the theory and practice of social media marketing include how consumers view social media influencers in the travel and tourism industry, as well as what motivates the persuasiveness of influencer messages.

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# Adoption of Electric Vehicle in India

## *A Study of Drivers and Barriers*

Geetanjali\* and Teena\*\*

### ABSTRACT

*Every year large number of vehicles are being sold worldwide but sale of electric vehicle is only a small fraction of Total vehicle sold. India is a highly populated country and millions of petrol-based vehicles polluting the environment in urban and rural areas and during the traffic James which is a problem for all big cities in India, it emits pollution. There is emergency to take initiative to bring a shift from combustion engine vehicle to Electric based vehicle. India has set a vision of Electric Vehicle country by 2030. Vehicle based on fuel are not environmentally friendly and now when the world is facing drastic challenge of global warming, our politician leaders, industrialists and every individual need to be more concern towards the change in automobile sector. Electric based vehicles can be a major solution to tackle this problem and will contribute in reducing the environmental pollution. The shift on Electric Vehicle creates favourable impact for Indian Economy. This paper reviews the customer perception for purchasing the Electric vehicle.*

**Keywords:** EVs (Electric Vehicle), Environment Pollution, Adoption, Infrastructure, Electricity, Technology, Charging Station, Battery

### INTRODUCTION

**Electric Vehicle:** Electric vehicle instead of using internal combustion engine that uses fuel or gas based on electric motor technology. Electric Vehicle can be classified:

- BEVs: Battery electric vehicle
- HEVs: Hybrid electric vehicle
- PHEVs: Plug in hybrid electric vehicle

BEVs	Powered by Battery
HEVs	HEVs have both engine and electric motor
PHEVs	Uses both an internal combustion engine and a battery charged from an external socket

Automobile sector is undergoing a revolutionary change. This change would result in solution of many problems simultaneously. Conventional fuel vehicle transforming by new technology of electric driven vehicle. In this time world is moving towards adopting technology that can bring down the environmental pollution.

In developing country like India, Consumer's perception for electric vehicle followed by many factors some of

which are Environmental concern, Awareness about EVs benefits, Battery life concern, charging infrastructure and government policy are the major concern for customer perception for EVs. Although many things favouring the adoption of EVs but still Customer is not familiar with this new technology and less aware about the benefits of EVs, which is creating hurdle in the faster adoption of EVs. As electric vehicle needs facility of charging station which is not sufficient in numbers. Many vehicles manufacturer have to face challenge of transforming the manufacturing process and introduce of new technology in plants to manufacture vehicle that are electric based. It also needs huge investment.

The CEO of CEEW (Council on Energy, Environment and Water), Arunabha Ghosh has said that Electric mobility is poised to be at the forefront of India's Green recovery. The centre and state governments need to minimise uncertainty framing detailed and clear long-term policies. Targeted efforts are needed to solve challenges such as high cost of Electric Vehicles, lack of financing facilities to customers and insufficient charging stations.

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There is emergent need for the adoption of Electric vehicle as the problem of pollution and increasing demand of crude oil is affecting the environment and Indian economy respectively. It was after 2000 where revolution took place when Tesla in the US, Reva in India, think in Norway and BYD in China put their model in the market and dominated IC engine car manufacturers had to take a call to shift towards the electric car (Gujarathi et al., 2018).

NARI (Nimbkar Agricultural Research Institute) developed two types of rickshaws:

- (a) Improved pedal cycle rickshaw (IMPRA) and
- (b) Motor assisted pedal rickshaw (MAPRA). (Rajvanshi, 2002).

### MOTIVATION FACTORS

The inspiring factor for this study is the fact of increasing pollution, depletion of natural resources and the increasing burden of import of crude oil on the country's economy provides strong push for the adoption of electric vehicle, also today's customer is more rational and aware as compared to earlier. Electric vehicles are one of the solution and it can ensure the individuals contribution for resolving the above mentioned challenges. The reason that customers are positively preferring the electric vehicle. But there is need to fuel the growth rate of electric vehicle market.

### OBJECTIVES

- To study the factors that influence the customer buying decision for EVS.
- To analyse the adoption of EVS in India.
- To understand about the challenges in electronic vehicle market penetration.

### LIMITATIONS OF THE STUDY

This Research paper has discussed about some factors that influences customer preference for purchasing the electric vehicle. In future influence of other factors can also be studies. For this study only 35 research paper has been taken into considerations.

### RESEARCH METHODOLOGY

This study is based on literature review. Total 30-35 research paper studied to have insight about the customer adoption, customer perception for EVs and challenges

in adoption of Electric vehicle in India, including some reports and articles. Data has also studied from official websites. Research papers that are reviewed downloaded from NDLI, Google Scholar and Emerald Research Gateway.

### HISTORY OF ELECTRIC VEHICLE

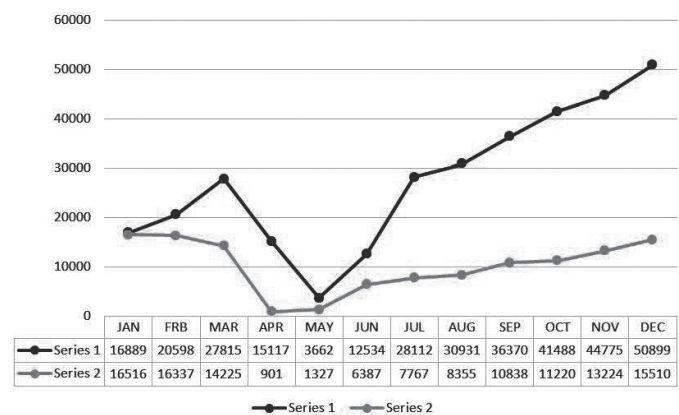
In India, Scooter's India Pvt. Ltd. Has invented the first electric vehicle in 1996 name VIKRAM SAFA. Later BHEL developed an 18 seater electric bus in 2000, which became very popular.

In world, first electric car was built in Aberdeen, Scotland in 1837, Exhibited at the Royal Scottish Society of Arts Exhibition in 1841, weighing seven tons which could carry a load of six tons.

A trend of last two year of sale of electronic vehicles in India, 2021:

- Year on year growth rate 168%
- In year 2021 total 3,29,190 electric vehicle sold in India is much higher then the last previous year 2020 which was 1,22,607.

There are many factors that are positively attracting the attention of customer towards the electronic vehicle some which are tried to be explained in this study.



Source: <https://evreporter.com/ev-sales-trend-in-india-in-2021>

### FACTORS THAT HAVE POSITIVE IMPACT ON CUSTOMER PREFERENCE FOR EVS

- Increase in employment opportunities
- Reduces import of crude oil
- Monetary benefit
- Government initiatives
- Sustainable development
- Environment friendly



- Reduce import of crude oil
- Increasing charging stations
- Improved Battery technology

### **Employment Opportunities by Electric Vehicle Market Growth**

Adoption of EVs will create demand for existing jobs and produce opportunities for new types of jobs as well. EV has potential to create job avenues. (Creating The Clean Energy Economy, 2013). Electric vehicle market can provide large-scale employment to millions of urban and rural poor. The electric vehicles mobility has the potential to create high skilled jobs in manufacturing of batteries, batteries recycling its installation and operation, charging infrastructure, designing, and also in power sector consumption of electricity will increase with the penetration of electric vehicle.

### **Reduces Import of Crude Oil**

India is country where petroleum resources are not available. Petroleum imports constitutes 1/3rd of total import of India, in value terms and the country imported 87% of its domestic consumption of crude oil according to provisional estimates (MoPNG 2020). Electric vehicle are the substitutes of conventional fuel/gas based vehicle. Increasing adoption EVs can India to spent billions to fulfil the need of fuel which is positive indicator for Indian economy.

A reduction of 12% of oil consumption can be chieved from passenger transport in an EV30 scenario. This transition help in India's target of reducing import of oil and will improve the trade balance.

### **Monetary Benefits for Purchasing Electric Vehicle**

A study was conducted to measure the impact of factors that can frame customer perception for purchasing the electric cars in India. In which monetary benefits was found the highest influential factor on intension of purchasing electric car vehicle (Krishnamoorthy et al., 2021). In budget of 2019 tax rebate in income on interest on loan for EV up to 1.5 lakh was announced for the customers. In the New scrappage policy it was announced by finance minister Nirmala Sitharaman in the budget of 2021 for the personal vehicle with requirement of 20 years and commercial vehicle of 15 years. (Pandey, Mrinal and Mohan, Midhun and Krishnamoorthy Subha, 2021).

### **Government Initiatives for Framing Positive Perception of Customer towards Electric Vehicle**

Indian Government also providing monetary and non-monetary incentives to stakeholders and manufacturers in the form of tax rebate, power supply, improved infrastructure, skill development schemes, charging station infrastructure, transport regulation, stamp duty, development of electric mobility industrial parks, etc.

In 2010, the first concrete decision to incentivise electric vehicles was taken in India, in which Ministry of New and Renewable Energy (MNRE) approved ₹ 95 crore scheme. The government announced a financial incentive for manufacturers for electric vehicles sold in India. But the subsidy scheme was later withdrawn by the MNRE in March 2012.

In 2013, Indian Government has taken many major initiatives for promoting and manufacturing of EV in Indian Automobile Market and announced National Mission for Electric Mobility (NMEM) with two goals of National energy security and other one is Growth of domestic manufacturing capabilities in full range of electric vehicle technologies. Also Finance facility is also being provided by many institutions.

A scheme, 'Faster adoption and Manufacturing of (hybrid and) electric vehicles in India' or FAME-India scheme was also approved under NEMMP 2020, with a budget of ₹ 13,591 crore.

In June 2014, NEMMP 2020 was included in the National Action Plan for Climate Change (NAPCC), which objective is to shift road transportation in India towards sustainable development. Indian Government has set a vision that by 2030 India will be 100% electric based vehicle country Electric vehicle is one of those technology for which government is taking initiative to promote EVs. Under new Government plans India aims to completely transform fuel-based vehicle to EV.

In February 2019, under the FAME-II scheme, Union Cabinet cleared a ₹ 10,000 crore programme. From April 1, 2019 this scheme came into force with the main objective of encouraging a faster adoption of Electric Vehicles by offering incentives on purchase of electric vehicles and by installing the necessary charging infrastructure for EVs.

The NEMMP (National electric mobility mission plan) targeted 7 million electric and hybrid vehicles by 2020. India is spending crores of amount to fulfil the crude oil

demand which is huge burden on India's economy and results in increased import also unfavourable Balance of Payment.

It is also clearly mentioned in the Government of Haryana Electric Vehicle Policy Draft that an exemption of 100% on road tax will be provided on Electric vehicle for transportation which are purchased within Haryana which is applicable over the period of this policy and also an exemption of SGST by Haryana on purchase of electric vehicle manufactured within the state.

India's Electric vehicle finance market could reach INR 3.7 lakh crores (US\$ 50 billion) in advances by 2030. Priority sector lending can play a crucial role to achieve this aim,

with a well planning, incentivise banks to finance Electric Vehicles and providing finance for NBFCs, while institutionalising the importance of the EV sector within the financial industry (Authors Randheer Singh & Laemel, n.d.).

### Electric Vehicle and Sustainable Development

The need of decarbonize the environment and the aim of sustainable development if forcing the global adoption of Electric based Vehicle. Transition of transportation sector from fuel to electric based engine can lead to a big reduction in carbon and other pollutant along with the improvement in air quality. India stands third with the CO<sub>2</sub> emission of 1.726 billion Mt. (Gujarathi et al., 2018). Electric vehicle can decrease air contamination emanations (Nanaki and Koroneos, 2013). In NEMMP 2020 emphasis towards on national energy security, and the use of renewable sources to reduce the adverse impact on economic growth on environment and climate change as India is one of the biggest consumers of crude oil consumption and the emission of CO<sub>2</sub> and other pollutant through fuel based electric vehicle is also high. Electric vehicle can benefit us in the form of reduction in environmental pollution, reduction in oil imports, improved national security, better economy and better utilization of renewable resources. (M. P, 2019). E-rickshaws are the solution for air and noise pollution for the transportation in crowded cities. A study which concludes that electric vehicle produces less carbons, it reduces dependency on fossils and fuels, it is less expensive to run, EVS perform well and enhance the image as well as highlight some obstacle that resist customer decision to buy electric vehicle (Tupe, n.d.).

### Electricity Supply and Availability of Charging Station

There is need to ensure the sufficient number of charging infrastructure should be installed (Creating the Clean Energy Economy, 2013). More focus is required mainly on the charging infrastructure for the easy and fast mobilisation on electric vehicle in India. Charging infrastructure and availability of electricity are major concern in sustainable transportation goals of India.

In this research it has been studied that charging stations are the most crucial factor for the growth of Electric vehicles in India. Charging station are in not sufficient and not available at all location or regions. Therefore, if EV companies want to sale EVs in, large ensure then they have to instal charging stations in India.

Government of India must bring changes in Electricity Act and Rules, and remove all barriers for the private sector for setting up Electric vehicle charging points to achieve the objectives of NEMMP 2020.

India's largest Electric vehicle charging station has launched in Haryana's district Gurugram by the NHEV (National Highway for Electric Vehicles). This station has 100 charging ports for four wheelers. The process of its installation and operation is done by the Alektrify.

Here is the data of Electric vehicle charging station installed in 2021.

List of Electric Charging Station in India:  
EV Stations – E-Vehicleinfo

State	No. of Charging Stations	State	No. of Charging Stations
Maharashtra	317	Rajasthan	205
Andhra Pradesh	266	Uttar Pradesh	207
Tamil Nadu	256	Karnataka	172
Gujarat	228	Madhya Pradesh	159
West Bengal	141	Telangana	138
Kerala	131	Delhi	72
Chandigarh	70	Haryana	50
Meghalaya	40	Bihar	37
Sikkim	29	Jammu & Kashmir	25
Chhattisgarh	25	Assam	20
Odisha	18	Uttarakhand	10
Puducherry	10	Himachal Pradesh	10

### Electric Vehicle's Battery

A reduction in the cost of better will result in the lowering total cost of ownership. Government of India must start

working on securing key raw materials for EV batteries (lithium, nickel and cobalt) in India. As India does not produce primary cobalt or nickel today. Government of India must direct the Geological Survey of India (GSI), Mineral Exploration Corporation (MEC), National Mineral Development Corporation (NMDC) and Coal India Ltd (CIL) to dedicate more effort for proving currently known resources of lithium, cobalt and nickel as well as discovery of new reserves.

Some major players manufacturing Lithium-ion batteries:

TDS Lithium-Ion Battery Gujarat Private Limited, Telex India industries Pvt. Ltd., Okaya power group, Toshiba corporation, Bharat Electronic Limited (BHEL). Panasonic also looking to set the industry in India.

Recent initiatives:

- French battery system maker Forsee Power started series production of lithium-ion batteries for electric vehicle (two wheeler and three wheeler) in Pune, in 2021.
- In February 2021, Lithium-Ion battery manufacturing company of United states, Barrel Energy signed a memorandum of understanding (MoU) with Roshan Energy Technologies in India to manufacture Lithium-ion batteries in India and the North American region.
- Start-ups: Hero Electric, Magenta, and Ola Electric raised venture decided to funding for EV/ component/battery manufacturing and EVSE in 2021 of ₹3,307 crores (US\$ 446 million).

## FACTORS THAT HAVE NEGATIVE IMPACT

- **Incidents of sudden fire in electric vehicle:** Electric vehicle used a lithium-ion battery to powered it. But when the battery exposes to excessive heat or temperature then it can be a reason for the short circuit which can result in fire in electric vehicle. Number of cases of sudden fire in electric vehicle have been widely reported and had come in light. It is a threat to life and reason of poor attention from customer.
- **Electricity used in EVs generated through non-renewable energy resources:** One of the main crux of lower growth rate of electric vehicle market lies in fact that the electricity used for charging the batteries of EVs is being generated through non-

renewable resources which is not eco friendly thus our natural resources are also depleting. There is need to reduce the dependency on non-renewable resources.

- **Less model of electric vehicle:** Number of model in electric vehicle are very less that left a small choice in the hand of customer.
- **Insufficient number of charging points:** Most of the electric vehicle use battery technology which is subject to regular charging. But the charging station are not sufficient. Lack of charging points resist customer to chose the Electric Vehicle and the reason of slow penetration of EVs.
- **Less awareness in customers:** People are less aware about the advantages of EVs. General customer who are mot familiar and have no exposure to electric vehicle are likely to give less value to EVs.
- **Challenge for manufacturers to change the manufacturing process:** Manufacturer has to bring major changes in their plant technology to manufacture the electric vehicle and its batteries. Also expert technical skills are required whereas the many workers in India are not technically skilled.
- **Dumping risk of batteries:** Batteries used in the EVs contains many toxic materials lithium, cobalt, nickel, manganese, etc. If these batteries dump openly then it creates threat for environment. Also to save opportunity cost it is better to recycle the used batteries which is economical. As of now there is not any strict or clear policy framed or implemented by government.

## FUTURE SCOPE

In future, research can be done to study a comparison of the customer preference for buying EVs on the basis of gender. Also the study can be done in various state of India that help to understand the male and female preference for adoption of electric vehicle.

## DISCUSSION AND CONCLUSION

For the adoption of Electric vehicle at large scale, it is the responsibility of all stakeholders, manufacturer, dealers and government to take initiate to create more awareness that how electric vehicle bring multiple advantages for customer, economy and environment as compared to conventional engine vehicle. Although Electric vehicle are gaining attention from customer but the growth of electric vehicle market is restricted or its

adoption is very slow. In this study light is put on areas where we need to put more efforts to that the challenges can be tackled. Customer is more environmental concern so there is need to increase dependency on renewable energy source for the generation of electricity then only electric vehicle can actually contribute in reducing environment pollution and it will have a positive influence on customer preference of Electric vehicle. Being a member of a multi-govt. forum Electric Vehicle Initiatives (EVI) launched an EV30@30 campaign in 2017 and set a goal of 30% new Electric Vehicle sales by 2030. To achieve this goal there is need to make a clear and strong policy which need be effectively implemented at ground. More investment in Research & Development is required.

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# A Critical Analysis to Find Out Consumer Preference towards Different Online Shopping Sites

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## ABSTRACT

*This paper focuses on Consumer preference towards different online shopping sites. A cross-sectional study was conducted on 10 online shopping websites. The results show that many female respondents are involved in shopping and they prefer Amazon site. Many other findings on online shopping were also done. Overall this paper covers the consumer preferences during online shopping and suggests relevance and measures to improve online presence.*

**Keywords:** Consumer, Preference, Online, Shopping, Websites

## INTRODUCTION

Online shopping is commonly known as internet shopping or e-shopping. Online shopping is done when the consumers purchase products on-line. Through online shopping, consumers shop for required products without physically visiting the store. Nowadays, the consumers have become more shopping conscious and surf the internet whenever needed and buy products even across the globe. Development in technology and an increase in the usage of internet in recent times have led to a drastic, increase in the practice of online shopping. The greater the accessibility of internet to the general population, higher is the number of people shopping online. At present, online shopping is becoming a well-accepted way to purchase a wide range of products and services. Internet shopping is becoming extremely popular because online shoppers have an option of shopping at any time of the day sitting at their home or offices. Consumers are able to buy products from various websites in a single mouse click.

It is believed that shopping online is superior and more intelligent way of spending money. It offers a huge collection of products and allows consumers to get the products as per their needs. Shopping online offers lower prices as compared to the traditional shopping method. Shopping websites provide various kinds of discounts on the original price of the product. It offers gift coupons, vouchers and promotional offers which

attracts the consumer to buy products in discounted price. There are many benefits of online shopping websites which includes; description of the products, information related to sizes and color of the garments, price of the products and various other details like customer reviews and ratings.

The greatest feature of online shopping is that the websites are open 24 hours a day and consumers are free to shop at their convenience. Most of the items available for online shopping are on huge discount and low prices along with free shipping on the maximum range of products. The online shopping websites and number of consumers shopping online have increased exponentially in the past few years.

Online Shopping Websites and Services Offered

File Name	Services
Amazon.in	It is a world leader that sells a wide range of goods, including electronics and clothing.
Snapdeal.com	Based in Delhi, offers in items such as clothing, cell phones, accessories, and consumer goods.
Flipkart.com	Began as an online book retailer but has since expanded to include gadgets, mobiles, apparel, accessories, etc.
Shopclues.com	It sells goods including women's jewelry, clothing, and fashion accessories, as well as gadgets, books, and other things.
eBay.in	It is well-known worldwide and provides a wide range of goods..

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<i>File Name</i>	<i>Services</i>
Myntra.com	A website with its headquarters in Bangalore focuses on selling clothing, accessories, and lifestyle products for both men and women.
Napptol.com	Mobiles, sports, fitness, clothing, auto accessories, jewellery, books, and other items are available on Napptol.
Firstcry.com	Asia's largest online store for baby supplies and toys, firstcry.com, is currently India's leading e-commerce site for children's products, baby care products, and pregnancy care things.
Lenskart.com	The New Delhi-based eyewear firm Lenskart is from India. The business sells eyewear from manufacturers like Ray-Ban, Oakley, Fastrack, and TagHeuer.

### **CUSTOMER PREFERENCE TOWARDS ONLINE SHOPPING**

Due to India's phenomenal and massive Internet growth, more people are becoming interested in online shopping. They may shop online while seated at their desks or homes, and after receiving satisfactory service, high-quality goods at reasonable prices, and timely deliveries as a result of their online purchases, they constantly strive to encourage their friends and relatives to do the same. The majority of individuals in urban areas, such as the National Capital Region (NCR), work, therefore they don't have as much time as they once did to go shopping offline, hence they increasingly prefer online shopping.

Customers are drawn to online purchasing because of how convenient it is. A unique online payment system makes it simple and safe to buy from other people. The customer's behaviour is influenced by a variety of demographic parameters, including age, income, gender, and educational background. Consumers used to pay with cash in the past, but today there are many more payment methods like debit cards, credit cards, internet banking, and cash on delivery. Online shopping is also made simple by these payment options. Most people are drawn to internet shopping by a variety of online promotional tactics. In the age of internet technology, wi-fi services and smart phone gadgets provide users a wealth of conveniences, including the ability to shop from virtually anywhere. Many merchants use graphics, information, and coloured images of the full product to entice buyers to buy on impulse. They also frequently provide discounts on a variety of goods. Online

advertising can be a great tool for describing the full product and service.

### **ADVANTAGES OF ONLINE SHOPPING**

- Online stores allow us to shop whenever we want and reward us with a pollution-free experience.
- Because things are delivered to you directly from the manufacturer or seller without the need of an intermediary, cheaper offers and better pricing are accessible online.
- You are not constrained by location while shopping at stores in other regions of the country or even the world. The options available online are incredible, and frequently when we choose traditional shopping, we wind up spending more than we intended. Additionally, there are out-of-pocket costs for things like eating out, transportation, and impulse purchases. Therefore, online shopping involves less expense.

### **E-COMMERCE WORKING**

Electronic commerce, also referred to as E-commerce or e-commerce, is the exchange of goods and services over computer networks like the Internet. Mobile commerce, electronic funds transfers, supply chain management, Internet marketing, online transaction processing, electronic data exchange (EDI), inventory management systems, and automated data gathering systems are just a few of the technologies that are used in electronic commerce. Although it may also employ other technologies like e-mail, modern electronic commerce often leverages the World Wide Web for at least one phase of the transaction's life cycle.

By visiting an e-commerce website, a customer can browse a variety of offerings and add them to their shopping cart. After finishing their online shopping, the customer can check out and move on to the payment section, where they can choose from a number of online payment methods, including internet banking, credit card, debit card, and others. Following completion of the payment, the customer is told about the order, and it is then dispatched to the postal address they specified.

The following may be used by e-commerce companies in part or in full:

- Online shopping websites for consumer-direct retail sales.

- Providing or taking part in online marketplaces that handle sales from businesses to consumers or from consumers to businesses.
- Buying and selling between businesses.
- Collecting and utilising demographic information from social media and web contacts.
- Interchange of electronic data between businesses.
- Email or fax marketing to current and potential consumers (for example, with newsletters).
- Be successful in introducing new goods and services.

## REVIEW OF LITREATURE

Online shopping is becoming more and more popular, especially among younger generations, according to Prof. Ashish Bhatt (2014) in an article titled “Consumer Attitude towards Online Shopping in Selected Regions of Gujarat” published in the Journal of Marketing Management. However, in the current environment, e-marketing will need to travel further to become equally popular across all age groups. According to the survey, the payment method is based on the respondents’ income. Online purchasing has become popular among people of all ages. Consumer attitudes are evolving throughout time. Customers in a country like India find internet buying incredibly convenient due to a number of factors, including cash on delivery, website customization or personalisation, home delivery, etc.

Consumer’s Buying Behavior Toward Online Shopping by Prashant Singh (2014) The future of e-retailers in India appears to be quite promising, according to a case study of Flipkart.Com users in Lucknow City that was published in Abhinav. E-retailers provide customers the best option to save money and time by making online purchases within their price range. Offering some of the greatest pricing and a hassle-free shopping experience is Flipkart.com. The entire idea of online shopping has changed in terms of customer purchase or buying behaviour, and the success of E-tailers in India depends on their level of acclaim, their reputation as a brand, and their distinctive business practises.

Online purchasing is becoming more and more popular among the younger generation, according to Upasana Kanchan, Naveen Kumar, and Abhishek Gupta (2015) in their work “A Study of Online Purchase Behavior of Customers in India” published in the ICTACT Journal on

Management Studies. Higher income classes and more educated consumers are using e-commerce websites more frequently.

People have hesitations in doing online shopping due to security concerns. At the same time people are resistant to change because of technological complexity in making online purchase. Companies involved in online retailing should focus on building trustworthy relationship between producers and customers.

This study entitled, “Consumer Preference towards Online Shopping Sites in Tiruchirappalli City” aims at finding out the preference of consumers in Tiruchirappalli City towards a specific online shopping site, the reasons for preferring the specific site and the product that they often buy online. In case they shop through multiple shopping sites, their preferences towards the shops in their ranking order along with the attributes that support their preference towards them are also analyzed. Their preferences towards shopping sites in terms of Quality, Price, Greater Variety, Promotion, Delivery and Rectification of Compliant are also revealed. The study also highlights the suggestions for enhancing online shopping experience.

Margherio (1998) studied that Internet and WWW have made it easier, simpler, cheaper and easily accessible for businesses of all sizes and consumers to interact and conduct commercial transactions electronically as compared with the traditional approach of using private value-added networks.

According to Hsin (2000) and Rowley (2000), online retailing or electronic retailing began in 1994 and is regarded as one type of direct consumer marketing of non-store retailing using online channels. Because it is widely acknowledged that online buying will become a viable alternative to traditional offline retail channels like physical retail establishments, this new notion of retailing has attracted the attention of many retailers and merchants (Rowley, 2000).

Today’s community’s shopping habits have changed significantly as a result of the existence of internet retailers. It is simple to communicate with and approach clients using the web system (Katawetawaraks & Wang, 2011). According to Wang et al. (2005), consumers are finding internet retailers to be more enjoyable because they are accessible to them every day of the week, 24 hours a day. Applications for online stores provide customers greater advantages. Direct apps make it

easier for customers to find their options. Online apps also aid in addressing concerns like consumer service guarantees and security. When a customer interacts with an application system instead of a salesperson directly, it makes it easier for everyone to deal with direct sales contact (Parks, 2008).

Apps for online shopping can change a consumer's decision to shop online. Demographic knowledge can help you comprehend how consumer preferences effect market dynamics in this significantly altered marketing scenario. In an effort to comprehend market conditions, marketing specialists always pay attention to important elements like demographic, economic, socio-cultural, technological, and environmental factors. Haver (2009) found that German customers are increasingly accustomed to and prefer online buying in 2009. Richa (2012) examines other demographic factors and comes to the conclusion that gender, age, wealth, and marital status all have an impact on this choice.

The presence of internet stores offers a variety of facilities in the buying and selling aspects. In an effort to satisfy their requirements and goals, customers may quickly obtain information, compare other goods and retailers, and identify the best alternative out of all the available choices. The customer doesn't even need to go outside to make purchases to get the goods he wants from a store nearby or from any hemisphere. According to Katawetawaraks & Wang (2013), consumers' decisions to shop online are significantly influenced by the simplicity of marketing communication offered by the internet market.

An examination of the online transaction side reveals that buyers often must pay for the things they wish to purchase before the products are delivered to them. Contrastingly, in traditional markets, the transfer of commodities and the transfer of payment are typically done simultaneously. (Wahyuni & Ginting, 2017). Due to this discrepancy, internet transaction fraud is fairly common. Buyers frequently end up obtaining products that aren't what they expected. When buying pots online, there have been several instances where customers have gotten products that only cover the pan. Good internet retailers embrace criticism and correct any faults, but not all of them act in this manner. Even the seller can simply close the store and open a store with a new name and a new identity.

According to Lusiah et al. (2017), beliefs can control the behaviours that influence how loyal a person is. Both traditional marketplaces (some people now refer to them as "offline stores") and online retailers have their own benefits and drawbacks. Traditional markets continue to be a popular choice among consumers, which is the driving force behind the explosive growth of the internet market and the number of buyers who conduct business online. The primary benefit of traditional markets is the intense physical engagement that takes place between the vendor, the customer, and the goods being presented. The decision and loyalty of the customers are significantly influenced by direct service. (Lubis & Lumbanraja, 2016).

Shops that used to operate on traditional markets are now starting to open online stores. Given that not all consumers want to complete purchases online, this choice needs to be carefully considered. According to a 2009 study by Vijay & Balaji on internet purchasing preferences, despite how convenient online shopping is, individuals still favour traditional methods of shopping. According to Budiharseno (2017), even though student purchasing behaviour indicates changes in online shopping, many people still do not voluntarily opt to shop online.

## OBJECTIVES OF THE STUDY

1. To identify the gender that mostly prefers the online shopping sites.
2. To trace the age group mostly preferring online sites for shopping.
3. To exhibit the preferred online site and the reason for the preference.
4. To measure the satisfaction level of the users.
5. To offer suggestions for enhancing the consumers online shopping experience.

## RESEARCH METHODOLOGY

The main source for this study is the primary data. Primary Data has been collected from one hundred respondents residing in Gurgaon city to identify their preferences towards online shopping sites. Simple random sampling Technique has been adopted to select the one hundred respondents. Collected data have been Classified, Tabulated and Analyzed. Chi- Square test of significance has been used to test the Hypotheses Formulated.



## Hypotheses

The following hypotheses have been tested using cross-classification of the collected data to determine whether certain variables are related.

- **H01:** There is no association between the age of the respondents and the frequency of online visit to different shopping sites.
- **H02:** There is no association between gender and frequency of online visit.
- **H03:** There is no association between gender and availing promotional offer.
- **H04:** There is no association between age group of the respondents and their preference for the products.

## Analysis and Interpretation

**Table 1:** Preferred Online Shopping Sites

S. No.	Sites	Number of Respondents
1.	Amazon	36
2.	Snap Deal	12
3.	Flip kart	26
4.	Shop Clues	–
5.	eBay	–
6.	Jabong	5
7.	Myntra	2
8.	Napptol	11
9.	First Cry	4
10.	Lens Kart	4
Total		100

Source: Primary Data

This table shows the preferred online shopping sites of the respondents. 36% of the respondents prefer Amazon as their shopping site. 26% of the respondents prefer Flip Kart. 12% of them prefer Snap Deal and 5% of them prefer Jabong as their Shopping Sites. None of them choose Shop Clues and eBay as their shopping sites.

**Table 2:** Reasons for Visiting Online Sites

Reasons	Number of Respondents
Time Saving	22
Convenience	4
Availability of Different Varieties	41
Lower Price	11
Offer	18
Easier Mode of Payment	4
Total	100

Source: Primary Data

Table 2 gives the reasons for visiting online sites. 41% of the respondents prefer online shopping due to availability of different varieties. 22% of them prefer online shopping due to its time saving nature. 18% of the respondents like the offer given by the online shops. 2% of the respondents have assigned both reasons, viz., Different Varieties and Offer as the motivational reason for visiting online sites.

**Table 3:** Frequency of Visiting Online Sites

Frequency	Number of Respondents
Daily	2
Weekly	12
Fortnightly	2
Monthly	12
As and when needed	72
Total	10

Source: Primary Data

Table 3 shows the frequency of visiting online sites. Majority (72%) of the respondents visit online site whenever they need. 12% of them visit weekly and another 12% visits online sites monthly. Finally, 2% of them visit online daily and another 2% of the respondents visit the online shopping sites fortnightly.

**Table 4:** Products Preferred Through Online Sites

Products	Number of Respondents
Clothes	19
Books	6
Shoes	10
Spectacles	2
Beauty Items	6
Watches	13
Fancy Items	10
Electronic Items	17
Groceries	–
Durable Items	2
Others	15
Total	100

Source: Primary Data

Table 4 shows the products that are preferred through online shopping sites. 19% of the respondents prefer Clothes through online. 17% of them prefer electronic items, 15% of them prefer Other Products like Curtain, Baby products, Plastic Items, Steel Dryer, Stationery Items, jewelry, Back Pack, etc.

**Table 5:** Received the Items within the Time Specified by the Site

<i>Opinion</i>	<i>Number of Respondents</i>
Yes	76
No	24
Total	100

Source: Primary Data

Majority (76%) of the respondents received their products within the time specified by the site and 24% of them do not receive their items within the time specified by the site.

**Table 6:** Non-Compliance of the Product with the Description

<i>Opinion</i>	<i>Number of Respondents</i>
Yes	58
No	42
Total	100

Source: Primary Data

58% of the respondents found some complaint in their products purchased and 42% of the respondents did not find any complaint on the products purchased through online shopping sites.

**Table 7:** Nature of Complaint

<i>Nature of Complaint</i>	<i>Number of Respondents</i>	<i>Percentage of Respondents</i>
Quality	20	35%
Price	8	13%
Color	18	31%
Packing	12	21%
Total	58	100%

Source: Primary Data

Table 7 highlights information about the nature of complaint of the products purchased through online shopping sites. 35% of 58 respondents have complaint on the Quality of the products purchased. 31% of 58 respondents have complaint on the color of the products. 21% of 58 respondents have the complaint about the packing of the product and 13% of 58 respondents complaint about the price of the products purchased.

**Table 8:** Site in which the Problem was Encountered

<i>Sites</i>	<i>Number of Respondents</i>	<i>Percentage of Respondents</i>
Amazon	18	31%
Snap Deal	4	7%
Flip kart	14	24%
Shop Clues	–	–
EBay	–	–

<i>Sites</i>	<i>Number of Respondents</i>	<i>Percentage of Respondents</i>
Jabong	2	3%
Myntra	4	7%
Napptol	16	28%
First Cry	–	–
Lens Kart	–	–
Total	58	100%

Source: Primary Data

Table 8 shows the site in which the problem was encountered. Majority 31% of 58 respondents faced the problem in Amazon. 28% of 58 Respondents had problem in Napptol. 24% of 58 respondents encountered the problem in Flip Kart. 7% of 58 respondents faced the problem in Snap Deal and another 7% of 58 respondents faced in Myntra. And finally 3% of them faced problem in Jabong shopping site.

**Table 9:** Order Accepted Just on a Single Visit

<i>Opinion</i>	<i>Number of Respondents</i>
Yes	84
No	16
Total	100

Source: Primary Data

Table 9 gives the information about the Acceptance of the Order on Single Click. Majority (84%) of the respondents' order has been accepted just on a single visit. 16% of the respondents' order has not been accepted in a single click.

**Table 10:** Comfort Ability of Existing Mode of Payment

<i>Opinion</i>	<i>Number of Respondents</i>
Yes	90
No	10
Total	100

Source: Primary Data

Table 10 shows the information about the mode of payment in Online Shopping Sites. Majority (90%) of the respondents feels comfortable in with the existing mode of payment and 10% of them feel some discomforts in existing mode of payment.

**Table 11:** Availed Promotional Offer in the Selected Sites

<i>Opinion</i>	<i>Number of Respondents</i>
Yes	82
No	18
Total	100

Source: Primary Data

The above table gives the information about availing Promotional Offers in the selected sites. 82% of the respondents availed promotional offer in the shopping sites and 18% of the respondents have not availed any promotional offers in the selected shopping sites.

**Table 12:** Impact of Promotional Offer on the Quantity of Purchase

Opinion	Number of Respondents
Increased the Quantity	58
Not Increased the Quantity	42
Total	100

Source: Primary Data

58% of the respondents Quantity of purchase have been increased due to Promotional Offers but 42% of the respondents Quantity of purchase are not influenced by the Promotional Offers.

**Table 13:** Degree of Satisfaction Level

Opinion	Number of Respondents
Highly Satisfied	18
Satisfied	58
Neutral	10
Dissatisfied	14
Highly Dissatisfied	–
Total	100

Source: Primary Data

The above table shows the Degree of Satisfaction Level of the Respondents. Majority (58%) of the respondents are satisfied with online shopping sites, 18% of them are highly satisfied with the online shopping sites, 14% of them are dissatisfied and 10% of them are neutral in expressing their opinion with the online shopping sites.

**Cross-classified data are shown in the following tables to test the hypotheses formulated:**

**Cross Table 1**

Options	Specific Intervals	As & When Needed	Total
15 – 25	22	50	72
25 – 35	4	22	26
Above 35	2	-	2
Total	28	72	100

Source: Primary Data

**Cross Table 2**

	Frequency of Visit			
	Options	Yes	No	Total
Gender	Male	22	6	28
	Female	58	14	72
	Total	80	20	100

Source: Primary Data

**Cross Table 3**

	Frequency of Visit			
	Options	Yes	No	Total
Gender	Male	22	6	28
	Female	58	14	72
	Total	80	20	100

Source: Primary Data

**Cross Table 4**

Age of the Respondents				
Options	15–25	25–35	Above 35	Total
Durable Items	24	4	2	30
Electronic Items	26	8	-	34
Beauty Items	12	8	-	20
Fancy Items	10	6	-	16
Total	72	26	2	100

**Cross Table 5:** Results of Hypotheses Testing

H0	Table Value	Calculated Value	Degree of Freedom U0.05	Significance Level	Remark
H01	5.991	5.989	2	5%	Accepted
H02	3.841	0.006	1	5%	Accepted
H03	3.841	0.050	1	5%	Accepted
H04	12.592	11.964	6	5%	Accepted

Source: Primary Data

## FINDINGS

- There are 72% of the Respondents are Female.
- Majority (56%) of the respondents are found in the age group of 20-25 years.
- 36% of the respondents Prefers Amazon.
- 41% of the respondents prefer due to Availability of Different varieties.
- Majority (72%) of the Respondents visit Online Site whenever they need. 19% of the respondents prefer Clothes to buy through online.
- Majority (76%) of the respondents received their products within the time specified by the site.
- 58% of the respondents found some complaint in their products purchased.
- 35% among 58 respondents has complaint on the Quality of the products purchased.
- Majority 31% among 58 respondents faced the problem in Amazon.
- Majority (84%) of the respondent's order has accepted just on a single visit.
- Majority (90%) of the respondents feel comfortable in Existing Mode of Payment.

- 82% of the respondents Avail Promotional Offer in the Shopping sites.
- 58% of the respondent's Quantity of purchase has been increased due to Promotional Offers.
- 86% of the respondents were satisfied with shopping in the selected sites.
- Majority (58%) of the respondents has Satisfied with online shopping sites.
- There is no association between the age of the respondents and the frequency of visit.
- There is no association between gender and frequency of visit.
- There is no association between gender and availing promotional offer.
- There is no association between age group of the respondents and their preference forth products.

### TIPS FOR SAFE AND SECURE SHOPPING

- Before giving payment information, consumers should check for indicators that security software is in place i.e., must ensure that the internet connection is safe.
- Credit cards are the safer choice for online shopping.
- Must be extra careful while using a mobile device.
- Must ensure that the order checkout area is encrypted. Before purchasing anything from a website, verify that the vendor has encrypted the payment form.
- Strong passwords must be used by the consumers.
- Look for web addresses with https:// indicating extra measures to help secure information.

### SUGGESTIONS FOR ENHANCING ONLINE SHOPPING EXPERIENCE

- Search for more varieties to get the best products.
- Download the Application to get more Offers.
- Spent some time to search for various offers to get a good deal.
- Read the reviews of the customers before placing the order.

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# A Review of Women Entrepreneurship Development in India

Sanjna\*

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## ABSTRACT

*The emergence of female entrepreneurs has given rise to a new perspective on the business world. The advantages of women's entrepreneurship for society and the economy are strongly related. Even though women make up about half of the population in India, their involvement in entrepreneurial activity is still very limited. In order to understand the concept, profile, and dynamics of women entrepreneurs in India, the study analyses the prevalence of women entrepreneurs in the country. Highly cited research articles on women entrepreneurs, notably in the context of India, were among the criteria for choosing the current research on the subject. Different online databases such as Elsevier, Google & Research gate were used as the key source of information. The synthesis of the literature review revealed the varied profile of Indian women entrepreneurs. Women entrepreneurs make up a diverse community with members from various age groups and backgrounds in terms of demographics. During the process of starting and running their companies, they are also faced with a variety of gender specific and gender-neutral problems. India has very little entrepreneurial activity, which is mostly centred in the states of Tamil Nadu, Kerala, Andhra Pradesh, West Bengal, and Maharashtra. Deciphering the imperatives for policy and the actions that can strengthen the environment that is created for women entrepreneurs in India is urgently needed.*

**Keywords:** Women Entrepreneurship, Opportunities, Challenges, Government Initiatives

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## INTRODUCTION

Women entrepreneurship is to be considered as a significant tool in reducing unemployment & poverty. In the modern era, Women entrepreneur & empowerment has become a debatable topic. Women empowerment campaign couldn't succeed just by creating employment opportunities for them. It is the time to motivate & inspire the women for setting up of their own business. Now a day, Women are on that platform, where they are playing important role in managing the family as well as the society. However, they are still underestimated by the society.

Arafat et al. (2020): In this survey, a sample of 1305 Indians was used to analyse the data. It shows that entrepreneurial opportunities have no major impact on women's entrepreneurship; the risk factor demotivates women from becoming entrepreneurs, and available abilities influences the decision of women to become entrepreneurs. However, social media influence women to start their ventures.

Kshirsagar (2018): The goal was to see how various factors affecting work-life balance affect married couples' quality of life of female employees.

Saraswat & Lathabhavan (2020) a real life case study 1) Neeta Adappa, Prakriti Herbals, Japna Rishi Kaushik, Hungry Fowl, Payal Mittal Agarwal, Tranquility Pritika Singh, Tvakh case study discussed and a survey was conducted through an online medium using a website named survey heart and the target audience was women belonging to the student or employed sector. They received more than 100 responses about government policies.

Kumar & Balhara (2017): In this paper, the scholar conducted the exploratory study & explained various motivational factors like personal identity, financial support to family, social status & secured future for children, which affected women becoming entrepreneurs.

S. Khan et al. (2020): The purpose of this study was to investigate women's entrepreneurial experiences in the Pakistani environment using a life course method, which refers to individual experiences in making life course decisions related to personal and professional demands.

Noor & Nor (n.d.): This study will help policymakers to formulate strategies to overcome the obstacles

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of women entrepreneurship to attain empowerment through entrepreneurship.

Rani et al. (2016): Study of entrepreneurial problems of women and their changing entrepreneurial environment under globalization and liberalization as the result of new economic policies.

Noor et al. (2022): Analysis of 8 business models among 6 developing Asian countries (Malaysia, Pakistan, India, Indonesia, Sri Lanka and Bangladesh).

Patil & Gala (2022): This paper aims to concentrate on evaluating the effectiveness of all the schemes launched in rural areas for Maharashtra for women entrepreneurial activity. In this Paper, the Scholar studied the work efficiency of different government schemes in the development of Women entrepreneurs in the rural area of Maharashtra (District Sangli).

Kshirsagar (2018): The goal was to see how various factors affecting work-life balance affect married couples' quality of life of female employees.

Saraswat & Lathabhavan (2020) a real life case study I) Neeta Adappa, Prakriti Herbals, Japna Rishi Kaushik, Hungry Foal, Payal Mittal Agarwal, Tranquillitea Pritika Singh, Tvakh case study discussed and a survey was conducted through an online medium using a website named survey heart and the target audience was women belonging to the student or employed sector. They received more than 100 responses about government policies.

Perera & Ruhuna Visvavidyalaya (Faculty of Management and Finance., n.d.): In this study

1. Women above 45 years are found to possess better managerial skills in terms of decision making.
2. Women with higher education have better sense of marketing and are more focussed in expanding their business.
3. Educated women have been more successful than their counterparts with lesser education.
4. Women are facing cut-throat competition is from fellow women entrepreneurs & big manufacturers of market.
5. Customers express more confidence in dealing with men rather than women.
6. Women coming from non-business background possess almost the same managerial skills as that of women with business background.

7. There are more functional problems in manufacturing than the service enterprise, however the manufacturing units earns more revenue than the service industry.

## OBJECTIVE

- To understand the concept of women entrepreneurship in India.
- Identify the concept of problems and challenges of women entrepreneurship.
- To highlight the impact of women entrepreneurship development & empowerment programmes in the economic & social development of a nation.

## RESEARCH METHODOLOGY

The data for the purpose of the study has been collected through secondary sources, research gate, research scholar, Elsevier which mainly include journals from various web links

## FRAMEWORK OF STUDY

<i>Independent Variable</i>	<i>Dependent Variable</i>	<i>Outcome</i>
<ul style="list-style-type: none"> <li>• Interest and strong willpower</li> <li>• Motivation from family, close friends, colleagues</li> <li>• Management skills</li> <li>• Leadership skills</li> <li>• Operational skills</li> <li>• Market opportunity</li> <li>• Level of competition</li> <li>• Assistant programme from govt. agencies</li> <li>• Awareness programme</li> </ul>	<ul style="list-style-type: none"> <li>• Builds</li> <li>• Knowledge boosts self-confidence</li> <li>• Develops skills and competencies</li> <li>• Better understanding of market</li> </ul>	<ul style="list-style-type: none"> <li>• Reducing poverty</li> <li>• Capital formation</li> <li>• Increase in employment generation</li> <li>• Increase in social contribution</li> <li>• Increase in per capita income</li> <li>• Increase in national income</li> <li>• Increasing useful goods and services</li> </ul>

**Figure:** Successful Women Entrepreneur Model

## DISCUSSIONS

### Concept of Entrepreneurship

Women Entrepreneurship in 21st Century India, (n.d.): According to the Veda's, since ancient time women were considered as the major source of power & skill. They have taken places of "Rishis" through their knowledge, however in the modern world the situation of the women is lagging in terms of empowerment.

Ambiga & Ramasamy (2013): Women entrepreneurs as a concept A woman who starts and owns a business by investing at least 51 % in it is considered to be a woman entrepreneur.

There are 4 types of women entrepreneurs.

- Women working in the public private sectors
- Women working in urban and rural settings
- Women working in both large- and small-scale industries
- Joint ventures involving single women

Women entrepreneurs in India fall into the following categories:

- First Category:
  - Established in major cities
  - Higher Level Technical & Professional Qualifications
  - Non-traditional Items
  - Sound Financial Positions
- Second Category:
  - Located in cities and towns\
  - Level of education;
  - Including both conventional and non-conventional things.
- Third Category
  - Women who provide services to women, such as those in childcare facilities, salons, health clinics, and other settings Financially insecure
  - Active in family businesses like agriculture, horticulture, animal husbandry, dairy, fishing, agroforestry, hand looming, power looming, etc.
  - Located in cities and towns;
  - Having a sufficient level of education;
  - Including both conventional and non-conventional things.

### **Why Women Entrepreneurs in India are not Progressing Fast**

Kagenavar & Kallimath (2021): According to this study, women are restricted to household activities like household work and taking care of children and they are not allowed to do work outside. Due to improvement in the living standard, education, and other type of various opportunities, both male & female person of family has started working, and now in majorly both husband & wife are earning simultaneously for their family.

Rani et al. (2016): According to the findings of this study, Lack of family support, male counterparts' non-cooperation, weak negotiating position, communication barriers, insufficient training, lack of awareness, lack of societal support, sexual harassment, difficulties in obtaining loans to start a business, unawareness about credit facilities for women, lack of infrastructure facilities, rigid policies and regulations, attracting customers, lack of marketing skills, as well as unfavourable market trends.

Arafat et al. (2020): In this survey, a sample of 1305 Indians was used to analyse the data. It states that women's entrepreneurship is not majorly affected by entrepreneurial opportunities; another major factor is risk & ability to take decisions, which further demotivates the women for becoming entrepreneurs. However, social media influence women to start their ventures.

Koneru & Head (n.d.): The biggest obstacle for female business owners is that they are female. Their foundation for achieving corporate success is a form of patriarchal, male-dominated social order. Financing the businesses owned by women is seen by the male members as a major risk.

1. In many areas of the country, male chauvinism is still common. Women are considered "abla", or weak, in all ways. In a culture where males predominate, women are not regarded equally to men, which serves as a barrier to women entering the corporate world.
2. Women entrepreneurs compete fiercely against men entrepreneurs who are more easily involved in the promotion and growth of their businesses and who promote their goods to both the organised sector and their male counterparts. Women entrepreneurs eventually fail as a result of such rivalry.
3. Women often struggle with self-confidence issues as well as having weak willpower, a pessimistic view, and lack of a positive approach, which makes them fearful of making mistakes when working on a project.
4. Society and family members are hesitant to support their business progress.
5. Family responsibilities prevent women from starting successful businesses in both developed and underdeveloped countries. Financial institutions

discourage women from starting businesses because they think they may one day quit and go back to being stay-at-home moms.

6. Family and personal responsibilities for women can occasionally be a major obstacle to a successful corporate career. Few women have the time or ability to run their homes and businesses effectively, prioritizing all of their duties. Women's participation in the business world is also influenced by the spouses' educational background and home circumstances.
7. Women are forced to abandon the goal of succeeding in the business sector because they lack the required support, collaboration, and backing from their own families and society at large. They constantly stir up a lot of negative emotions in their heads and give them the impression that family, not business, is where they belong.
8. Many women enroll in the Entrepreneurial Development programme to receive training without having an entrepreneurial mindset. The ability of women who get instruction from various institutions must be confirmed by exams, interviews, etc.
9. The growth of women entrepreneurs is negatively impacted by some company activities' high manufacturing costs. Installation of new equipment during the growth of the production capacity and other related factors deter female entrepreneurs from expanding into new markets.
10. Many women-owned businesses are tiny, and it might be difficult for women to get the knowledge they want about technology, training, creative programmes, concessions, alternative markets, etc. Only a small portion of women who own their own businesses use technology, and they are also restricted to word processing programmes on computers. They hardly ever employ the most cutting-edge software available, such as the statistical programme SAP, the accounting programme TALLY, the animation programme 3D MAX, the internet, etc.
11. In comparison to male members, women's drive for achievement was determined to be lower. Because of their low levels of education and self-assurance, women are less motivated to work in the world of business and operate a company, which lowers their chances of success.
12. The lack of enough infrastructure, high production costs, societal attitudes about women's current

business outlooks, and low business needs are only a few of the other severe issues that women entrepreneurs may encounter. Additionally, women often start their own businesses roughly 10 years after males do. Among the factors mentioned for delaying entry into entrepreneurial jobs include motherhood, a lack of managerial expertise, and conventional socialization.

### **Advancements Made by the Government**

Koneru & Head (n.d.): The government has made the advancement of women a priority from its inception. The idea of women's development was mostly welfare-oriented up until the 1970s. The welfare concept was replaced by a development perspective in the 1970s that acknowledged the mutually reinforcing nature of the development process. The 1980s embraced a multidisciplinary strategy with a focus on the three fundamental areas of work, education, and health a couple of steps in this direction.

The empowerment of women was intimately tied to the broader strategy of intensive agricultural development programmes in the second Five-Year Plan (1956–1961).

In order to assist women's welfare, the Third and Fourth Five-Year Plans (1961–1966 and 1969–1974) promoted female education.

The Fifth Five-Year Plan (1974–1979) placed a focus on women's training since they needed protection and income. This plan was submitted at the same time as the Committee on the Status of Women in India's Report and the International Women's Decade. Under the Ministry of Social Welfare, the Women's Welfare and Development Bureau was established in 1976.

There was a clear transition from welfare to development throughout the Sixth Five-Year Plan (1980–1985). It acknowledged that one major obstacle to women's advancement is their inability to access resources.

The necessity of gender equality and empowerment was underlined in the Seventh Five-Year Plan (1985–1990). For the first time, a focus was placed on qualitative elements including building self-confidence, raising awareness of rights, and developing skills for better employment.

Through Panchayati Raj Institutions, the Eighth Five-Year Plan (1992–1997) placed a strong emphasis on the advancement of women, particularly at the Grass Roots Level. A policy known as the Women's Component Plan



was implemented for the Ninth Five-Year Plan (1997–2002), with at least 30% of expenditures and benefits going to areas that benefited women.

The Tenth Five-Year Plan (2002–07) intends to empower women by putting the newly established National Policy for Empowerment of Women (2001) into practise, as well as by assuring the survival, protection, and development of women and children through a rights-based approach.

Women's programmes are currently being run by various departments and ministries under the auspices of the Indian government. Here are a few of them:

- Mudra Loan for Women
- Annapurna Scheme
- Stree Shakti Yojana
- Dena Shakti Scheme
- Bhartiya Mahila Bank Business Loan
- Mahila Udyam Nidhi Yojana
- Orient Mahila Vikas Yojana Scheme
- Cent Kalyani Scheme
- Udyogini Scheme

Women Entrepreneurship in 21st Century India (n.d.): In this study, Scholar majorly focused on gender biases, the current position of women in Indian society & significant role of women entrepreneurs in the development of the country. Female entrepreneurs are smashing scarcity not only for their own families, but also having a big impact in the growth of country & society.

Noor et al. (2022): In this study, the scholar has researches on the basis of different factors like individual, organisational, financial, environmental & socio culture. Analysis of 8 business models among 6 developing Asian countries (Malaysia, Pakistan, India, Indonesia, Sri Lanka and Bangladesh).

### **Government Initiatives**

Patil & Gala (2022): In this study, Scholar collected the samples by multi-stage sampling for different government schemes (MUDRA, PMEGP, MSRLM & RLM).

Encouraging Women Entrepreneurship – Current Policies and Programmes (n.d.): Study in this paper majorly focused on: (1) Start-up India program, (2) Prime Minister employment generation program, (3) Udhyam Shakti portal for women entrepreneurs, (4)

Stand-up India Scheme, (5) Mudra Yojana & Various Financial Scheme like Shree Shakti Package & Mahila Udhyam Nidhi Scheme, etc.

Subbarayudu & Rao (2021): This study paper revolves around schemes & incentive available for MSMEs like

1. Collateral free loan by BMB bank.
2. Under the Annapurna Scheme, loan up to ₹ 50000 for buying kitchen tools for establish catering services.
3. Under Udyogini Scheme Loan of 1 lakh INR will be provided in agriculture, retail & small business & also extra subsidies will be given to Widow, SC & ST & disabled women.
4. Multiple schemes are launched by banks also such as Oriental Mahila Vikas Yojna scheme by Oriental bank of commerce (now merged with PNB), Dena Shakti Scheme by Dena Bank, Cent Kalayani Scheme by Central bank, Mahila Udhyam Nidhi scheme by PNB & SIDBI.

R.U. Khan et al. (2021): In this study, the researcher collected the data from 181 registered SMEs & developed a conceptual model using SPSS & AMOS. The internal factors (like risk-taking, and self-confidence) & external factors (like economic & socio-cultural factors) have a significant positive impact on women entrepreneurs.

### **Challenges Faced by Entrepreneurs**

Kumar & Balhara (2017): In this paper, the scholar found various factors which are faced by women entrepreneurs like Stiff competition from existing market players, availability of finance for sales & marketing of products, lack of support from family, Lack of education & awareness and transportation & mobility issues.

Embran (2003): The main goal of this essay was to look into studies on women entrepreneurs and innovation in India, as well as to understand how innovation in entrepreneurship leads to business success and growth.

Nishanka et al. (2018): In this Survey, two district were studied Mahendargarh & Rewari with the help of questionnaire. This study shows that most of the women are not much educated however they are still earning between 1 to 2 lakh rupees. These women have experience less than 2 years but still they are providing various services & running their own enterprises in Urban area by investing 6 to 9 hours in a specific day.

## Women Entrepreneurship Motivation

S. Khan et al. (2020): According to the findings of this study, women entrepreneurs who have had fantastic entrepreneurial experiences are more socially and financially independent, which gives them a sense of accomplishment and fulfilment. They embarked on their entrepreneurial path in order to achieve financial independence and prosperity. They were confronted with numerous hurdles and roadblocks that hampered their growth and development.

Rao & Shravan (2018): empowering women through entrepreneurship in the state of Karnataka to contribute to the literature India is changing its perspective on treatment of women.

Patterson & Mavin (2009): Traditionally, Women were involved with 3Ks which were Kids, Knitting & Kitchen however these were further extended to kitchen activities majorly to 3Ps which are Powder, Pickles, & Pappad. And now in the modern world as awareness about education & business are spreading among the women so they are shifting from 3Ps to 3 modern E's which are Electronics, Engineering, and Energy & they are very good in performing these activities. This study also divided the female Entrepreneurs in two parts, first one is by choice & another is by necessity. It also described the Govt. schemes, challenges & opportunity available for the female in the society & market.

## FURTHER STUDY

Sharma et al., 2008, Women Entrepreneurship in 21st Century India (n.d.): Need to study the behavioral research of women on spiritual & cultural basis, which will help to know the relationship of women entrepreneurs with their family support.

Noor et al. (2022): In this paper, we find the research gap in different service sectors for women entrepreneurs like medical, legal services, accounting, engineering services, logistics transport & tourism, etc.

Patil & Gala (2022): The Government should further investigate the different factors to make these scheme successful. With the financial assistance the gov. should also focus on providing the right education & developing of the skills among the women entrepreneurs in rural areas.

Khan et al. (2021): This study is limited to 3 cities in Pakistan & it should be conducted at a national level.

The financial literacy factor must be considered while studying for women's entrepreneurship.

Nishanka et al. (2018): The study was limited only upto 2 districts however more districts should be studied.

Koneru & Head (n.d.): Due to a painful occurrence, such as a divorce, pregnancy-related discrimination or the corporate glass ceiling, the health of a family member, or practical considerations like a layoff, many women decide to launch their own business. The fact that more women are choosing to leave the corporate world and forge their own paths, however, is creating a new talent pool of female entrepreneurs. They are thriving as designers, interior decorators, exporters, publishers, clothing producers, and they are still looking into new ways to engage in the economy.

Kumbhar, V. (2013): The results of this study show that there is no clear plan for life, no balance between women's obligations to their families and careers, little financial freedom for women, no direct ownership of property, the paradox of entrepreneurial skill and finance in economically wealthy and poor women, lack of awareness of one's potential, a lack of capacity for risk, issues working with men, negligence on the part of financial institutions, a lack of self-confidence, and a lack of a sense of purpose.

## CONCLUSION

According to the report, the Indian government has started a number of policies and programmes to encourage women to start their own businesses. By doing this, they can become financially independent and contribute to the economy's expansion. Due to a variety of causes, there are still significant gaps in the aims' achievement. The fact that India has very low levels of female entrepreneurship both within the nation and in comparison to other economies makes this issue even more important. The study highlights the need and significance for further research in the field of women entrepreneurs, analysing any gaps in the literature and identifying changes that are necessary to better women entrepreneurship programmes.

Encouraging Women Entrepreneurship – Current Policies and Programmes (n.d.): In 2016, under the start up India scheme Corpus fund of 10% of 1 0,000 crore is reserved for women entrepreneurs. Udhya Shakti portal had been launched on International Women's day in 2018 to assist around 80 lakhs Indian women

entrepreneur. This program includes from incubation facility to training & market survey facility.

Noor et al. (2022): This paper describes the success models of Small & Medium Enterprises for women & also uncovered the issues & challenges faced by the women entrepreneur in developing nation.

Patil & Gala (2022): This study shows that there is no significant relationship between growth of women entrepreneurs & government schemes.

Kagenavar & Kallimath (2021): According to the MSME report 2019–20, it is analysed that women are less encouraged towards becoming entrepreneurs as their work life balance is affected by the following factors:

1. The burden of multiple roles
2. Interference of work with family life
3. Fulfilment of others expectations
4. Increasing responsibilities

Khan et al. (2021): Women need appropriate motivation and the right direction to start their own business. The policy maker should arrange a seminar, workshops, incentives or work at women's university which help to promote women's entrepreneurship. It will also help in boosting the GDP by 40%.

Embran (2003): Efforts are being made in the economy to ensure that Indian women have equal chances in all domains, and legislation guaranteeing equal rights of participation in the political process, as well as equal opportunities and rights in education and employment, have been adopted.

Rao & Shravan (2018): Women-led firms have risen to prominence in the ecosystem. In fact, AWAKE (Association of Women Entrepreneurs of Karnataka) was founded in 1983 by Kiran Mazumdar Shaw and a few other women. Karnataka is perhaps the country's only state that awards grants for innovative ideas. For idea transformation, the government would pay up to 50 lakhs.

## IDEAS FOR DEVELOPING WOMEN ENTREPRENEURS

1. For women to become successful business owners and to participate more actively in entrepreneurial endeavours, the right efforts from all directions are necessary. In order to overcome their

contradictions, female entrepreneurs need to be given the confidence, freedom, and mobility they require. Entrepreneurship fundamentally entails having control over one's life and actions. To enable women to take advantage of numerous possibilities and overcome obstacles in business, the following actions are recommended.

2. Women entrepreneurs should be continuously inspired, supported, encouraged, and motivated.
3. A widespread awareness campaign should be undertaken with the goal of educating women about the various business sectors.
4. Set up training programmes to foster the development of management, leadership, financial, marketing, and other professional competencies. Plan for profits; keep books of accounts. The encouragement to start a business will result from this.
5. Providing women in the community with access to vocational training that will help them comprehend the management and execution of production.
6. Education institutions should partner with various government and non-government organizations to support entrepreneurship growth, particularly to design commercial ventures. Training and production workshops are where skills are used.
7. To assist women in facilitating engagement with other women entrepreneurs, international, national, local trade fairs, industrial exhibits, seminars, and conferences should be held.
8. To encourage them to engage in industrial activities, women entrepreneurs should be given access to soft loans and subsidies.
9. Offering local women business owners' access to micro-credit and enterprise credit systems.
10. Through numerous government initiatives and incentives designed to foster entrepreneurship in the state, the weaker segment could raise money.
11. Women entrepreneurs may experience difficulties in the early phases of their businesses, but they must continue, have confidence in themselves, and not give up in the middle.
12. Women should strive to improve themselves in the modern world by utilizing the advantages of the newest technologies.
13. In order for women to become proficient in all functional areas of company administration, they must continually get education and training. This

might help women make better decisions and build strong business networks.

14. SELF HELP, To support the women in the fields of industry, trade, and commerce, organizations of women entrepreneurs may mobilize resources and pool financial funds to assist them. This can be a positive step toward solving the ISSUC.
15. To provide venues around the country where people can debate concerns, grievances, and complaints regarding obstacles or shortfalls in women entrepreneurs.

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## Reverse Image-Based Search Engine

Pooja Malhotra\*, Kaina Bindra\*\* and Khushi Bhatia\*\*\*

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### ABSTRACT

*This paper presents an efficient search engine for processing a vast array of textual and image data to find instances similar to an input image. Image-based search engines have been implemented using Content-Based Image Retrieval in the past which focus on the low-level features of an image (like texture, shape, color) resulting in a semantic gap between CBIR and the high-level understanding of the users. In order to bridge this gap, we have moved to a deep learning-based approach, we have used Google's Inception V-3 model which is a deep neural network to extract dominant high-level features from the input image. We find the most similar images using Euclidean distance between the feature vectors of the images in the dataset. We use the features to get a caption for the image using an Image Captioning model based on merge architecture. The articles are ranked based on their semantic similarity with the caption using word embedding model-GloVe. GloVe unlike Word2Vec incorporate global statistics rather than relying on just local statistics.*

**Keywords:** Content Based Image Retrieval (CBIR), Bilingual Evaluation Understudy (BLEU), Natural Language Toolkit (NLTK), Term Frequency Inverse Document Frequency (TFIDF), Recurrent Neural Network (RNN)

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### INTRODUCTION

There are several fields under the umbrella of search engines. Such as Text Search, Image search, and Voice Search as shown in Fig 1. A major barrier to an accessible and utilizable search engine is the user's inability to exactly pen down the search query. The user may want to search about instances related to an image like that of a famous person or monument, and it may not be possible to put it into exact words. Image-based search needs to handle the problem of the understanding gap between the semantics perceived by a machine and the semantics perceived by a human.

### RELATED WORK

Aditya Mishra et al [1] proposed a system based on Sobel edge detection for feature extraction and comparing the extracted content using the CCV matrix technique. The proposed work failed to provide any metric to measure the effectiveness of the system or of individual feature extraction and similarity measurement techniques.

Surbhi Jain et al [2] tried to address the problem between the semantics of the image pixel as perceived by the machine and the high-level semantics perceived by humans using deep learning techniques for feature extraction. The system uses Sobel edge detection and image segmentation techniques for background removal, a deep CNN model based on Google's Inception-v3 architecture for feature extraction and uses euclidean distance as a similarity metric. The key downfall of this methodology is that the model is not generic and only gives good performance for a specialized domain eg - shoe dataset, utensils dataset. The paper treats the background of an image as a useless feature, which is not true as it will provide us with meaningful context, removing it will widen the gap between the semantic understood by the machine and perceived by the human.

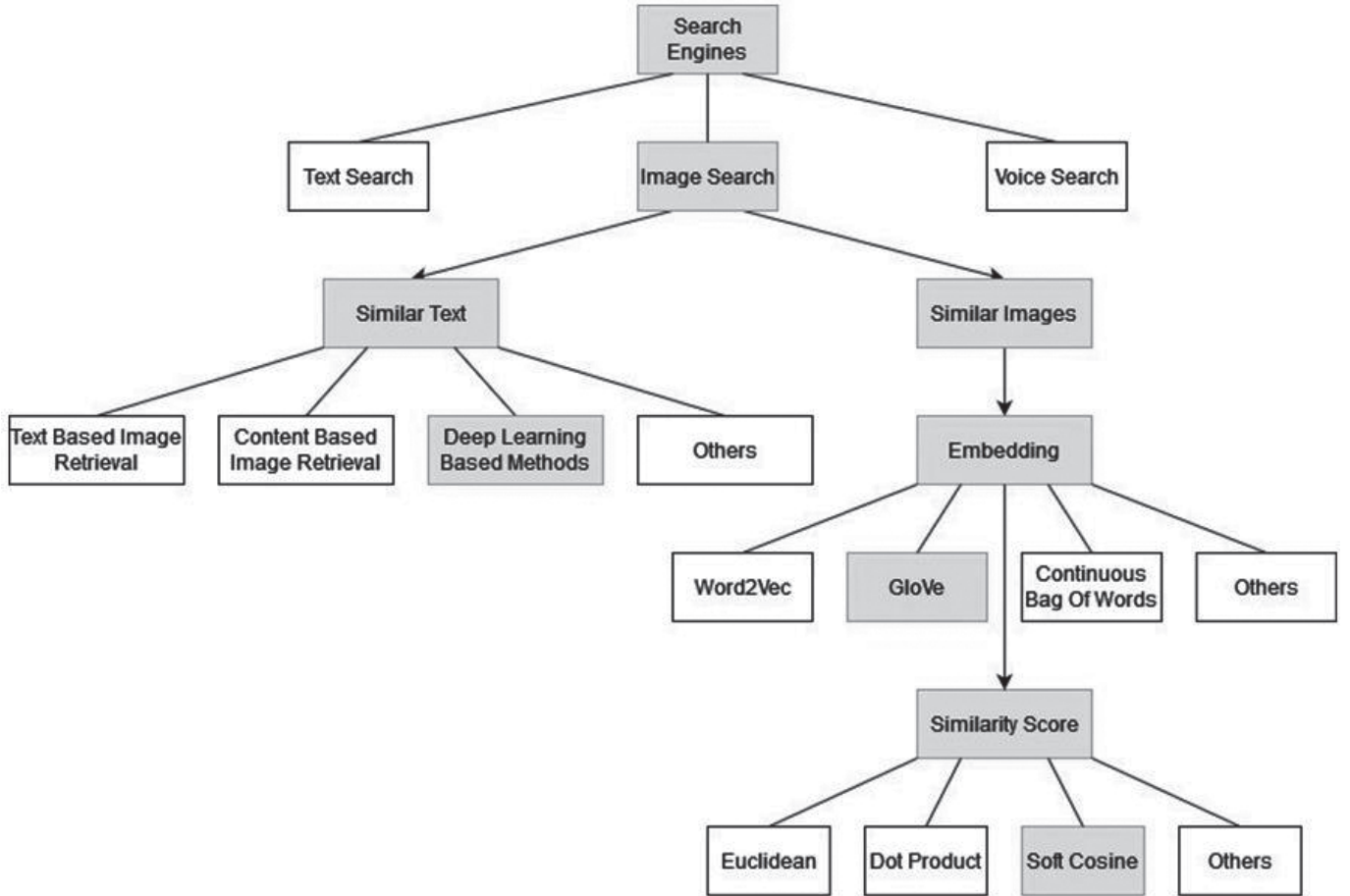
Lin et al [3] proposed a compression technique to shrink the high dimensional feature space of an image (after feature extraction) to a low dimensional feature space by converting it into binary hash code and using hamming distance for similarity measure which greatly reduces search time. They were able to achieve a 971x speed

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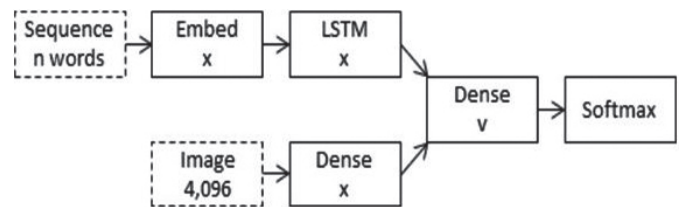
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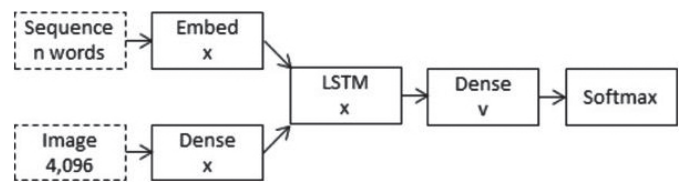


**Figure 1:** Flow Chart of the Problem Statement

up, reducing the search time from 109.7ms to 0.113ms. Sethurathienam Iyer et al [4] presented a solution based on image captioning which preserves the context of an image. The system uses VGG-16 network for feature extraction followed by a multimodal Recurrent Neural Network(RNN) for image captioning, the captions are compared using elastic search by converting the captions into an array of numbers based on Term Frequency Inverse Document Frequency(TFIDF) and measuring the similarity between these arrays. Marc Tanti et al [5] discuss the role of RNN's in image captioning models, it compares two RNN+CNN models known as merge (Fig 2) and inject (Fig 3) architecture. The RNN in the merge architecture only takes into account the sequence generated till then, while the RNN in the inject architecture takes into account the input image as well as the sequence generated till then to predict the next word in the sequence. The paper shows that the merge architecture performs better than the inject architecture in several different tests. We use the merge architecture in our system.



**Figure 2:** Image Captioning Model Based on the Merge Architecture



**Figure 3:** Image Captioning Model Based on the Inject Architecture

S. Rubini et al [6] implemented a content based image retrieval (CBIR) system. It compares two approaches- captioning of images and finding images with similar tags, and CBIR which involves extracting dominant feature values of an image and finding its similarity with other images in the dataset. The first approach

needs a huge amount of dataset of captioned images and each image in the corpus needs to be tagged manually. They use CN descriptors to assign a 11-D vector to each pixel and use Canberra distance for similarity measure. It concludes that there is still scope for further improvement because of the semantic gap between the CBIR outcome and user's perception. K. Kamala Kannan et al. [7] discuss an approach of using image mining to extract color, texture and shape features of an image, and then using weighted euclidean distance to find similar images.

## DATASET

For the image captioning model we chose the Flickr8K dataset [8] in which the images are chosen from six different Flickr groups, and tend not to contain any well-known people or locations, but were manually selected to depict a variety of scenes and situations. The dataset has 8000 images along with their descriptions, there are 6000 train images, 1000 testing images and 1000 development images. Images have different sizes. Descriptions for each image are stored in the Flickr8k.token.txt file, containing 5 captions per image. The corpus of images for finding visually similar images is Caltech101 dataset which has 101 categories with 40-800 images per category. The size of each image is roughly  $300 \times 200$  pixels. The size of the dataset is close to 132 MB.

## METHODOLOGY

- Implement a system where a user can search where user for articles and images corresponding to a query image.
- Develop an Image captioning model to generate precise textual descriptions of an image in natural language, which will be used to query articles which address the description.
- Develop an Image to Image similarity model, which will be used to find visually similar images.
- Develop a methodology to measure similarity between image captions and articles in order to rank articles based on their relevance.

### Flowchart

The system (Figure 4) addresses each query in 4 major steps, these are:

1. Image Preprocessing – This resizes the input image to the size of (299,299,3).
2. KNN for finding visually similar images
3. Image captioning for generating textual descriptions of images
4. Semantic search to find similar articles

Each query in our system is processed in 3 steps:

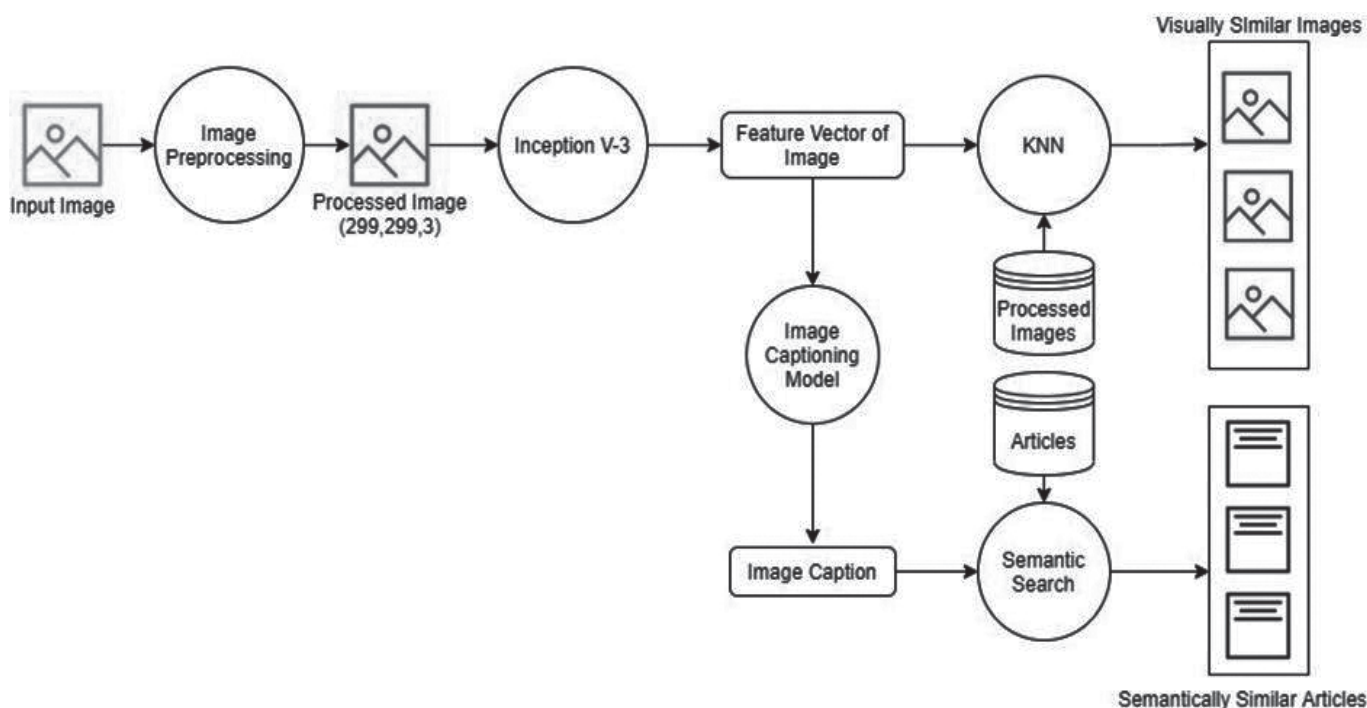
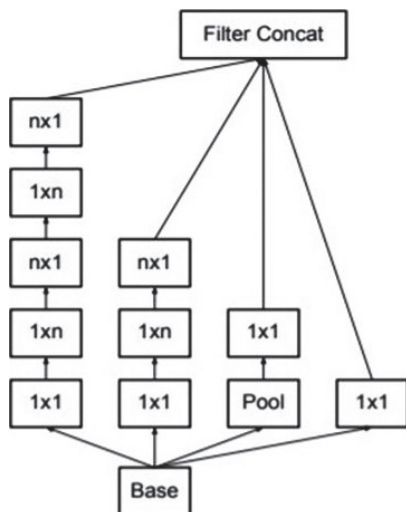


Figure 4: Overview of the System



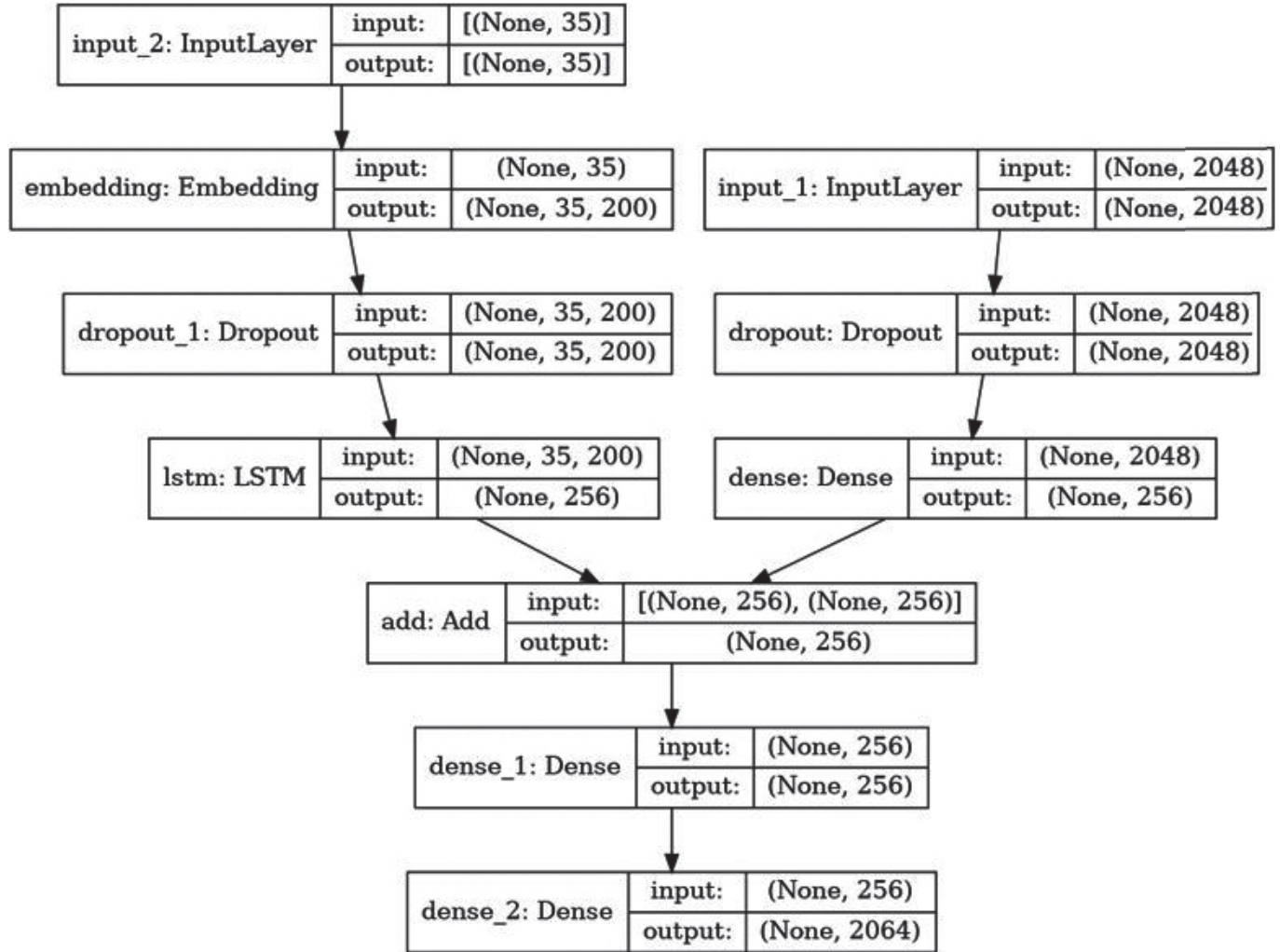
1. **Processing the input image** – The image received from the user is resized to (299, 299, 3), this is because we pass the input image through Google's Inception V-3, which accepts an input of shape (299, 299, 3).
2. **Conversion of input image to a lower dimensional feature space** – This step performs the feature extraction by extracting key descriptive features from the input image. This is an extremely common method used in all sorts of computer vision tasks. The lower dimensional vector captures only the important parts of the image. We use Google's Inception V-3 which is a earlier layers to make them immediately useful widely-used image recognition model that has been shown to attain greater than 78.1% accuracy on the ImageNet dataset. It has 48 layers and has 24 million training parameters. The Inception V-3 model combines various different sized convolutional filters to account for large variations in size and location of information in the images. The model has been optimally factorized into smaller convolutions to minimize the computational power required for training. The factored convolutions are asymmetric to provide more optimisation as shown in Figure 5. The model also uses auxiliary classifiers to improve convergence and make the useful gradients available at earlier layers to make them immediately useful. Since the Inception V-3 is a CNN network trained for classification tasks. We remove the last layer from the model and use the output from the second last layer as the reduced feature space for our image
3. **Finding visually similar images** – This step finds a given number of images that are visually similar to the input image. The images in the dataset are pre-converted to lower dimensional feature vectors. After changing the input image to feature vector the euclidean distances of the input feature vector to other feature vectors in the dataset are calculated. KNN is used to find K nearest neighbours of the image using a distance measure, Euclidean distance in our case These neighbours signify the visually similar images since the Euclidean distance between the feature vectors gives the difference between the values of the key descriptive features of the images.
4. **Image captioning** – In order to find articles relevant to the input image, we need to generate captions for the input image. We have implemented a CNN + RNN model based on the merge architecture (Figure 3). The model has been trained on the Flickr8K dataset [8]. The images are chosen from six different Flickr groups, and tend not to contain any well-known people or locations, but were manually selected to depict a variety of scenes and situations. The dataset is processed by converting all the images to their feature vectors by passing them through the Inception V-3 model. This is a one time process and the feature vectors of the training images are saved locally. The training descriptions are used to create a vocabulary, where each word is a part of the vocabulary if it occurs at least 7 times in all the descriptions combined. The size of the vocabulary is 2064 words. Each word in the vocabulary is mapped to its GloVe embedding which maps words into a meaningful space where the distance between words is related to semantic similarity based on the Glove.6B.200D dataset, which maps each word to a (None, 200) dimension vector. This is done by the embedding layer in the model.

Input (299, 299, 3) → Inception V3 → Output (, 2048)



**Figure 5:** Inception Modules After Factorization into Asymmetric Convolutions

The output of the LSTM layer and the fully connected layer connected (Figure 6) to the input1 are vectors of size (None, 256) each. These are combined and fed to a dense layer which outputs another (None, 256) size vector. We train the model based on categorical crossentropy loss function for 100 epochs on an Nvidia Tesla P100 GPU. The model generates the captions in a series of iterations, each iteration generates one word in the sequence, this process continues until the model generates an endseq token or 34 iterations have been performed. We have set 35 as the maximum length of any



**Figure 6:** Image Captioning Model Architecture

description, this is done because the maximum training description size is 35. In each iteration, the model takes two inputs of size  $(None, 2048)$  and  $(None, 35)$  each. The former is the feature vector of the input image which The latter is the sequence generated by the model in the previous iterations, this input is padded if its size is less than 35. The model outputs a one hot vector, with the word having maximum probability of occurrence out of all the words in the vocabulary having a value.

5. **Finding semantically similar articles** – The GloVe method is built on the idea that we can derive semantic relationships between words from the co-occurrence matrix. Let the matrix of word-word co-occurrence counts be denoted by  $X$ , whose entries  $X_{ij}$  tabulate the number of times word  $j$  occurs in the context of word  $i$ . Let  $X_i = \sum_k X_{ik}$  be the number of times any word appears in the context of word  $i$ .

Finally, let  $P_{ik} = P(k|i) = X_{ik}/X_i$  be the probability that word  $j$  appears in the context of word  $i$ .

$P_{jk} = P(j|k) = X_{jk}/X_j$ , where  $k$  represents the probe words.

## RESULT

We use python as the coding language. We use Tensorflow, Keras and SKLearn as our machine learning frameworks for various tasks, and NLTK for Natural language processing tasks. We have used Kaggle's notebooks for training and testing our model system. The notebook is equipped with Nvidia Tesla P100 GPU with 16 GB memory, 13 GB of RAM and 74 GB of HDD. The reason we chose this setup is that kaggle allows us to compile our notebooks which will then run on their own machines. We don't need to keep the browser tab open, notebooks can run for upto 9 hours in one go which was sufficient for us. For the image captioning model we chose the Flickr8K dataset [8] in

which the images are chosen from six different Flickr groups, and tend not to contain any well-known people or locations, but were manually selected to depict a variety of scenes and situations.

## Performance

We have tested the system in three phases, phase 1 includes the image captioning system, phase 2 includes the image similarity search and phase 3 includes the semantic search. We have evaluated phase 2 and 3 separately using different algorithms and compared their results.

- **Phase 1** – This phase includes image captioning. In order to evaluate its performance, we will be using the BLEU score as our metric. BLEU, short for Bilingual Evaluation Understudy, is a score for comparing a candidate translation of text to one or more reference translations. The Natural Language Toolkit (NLTK) module provides us a function

to measure the BLEU score, given the reference sentence and the set of human identified captions. We were able to achieve the following BLEU scores of

*BLEU 1* – 0.4165259668473034

*BLEU 2* – 0.24620164857005672

*BLEU 3* – 0.17296710086667308

*BLEU 4* – 0.0809969587881713

Since a BLEU 1 Score between 0.4–0.5 means high quality translations, we can conclude that our image captioning model works fairly well.

- **Phase 2** – This phase includes the image similarity search. We have used KNN algorithm to find K images from our dataset, nearest to the input image. In order to measure accuracy, we have modified the Caltech101 and have kept only 5 images per class (since  $K = 5$ ), and have compared between different similarity metrics to find the best one.

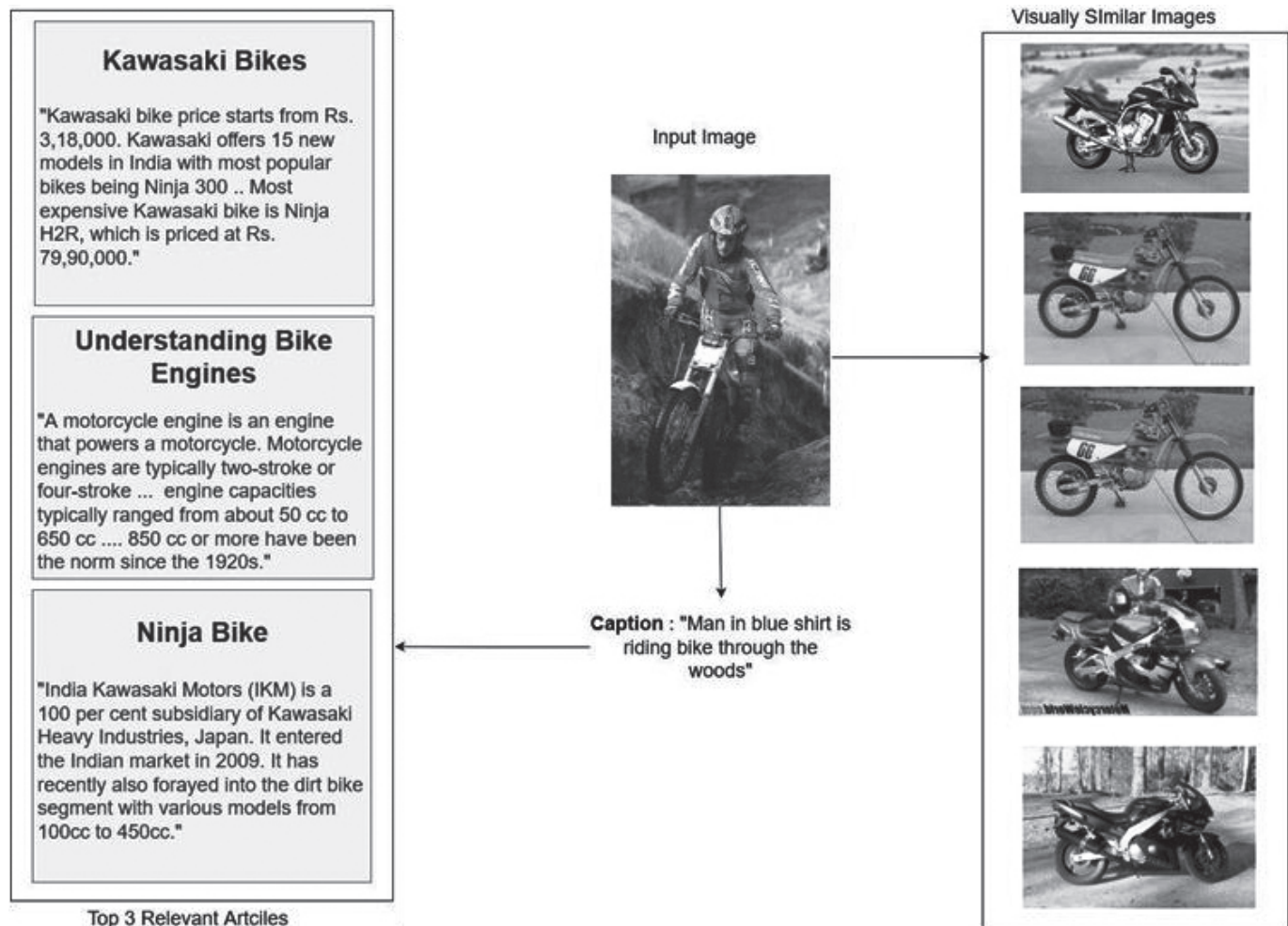


Figure 7: The Engines Output for the Given Input Query



**Table 1:** Comparison using Different Similarity Measures

<i>Metric</i>	<i>Accuracy (%)</i>
Chebyshev	20
Manhattan	60
Minkowski (p = 10)	60
Minkowski (p = 5)	80
Euclidean	100

As we can see, Euclidean gives us the best accuracy, and we use it as we are going in phase 3.

- **Phase 3** – In phase 3, our model's performance is dependent upon what type of similarity matching technique we are using. We have compared the result with 3 different techniques and 2 different testing images. We have made sure that our dataset contains 5 articles corresponding to each image (manually) out of 20 test articles.

**Table 2:** Performance of Semantic Search When Using Different Techniques for Figure 7

<i>Technique</i>	<i>Top 5 Accuracy</i>	<i>Top 3 Accuracy</i>
Using gloVe embeddings	60%	66.6%
Using tf-idf without lemmatizer	100%	100%
Using tf-idf with lemmatizer	100%	100%

After analysing the results of phase 2, we have decided to go with gloVe embeddings for similarity measure. In this section we will evaluate the performance of the feature extraction step. We are using Google's Inception V3 to extract useful features from the input images. The model attained an accuracy greater than 78.1% accuracy on the ImageNet Challenge which is an Image Classification challenge comprising over 1 million images distributed amongst 1000 classes. Since there is no quantitative measure to evaluate the correctness of our model, we will show a qualitative measure to our readers. Figure 7 shows the system's output for the given image.

Figure 7 shows an interesting result: the model is able to deduce that there is a person riding a bike in

the mountains, but is unable to deduce his jacket's color. This is due to the absence of such images in the training set.

## CONCLUSION

In this paper, a novel method is proposed for image captioning using deep learning. We can extend the work of image captioning for real time tasks such as in medical science to train the model. A complete automatic report can be generated by using the images using image captioning. It can be used to automate various tasks.

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# Talent and Talent Management Research

## A Bibliometric Analysis

Divya Malhan\*, Ruby Gothwal\*\*, Nisha Mor\*\* and Neha Nain\*\*

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### ABSTRACT

**Purpose** – Bibliometric analysis allows for the impartial evaluation of vast volumes of bibliometric data. In this study, bibliometric analysis is used to look at research trends and where research on talent management is going in the future.

**Design/Methodology/Approach** – Scopus database was used to find studies about this topic. All together, 258 papers were chosen for bibliometric analysis. The data was collected and analyzed by using R studio.

**Findings** – The findings revealed that the most frequently used keywords were talent, management, retention, role. Most cited authors are (Dries, 2013), (Collings, 2014), (Tansley, 2011), (D'Annunzio-Green, 2008). International journal of human resource management, Human resource management review, International journal of contemporary hospitality management these are most cited journals.

**Research Limitations/Implications** – The study provides some theoretical and practical implications. The study findings can give researchers and practitioner's insights into the current position of talent and talent management and trend topics. Besides, it can be used as a practical guide for determining potential gaps in the literature.

**Originality/Value** – Scopus database was used to find studies about this topic. 258 papers were chosen for bibliometric analysis. The study findings can give researchers and practitioners insights into the current position of talent and talent management. It can also be used as a practical guide for determining potential gaps in the literature.

**Keywords:** Tourism, Bibliometric Analysis, Talent, Talent Management, Resource, Scopus Database

**Paper type:** Research paper

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### INTRODUCTION

It wasn't until McKinsey & Company's report The War for Talent (1997; Michaels, Handfield-Jones, and Axelrod 2001) that the "war for talent" was publicly acknowledged as a significant strategic business challenge and a key driver of firm performance, and the term "talent management" (TM) was introduced. Talented individuals are those "who can make a difference in the success of an organization by making an immediate difference or by displaying the top levels of potential" in the short and long term. Practitioners in the field of human resource management (HRM) have reported substantial challenges in precisely defining what talent is and accurately assessing it for identification (Tansley, 2011). Different authors have different perspective about talent. Talent can be considered

different for different job requirement. There is no universal definition of talent. It's not just the English dictionaries that agree that talent is an innate giftedness that shows up in a specific field of endeavour and is associated with great achievement; the German, Russian, French, and Danish dictionaries do as well. In this sense, an intrinsic quality or aptitude is one that is present at birth rather than acquired via experience or instruction. Similar to the English meaning, they associate the word "talent" with those who actually have it. From (Tansley et al., 2016) Many authors consider human capital, another term for an individual's accumulated skill set, education, and personal qualities that manifests in their ability to perform work that generates economic value, is the usual framework within which talent is understood and put to use (Sparrow, 2007). To achieve excellence, which can be defined as either outperforming others

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(i.e. interpersonal excellence) or consistently doing your best work, talent can be thought of as both a set of skills and a set of competencies that are necessary for excellence. Managers often call their employees the organization's talent to emphasise that people are its most valuable asset (Ashton & Publishing, 2005). According to the definition of talent provided by (Gallardo-gallardo et al., 2015) talent consists of an "ability component" in which "innate abilities and systematic development" are two separate predictors. To excel in one or more areas of human functioning requires a set of innate abilities that have been honed through systematic development. Human capital is said to be "unique" if it is hard to replace due to factors such as specialized training requirements, scarce labour markets, and other factors. Researchers have different ideas about what talent management means. Gallardo-gallardo et al. (2015) says that talent management is a way of thinking where talent drives the performance of an organisation. Cappelli (2000) says that it comes down to figuring out what the needs are for human capital and then making plans to meet them. Blass (2007) says that it means giving talent "additional management processes and opportunities." Others (Piansoongnern, 2013) say it takes integrated HR approaches to find and keep the right people at the right time. These methods show that talent management is not clear (Lewis & Heckman, 2006a). Human capital that is highly valued and distinctive in some way is known as a firm's "talent" (Lerman, 2008). Talented workers are worth more or less in different roles, according to (Beechler & Woodward, 2009). The "human capital" way of looking at talent is usually based on a "resource-based" way of looking at people, in which employees are pushed to create more value for their companies (Dries, 2013). Understanding talent at work We group different approaches to talent into "object" versus "subject" (natural ability, mastery, commitment, and fit) and look for dynamics within and between them, as well as implications for talent management theory and practise (Gallardo-gallardo et al., 2015). Only looking at talent and talent management from a resource-based point of view doesn't seem to be enough to understand the psychological factors that come into play when managing people. Organizations find it more valuable to establish their own concept of talent than to adopt universal or predetermined definitions. Consequently, the definition of talent will vary considerably between a local government, a transnational organisation, and a

small business (Tansley et al., 2016). HRM focused on management functions, TM on people, with a focus on attracting, retaining, and developing 'talents'. Many companies have talent pools. Talent pools are groups of talented employees. These groups can take numerous shapes, have varied memberships, and be utilised for project work, second management, and internal recruitment. Some organisations define talent pools, such as executive-level talent, rising stars, emerging leaders, and local talent. Gagné & Ph (2000) says talented people can do an activity in the top 10% of their peers. In his study, Goleman (2006) found that in professional positions, top performers who provide value to their company are valued ten times as much as their coworkers. Many attempts have been made to define "talent" and "talent management." Talent management is not just another HR fad, according to Duttagupta (n.d.) TM is the strategic management of an organization's talent flow. The CIPD (2009, 2) defines TM as the systematic attraction, identification, development, engagement/retention, and deployment of individuals with high potential who are of particular value to an organization. This is a common 'exclusive' definition of 'TM', reserving the term for 'high-value' staff, high performers, and/or high-potentials, in contrast to 'inclusive' perspectives, where 'talent' is often a synonym for 'staff'. There isn't enough clarity and agreement in the TM literature about what it is, what it means, and how big it is. Some commentators (Nijs et al., 2014) say that this kind of ambiguity is a key part of a management trend because it gives people who adopt new ideas "interpretive flexibility." The ambiguity of TM makes it easier to understand and more likely to spread. Fashion setters can say that they are experts at deciphering and resolving ambiguity in order to expand their market opportunities. Various reviews of TM literature have been produced in recent years (Lewis & Heckman, 2006b) review issues with the definition of TM based largely on practitioner literature; Collings & Mellahi (2009) develop a conceptual model of strategic TM, emphasising 'pivotal positions'; Tarique & Schuler (2010) create an integrative framework for understanding and advancing research on global talent management (GTM); Dries (2013a) identifies a number of discrepancies, tensions, and taken-for-granted assumptions based on a review (Thunnissen et al., 2013) take a critical review approach, highlighting the economic and noneconomic (i.e. social and moral) value that TM can create at three levels: individual,

organisational, and societal. Cappelli (n.d.) review the implications of current labour market challenges and uncertainties for TM theory and practice. From multiple views, TM appears rational and progressive, as an effective means to desirable aims and a new or enhanced methodology compared to prior methods. (Iles et al., 2010) Emerging empirical data underscore the importance of international employee mobility in MNE global personnel strategies (Mcdonnell et al., 2010). Talent-management literature focuses on identifying, selecting, developing, planning, and retaining talent (Nijs et al., 2014). GTM systems focus on managing high-potential, high-performing personnel within the enterprise (Stahl et al., 2012). Second, GTM focuses on human resource (HR) methods to attract, develop, and retain high-human-capital personnel aligned with the organization's strategic goal (Skuza et al., 2013). Third, firms struggle to find the quality and quantity of global talent they need to operate globally (Farndale et al., 2014). Global talent pools advance organisational practise from demand-led to 'ahead-of-the-curve' recruitment (Farndale et al., 2010). This is crucial since (Trevisan et al., 2014) recognised the path-dependent effect of human capital development. She showed how developing managerial talent limited managerial ambitions to expand firms. Human capital and performance affect time. Cappelli recommends a talent-pool model to manage supply-and-demand imbalances. It helps worldwide talent advance their careers. In firms that integrate global mobility and talent, international assignees should play a larger role in the MNE network. Movement of global talent around the MNE will be fundamental to its strategic aims. Strategic goals of MNEs cannot be realised without global talent management (GTM) (Skuza et al., 2013; Stahl et al., 2012; Tarique & Schuler, 2010). New empirical evidence highlights the significance of global personnel strategies for MNEs, which includes encouraging staff mobility across borders (Mcdonnell et al., 2010).

## METHODOLOGY

The present study followed (Donthu et al., 2021) recommendations for the bibliometric analysis. In particular, the study proceeded along the following five stages:

### Step 1: Selection of Database

Scopus, PubMed, and the Web of Science (WoS) are just a few of the databases that can be used for bibliometric

research (AlRyalat et al., 2019). PubMed, as stated by AlRyalat et al. (2019), is focused on research in the biomedical and biological sciences, whereas WoS and Scopus are more concerned with cross-disciplinary work. Scopus from Elsevier was chosen over WoS from Clarivate due to its wider scope (Paul et al., 2021; Pranckute, 2021).

### Step 2: Creating the Search Formula

The search methodology was developed after reviewing the Talent Management literature. The terms "Talent," "Talent Management," and "Managing Talent" are all used to describe this process. Because of this, these were included in the search criteria. Boolean "AND" and "OR" operators were utilised in the "title, abstracts, and keywords" search boxes. It resulted in the following search formula: TITLE-ABS-KEY ("Talent" OR "Talent Management" OR "Managing Talent").

### Step 3: Data Collection and Retrieval

At first, 36,140 results were returned by the aforementioned search criteria (Figure 1). Improvements

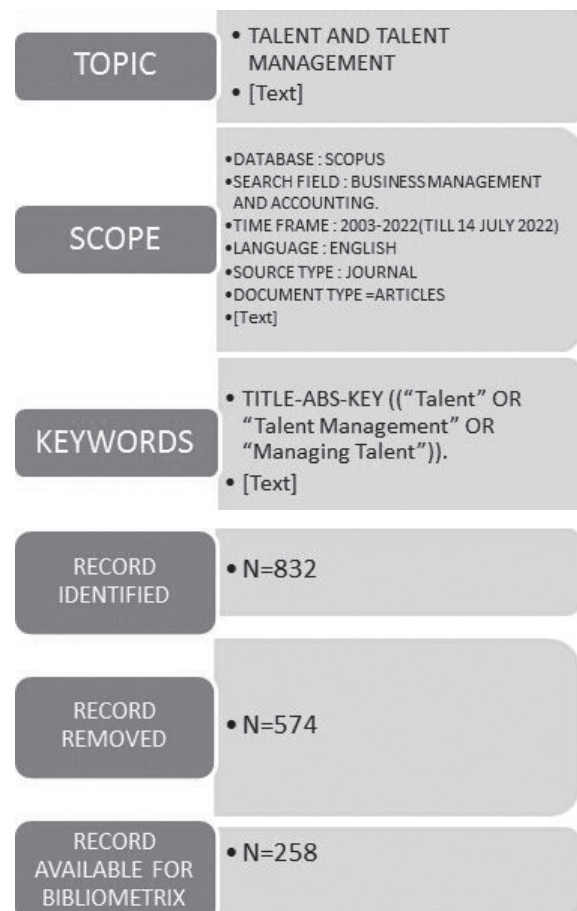


Figure 1

are made to the documents. Information that can be accessed freely is included. Materials not related to “Business, Management, and Accounting” were discarded. The next step was to select papers from specialised journals. This includes all documents that are in the final stages of completion. Then, a comma-separated (.csv) file containing 832 articles was downloaded from Scopus after further refinement. After that, you may further narrow down the document using criteria like title and abstract. Papers that have nothing to do with Talent Management are simply disregarded. The list has been cleaned up to get rid of duplicate documents. After these procedures, 258 documents were left for bibliometric analysis.

#### Step 4: Conducting the Analysis

Both primary and aggrandisement analyses were run for the current investigation, as noted by Donthu et al. (2021). The research uses Biblioshiny to find the top 30 keywords, and a treemap was created to display the results. To conclude, a three-field plot was made to show the correlation between countries, keywords, and journals in the field.

#### Step 5: Identifying the Present Themes and Future Research Directions

Donthu et al. (2021) suggest that business academics employ this approach to learn about new trends and topics in the field. Keyword analyses, leading researchers, and leading journals in the field will be then shown. The findings presented here are useful for future study.

### RESULT

Table 1 show that the average number of citations per article in 2003 was 84, and the average number of citations per year was 4.42. This area did not grow at all in 2004, 2005, 2006, or 2007. In 2008, the average number of citations for an article was 34.25, and the average number of citations per year was 2.45. But it's not likely that there will be a lot more articles in the next year. In 2010, there has been a rise in the number of articles. In 2010, there were six articles with 3.75 mean total citations per year. From 2010 to 2019, the average number of citations per article grew by a huge number. Between 2010 and 2021, there will be more articles written about talent management. In 2019, maximum number 51 articles published. Since 2022 has not yet

ended as of the date this data was received (July 14, 2022), the table will not show the average total citations for 2022.

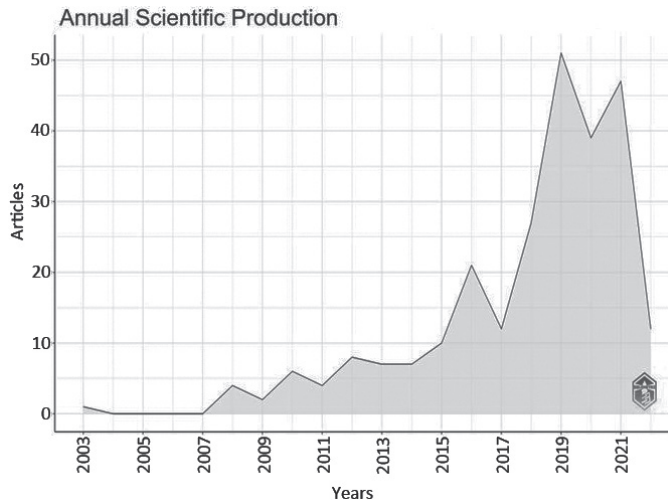
**Table 1:** Annual Total Citations Per Year (2003–2022)

<i>Year</i>	<i>N</i>	<i>MeanTCperArt</i>	<i>MeanTCperYear</i>	<i>CitableYears</i>
2003	1	84	4.42	19
2004	0	0	0	0
2005	0	0	0	0
2006	0	0	0	0
2007	0	0	0	0
2008	4	34.25	2.45	14
2009	2	393.5	30.27	13
2010	6	45	3.75	12
2011	4	74.75	6.8	11
2012	8	28.5	2.85	10
2013	7	116.71	12.97	9
2014	7	68.29	8.54	8
2015	10	33.5	4.79	7
2016	21	28.33	4.72	6
2017	12	10.75	2.15	5
2018	27	14.78	3.69	4
2019	51	10.92	3.64	3
2020	39	7.21	3.6	2
2021	47	3.57	3.57	1
2022	12	1		0

*Notes:* N = Number of Publications, MeanTCperArt = Average total citations per article, MeanTCperYear = Average total citations per year

However, McKinsey & Company introduced the term “talent” in 1997. As a result of McKinsey’s 1997 study, the 2001 publication of “War for Talent” piqued the interest of academics. 2003 to 2022 is the research time frame for this bibliometric study (source of data upto July 14, 2022). Since 2003, the average number of citations per document for research on talent management has increased to 21.61. The annual scientific production scale suggests that the number of articles produced in this field is increasing at a pace of 13.97 percent per year. There are 649 authors in the talent domain and 826 author keywords with 14,756 references. A document with a single author has 30 authors in total. This graph also displays the annual evolution of the number of articles published. Annual scientific paper production between 2003 and 2022 (as of 14 July 2022). Figure 2 depicts the highest number of 2019 publications, 51.



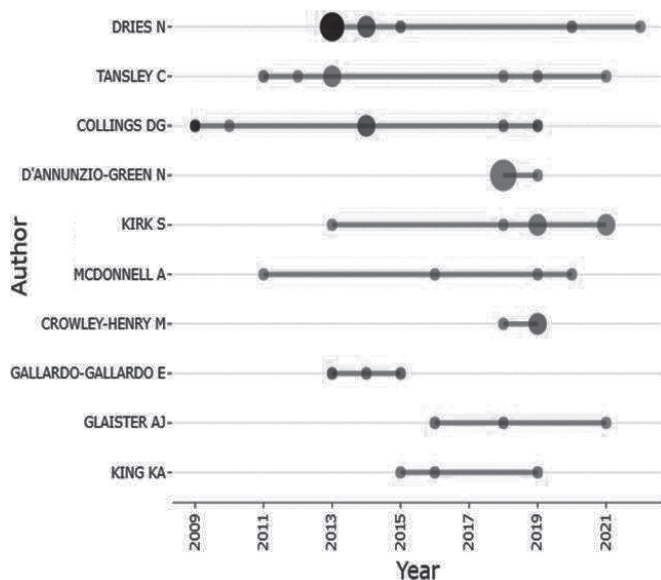


**Figure 2:** Annual Productions of 258 Articles during 2003–2022

Source: Biblioshiny using R studio

### Most Productive Authors

Dries N- has been the most productive author over the years. Dries N published four papers in 2013 and received 69.5 citations. In 2014, there were two articles published, with a total of 23.56 citations. In 2015, the total number of citations per year for one article was 17. In 2020, the total number of citations for one article will be 12.33. Total number of citations 1 with number of articles 1 in 2022 (data available until 14 July 2022 time frame) Tansley is the most productive author in this category, followed by Collings DG and D'Annunzio-green, and Kirk. As shown in Figure 3, top five productive authors are following Dries N, Tansley C, Collings DG, D'Annunzio-Green and kirk-S.



**Figure 3:** Most Productive Authors.

### Author Local Impact

Dries N is the most productive author in this category, with an 8 h-index and a total number of citations of 1081 of 9 papers published in 2013. Collings has received 1242 citations for six papers with an h-index of six since 2009. Tansley C is ranked third, with 315 total citations and 6 h-index, for a total of 7 papers published since 2011. D'annunzio is fourth, and Kirk is fifth.

**Table 2:** Author Local Impact

Element	<i>h_index</i>	<i>g_index</i>	<i>m_index</i>	<i>TC</i>	<i>NP</i>	<i>PY_start</i>
Dries N	8	9	0.8	1081	9	2013
Collings DG	6	6	0.429	1242	6	2009
Tansley C	6	7	0.5	315	7	2011
D'Annunzio-Green N	4	6	0.8	43	6	2018
Kirk S	4	5	0.4	67	5	2013
McDonnell A	4	4	0.333	78	4	2011
Crowley-Henry M	3	3	0.6	90	3	2018
Gallardo-Gallardo E	3	3	0.3	524	3	2013
Glaister AJ	3	3	0.429	127	3	2016
King KA	3	3	0.375	112	3	2015

### Most Cited Countries

According to biblioshiny, the United Kingdom was the most cited country in the world, with an average of 26.3 citations per piece of writing and 1,394 total citations. Ireland came in second place with 1,129 total citations and 141.13 citations on average for each individual item. It is essential to take note that the total number of citations has dropped from 1394 to 1129, with Belgium

**Table 2:** Most Cited Countries

S.No.	Country	<i>TC</i>	<i>Average Article Citations</i>
1	United Kingdom	1394	26.3
2	Ireland	1129	141.13
3	Belgium	656	109.33
4	Spain	458	76.33
5	USA	265	22.08
6	Australia	246	20.5
7	Sweden	172	34.4
8	Netherlands	116	19.33
9	Switzerland	84	84
10	Malaysia	61	6.78

coming in first place with a total of 656 citations, followed by Spain (458), the United States (265), and Australia (246). The only European nations that have a representative here are the United Kingdom of Great Britain and Northern Ireland, Belgium, Spain, Sweden, the Netherlands, and Switzerland. When it comes to talent management, the United Kingdom and Ireland come in #1 and second, respectively. Notable is the fact that Malaysia is the only country in Asia to have an average of 6.78 citations attached to each article, making it the continent's leader in this category. Table-3 most cited countries.

### Most Relevant Affiliations

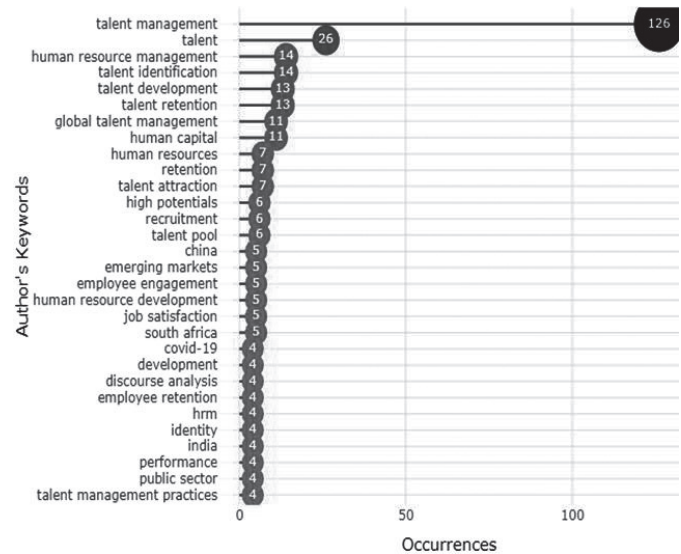
Table 4 contains a listing of the 10 organizations that have the most significant amount of influence in this field. The best universities ended up being the Nottingham Trent University in England; Edinburgh Napier University in Scotland; and the North-West University in South Africa. According to the findings of the study, both the talent and talent management fields are seeing rapid expansion. These are the leading institutions in the talent pool connected to research. Following these

**Table 4:** Most Relevant Affiliation

<i>Affiliation</i>	<i>Articles</i>
Nottingham Trent University	15
Edinburgh Napier University	13
North-West University	12
University of Johannesburg	10
Tshwane University of Technology	9
Islamic Azad University	7
Research Centre for Organization Studies	7
Vrije Universiteit Amsterdam	7
Birmingham City University	6
Tilburg University	6

### The Top 30 Most Searched Keyword Phrases (Author Keyword)

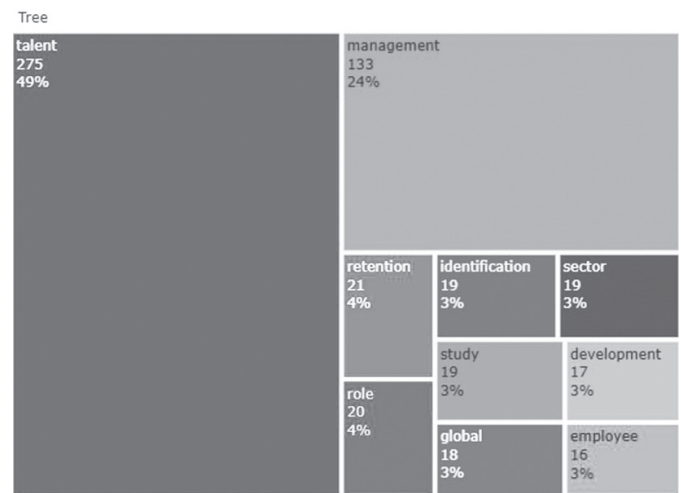
The most significant keywords are shown in this chart, as seen in Figure 3. There were 126 occurrences of the rank one keyword “Talent Management,” and there were 26 occurrences of the keyword “Talent.” Management of human resources includes 14 keywords: identifying talent containing 14, developing talent containing 13, and retaining talent containing 13. These are the five most searched-for keywords.



**Figure 3:** Top 30 – Author Keywords

### Tree Map (Top 10)

As can be seen from the figure, some of the most widely used keywords in the domain include “Talent,” “Management,” and “retention.” The tree map portrayed in Figure 4 shows that the term “Talent” has 49 percent occurrences, while the terms “Management” and “Retention” each have only 24 percent and 4 percent, respectively. According to what is depicted in figure 4 of the tree map.



**Figure 4:** Tree Map

### Three Field Plot

Figure 5 is a presentation of the three-field plot, which includes the countries, keywords, and journals. The Sankey diagrams, in which the larger boxes denote a greater number of occurrences, serve as the inspiration for the plot (Riehmann et al., 2005).

According to the findings, academics in India are more likely to use the keywords “Talent Management” and “Talent development”, whereas academics in the United Kingdom are more likely to use keywords such as “Talent,” “Talent Management,” and “Talent Identification”. Scholars from the United Kingdom, Malaysia, South Africa, Iran, and Belgium have cited “Talent Management” as the most influential keyword in their respective fields. Within the context of the international journal of human resource management, “Talent” and “Talent Management” are the journal-specific keywords. The most frequently used keywords in “South African Journal of Human Resource Management” are either “Talent Management” or “Talent” keywords. The “Talent Identification” and “Talent Keywords” articles in the international journal of recent technology and engineering are among the most important keywords. Figure 5 depicts three field plots that were taken.

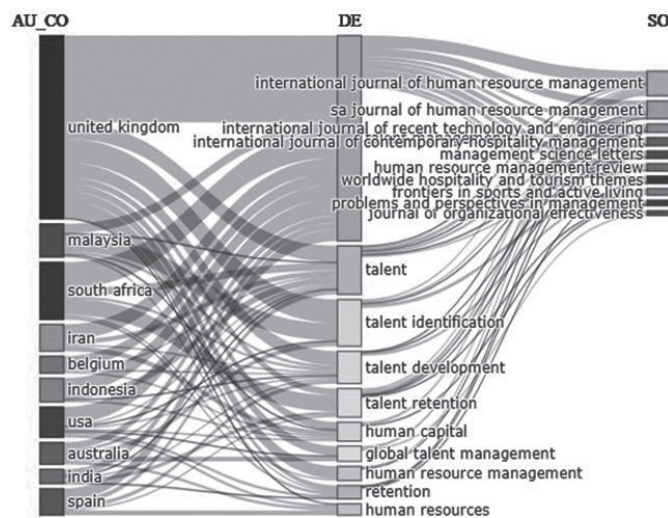


Figure 5: Three Field Plot

### Source Impact Analysis

Table 5 displays that the International Journal of Human Resource Management has received a total of 605 citations and has the highest h-index of 14. After that, a review of human resource management with the highest total citation (1577) and a factor of seven for the h index following that, the international journal of contemporary hospitality management, which had 168 citations and a 7-point index, came in third place in BRQ. Business research and questioning following the publication of the quarterly with a total of 97 citations and a 5 h-index, the employee relations journal achieved a total of 140 citations and a 4 h-index. According to the

source impact analysis, these papers rank among the top five.

Table 5

Element	<i>h</i> <sub>-</sub> index	<i>g</i> <sub>-</sub> index	<i>m</i> <sub>-</sub> index	TC	NP	PY <sub>-</sub> start
International Journal of Human Resource Management	14	20	1.273	605	20	2012
Human Resource Management Review	7	7	0.5	1577	7	2009
International Journal of Contemporary Hospitality Management	7	7	0.467	168	7	2008
BRQ Business Research Quarterly	5	5	1.25	97	5	2019
Employee Relations	4	5	0.571	140	5	2016
SA Journal of Human Resource Management	4	5	0.8	33	10	2018
Worldwide Hospitality and Tourism Themes	4	6	0.8	70	6	2018
Asia Pacific Journal of Human Resources	3	3	0.273	75	3	2012
European Journal of International Management	3	3	0.25	125	3	2011
European Management Review	3	3	0.75	53	3	2019

### Top 10 Most Relevant Source

This table lists the top ten sources that are most relevant to the discussion. The international journal of human resource management holds the top spot in this category, having published 20 articles in the “Talent Management” subject area. Next, the SA journal of human resource management, which had 17 articles, came in at number two. Following that, the international journal of recent technology and engineering, with ten articles, and Frontiers in sports and active living, with seven articles, were published. The Human Resource Management Review, in fifth place with seven different articles, In the field of talent management, these are the sources that are most relevant. As a consequence, the most pertinent sources are the international journal of contemporary hospitality, the journal of organizational effectiveness, management science letters, problems and perspectives in management, and worldwide hospitality and tourism themes. According to the data presented in Figure 6,





**Figure 6: Most Relevant Source**

## Word Cloud

The R-Software-4.1.0 was utilized in order to determine the key terms that were discovered during the course of a systematic information search from a variety of databases. In order to extract the most important information, we took note of the authors, the publication years, the title, the abstract, and the sources detail. The titles and abstracts of the 258 papers that were finally chosen are used to carry out a frequency of word analysis. This analysis is comprised of the words that were repeated the most and was presented by word cloud mart. Because of this, we are able to identify the word that appears most frequently in the summary by the size of the text. The larger the amount of text in the word cloud, the greater the frequency with which each word appears in the summary. There are 126 occurrences of

the keyword “Talent Management,” whereas “Human Resource Management” and “Talent Management” each have only 14 and 26 occurrences, respectively. After that, the phrases “talent identification”, “talent development”, and “talent retention” are the ones that come up the most. According to the findings, “Talent Management” and “Talent” are the most in-demand and emerging keywords in this research field. Figure 7 Word map of keywords are results from R Studio are the source. The keywords located in the middle that have a high occurrence frequency and the greatest impact. The research’s primary topics were denoted by the keywords that were displayed in the top right corner. These keywords, located in the lower right-hand corner, show the overarching themes. The themes that are either becoming more prominent or becoming less prominent are displayed on the lower left side. The themes in the upper left are extremely specialized or specific to a niche. The following are the results that were generated by biblioshiny and are displayed in Figure 7.



**Figure 7: Word Cloud Source, Authors Own Development**  
using R-4.1.0

**Table 6:** Evolution Over the Time of Research Articles Publications by Journals

<i>Year</i>	<i>International Journal of Human Resource Management</i>	<i>SA Journal of Human Resource Management</i>	<i>International Journal of Recent Technology and Engineering</i>	<i>Frontiers in Sports and Active Living</i>	<i>Human Resource Management Review</i>	<i>International Journal of Contemporary Hospitality Management</i>
2003	0	0	0	0	0	0
2004	0	0	0	0	0	0
2005	0	0	0	0	0	0
2006	0	0	0	0	0	0
2007	0	0	0	0	0	0
2008	0	0	0	0	0	1
2009	0	0	0	0	1	1
2010	0	0	0	0	1	1
2011	0	0	0	0	1	1



<i>Year</i>	<i>International Journal of Human Resource Management</i>	<i>SA Journal of Human Resource Management</i>	<i>International Journal of Recent Technology and Engineering</i>	<i>Frontiers in Sports and Active Living</i>	<i>Human Resource Management Review</i>	<i>International Journal of Contemporary Hospitality Management</i>
2012	1	0	0	0	1	1
2013	3	0	0	0	5	1
2014	3	0	0	0	5	1
2015	4	0	0	0	6	1
2016	8	0	0	0	6	1
2017	9	0	0	0	6	1
2018	11	4	0	0	6	1
2019	11	6	10	0	6	7
2020	17	10	10	0	6	7
2021	20	14	10	7	7	7
2022	20	17	10	7	7	7
Total	107	51	40	14	58	39

The research was carried out in R-studio 4.1.0 version to identify the leading journals that publish research articles related to the theme of Talent Management. During the journal analysis, it was discovered that the journal “International Journal of Human Resource Management” produced the greatest number of research articles (107), which has been consistently producing quality research articles in ascending order since 1994. There are 20 published articles between the years 2022 (within the time frame of 14 July 2022). The journal “Human Resource Management Review” is second in terms of maximum research paper production, with 58 articles. International journal of human resource

management with, Human resource management review, SA journal of human resource management, International journal of recent technology and engineering, and International journal of contemporary hospitality management are the top five leading journals in publication. These are the most productive journals in the talent management research domain.

### Most Cited Articles

Table 7 represents the 10 top most cited articles of authors such as Collings, Gallardo, Dries N, Tansley, Collings Nijs, ILES from different prestigious

**Table 7:** The Top 10 Most Cited Articles (2003–2022)

<i>S.No.</i>	<i>Author</i>	<i>Title</i>	<i>Citation</i>	<i>DOI</i>
1	Collings & Mellahi (2009), Human Resoure Manage Rev	Strategic talent management: A review and research agenda	781	10.1016/j.hrmr.2009.04.001
2	Gallardo-Gallardo E. (2013), Hum Resour Manage Rev	What is the meaning of ‘talent’ in the world of work?	262	10.1016/j.hrmr.2013.05.002
3	Dries (2013), Hum Resour Manage Rev	The psychology of talent management: A review and research agenda	257	10.1016/j.hrmr.2013.05.001
4	Tansley (2011), Ind Commer Train	What do we mean by the term “talent” in talent management?	158	10.1108/00197851111145853
5	Gallardo-Gallardo, J World Bus	Integrating global mobility and global talent management: Exploring the challenges and strategic opportunities	148	10.1016/j.jwb.2013.11.009
6	Gallardo-Gallardo E. (2015), Hum Resour Manage Rev	Towards an understanding of talent management as a phenomenon-driven field using bibliometric and content analysis	136	10.1016/j.hrmr.2015.04.003
7	Nijs S. (2014), J World Bus	A multidisciplinary review into the definition, operationalization, and measurement of talent	126	10.1016/j.jwb.2013.11.002

S.No.	Author	Title	Citation	DOI
8	Iles P. (2010), Hum Resour Dev Int	Talent management as a management fashion in HRD: towards a research agenda	116	10.1080/13678861003703666
9	Collings DG (2019), J Manage	Global Talent Management and Performance in Multinational Enterprises: A Multilevel Perspective	106	10.1177/0149206318757018
10	Gelens J. (2013), Hum Resour Manage Rev	The role of perceived organizational justice in shaping the outcomes of talent management: A research agenda	104	10.1016/j.hrmr.2013.05.005

TC – Total of citations in numbers, author, title and DOI

databases. Research articles published by these five authors are most cited in existing literature related to talent domain. Collings paper “Strategic talent management: A review and research agenda” is most cited paper. Top most cited paper maximum published in human resource management review journal. Second Gallardo-Gallardo articles with “What is meaning of talent in the world of work with total citation 262 in human resource management review journal. Following this Dries N, 2013 with 257 total citation in human resource management review research article named “The psychology of talent management: A review and research agenda” in third category.

## LIMITATIONS

The current study, like other studies, includes a few caveats or restrictions. Scopus was the only source for this database; no other source was used. Articles, and not any other kind of sources, were used for this research. Paper presented at a conference; books are not included. In addition, the “Business Management and Accounting” topic area was utilised for the subject area. Only the English language is accepted. research publications that were not written in English were excluded from this study.

## CONCLUSION

This study is a bibliometric examination of 19 years’ worth of research on the subject of talent from 2003 to 2022. The purpose of this investigation is to have a comprehensive understanding of this domain. This study examines various bibliometric indicators, including annual total citations, annual scientific production, the most productive authors, author local impact, the most cited countries, the most relevant affiliations, the top authors, the top 30 author keywords, a tree map, a three-field plot, source impact analysis, the top 10 most relevant sources, a word cloud, the most cited articles, and the evolution of research article publication by journals over

time. The United Kingdom, Ireland, Belgium, Spain, and the United States are the most frequently cited nations. Locally influential authors Dries N, Collings DG, Tansley C, D’annunzio-green N, and Kirk. The universities with the most relevance are Nottingham Trent University, Edinburgh Napier University, and North West University. Talent management, talent management, human resource management, talent identification, and talent development are the keywords most frequently used by authors. The most important sources are international journal of human resource management, human resource management review, international journal of contemporary hospitality management, and BRQ business research quarterly. Therefore, this study provides a summary of historical, current, and future talent. This field exhibits growth in this area. In terms of the R package employed, this investigation is more exhaustive and rigorous. This study benefits global readers.

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# Dynamic Analysis of Investments Behaviour by Individual and Institutional Investors in Indian Stock Market

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## ABSTRACT

*Investing is an activity of putting money in an instrument for the purpose of getting a good return on the investment and for the growth of the principle amount. There are a large number of investment instruments available to the investors like bank deposits, forex, mutual funds, derivatives, commodities, insurance, shares, govt. securities, corporate bonds, gold, real estate, etc. Investors invest their money in these instruments for getting good returns and the money invested in turn helps in the growth of the economy. The aim of the study was to find out the Awareness about investment instruments among investors. The objectives were to check the level of awareness for various investments, finding out what factors do the investors consider before investing their money and thus finding out their preferences, what are their pattern of the investment and are they aware of the various benefits of investing in Stock Market. The data collected from the study was analysed with the help of statistical tools using Eview's, several test was used for this purpose by the author. The primary findings of the study were that the level of awareness among the respondents for various investment instruments was high with an average of 92.05% of the people having a good knowledge of Gov Securities and only 62.4% have good knowledge of derivatives & so on for the various investment instruments. It was found that the level of knowledge increased with the increase in the income of the respondent.*

**Keywords:** Stock Market, Behavioural Finance, Demographic Factors, Awareness, Perceived Risk Attitude

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## INTRODUCTION

The present financial market is flooded with a lot investment instruments, viz., Shares, Bonds, Mutual funds, Insurance plans, Fixed Deposits, other money and capital market instruments and also various options of investment in Real Estate and Commodity Market etc.

Sometimes people refer to these options as “investment vehicles,” which is just another way of saying “a way to invest.” Each of these vehicles has its own positives and negatives and ultimate decision of investment is influenced by the individual investor’s perception regarding the risk and return of concerned investment opportunity available in the market. Further, the investment decisions is full of complexity because of volatility of market conditions, Inflation rate fluctuations, impact of Global environment, Cash reserve ratio, and Repo rates. Therefore, it is imperative to analyse these factors while taking an investment decision.

Keeping above in mind, the study has been done to see the perception of investors which provides understanding to

readers about the various factors which should be kept in mind at the time of investment. The study is useful to company in providing the understanding about the investors’ perception to devise the suitable product/marketing strategies, which would help in making their policies or strategies in order to attract them.

Further, financial planner gets advent to make portfolio according to response given by respondents, which belong to different occupations, having different income level, different age level or which instrument is mostly liked by the investors for investment. Indian stock market is one of the oldest stock markets in Asia with a glorious past that caters to the huge population of India and gives them investment opportunities. In 1875 Bombay Stock Exchange (BSE) was established by 22 brokers. From that time onwards the Indian Stock market has grown in leaps and bounds, and has become a forceful and competent stock market at the international level.

The depression after Independence led to closure of a lot of stock exchanges in the country. Lahore Stock Exchange was closed down after the partition of India,

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and later on merged with the Delhi Stock Exchange. Bangalore Stock Exchange Limited was registered in 1957 and got recognition in 1963. Most of the other Exchanges were in a miserable state till 1957 when they applied for recognition under Securities Contracts Act, 1956 (Stock market of 2009). But Government policies during 1980's played a vital role in the development of the Indian Stock Markets. And there was a sharp increase in number of Exchanges, listed companies as well as their capital. The present scenario is a good time to study what the investors are expecting from their investments and how aware they are about the different modes of investments that are available to them. The time is very good for marketing of various investment instruments as the investors want to put their idle money to some productive use. The respondents preferred to invest in shares among all the instruments present in stock market. They look at safety of principle amount invested while selecting an investment option. The respondents preferred to invest small amounts regularly as compared to a large amount at a single time. These research findings can be utilized by broking firms, investors and scholars for further analysis on secondary market trading and to understand this issue critically. The author also recommended some steps for increasing the awareness level of people specially the young professionals who are a very good potential market for investment companies. It was felt that increasing awareness is the first step in increased market penetration for the investment instruments. Data is presented with the help of self-explanatory charts & tables. Interpretations have been made together. And the most crucial, the Recommendation section bears author's personal comments. This report is a written account of what author learnt and experienced during project and author has tried to complete this report with as much perfection as possible to make it more meaningful and purposeful. The present financial market is flooded with a lot investment instruments, viz., Shares, Bonds, Mutual funds, Insurance plans, Fixed Deposits, other money and capital market instruments and also various options of investment in Real Estate and Commodity Market, etc.

Sometimes people refer to these options as "investment vehicles," which is just another way of saying "a way to invest." Each of these vehicles has its own positives and negatives and ultimate decision of investment is influenced by the individual investor's perception regarding the risk and return of concerned

investment opportunity available in the market. Further, the investment decisions is full of complexity because of volatility of market conditions, Inflation rate fluctuations, impact of Global environment, Cash reserve ratio, and Repo rates. Therefore, it is imperative to analyse these factors while taking an investment decision.

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The present scenario is a good time to study what the investors are expecting from their investments and how aware they are about the different modes of investments that are available to them. The time is very good for marketing of various investment instruments as the investors want to put their idle money to some productive use.

## **REVIEW OF LITERATURE**

A literature review is an overview of the previously published works on a specific topic. The term can refer to a full scholarly paper or a section of a scholarly work such as a book, or an article. Either way, a literature review is supposed to provide the researcher/author and the audiences with a general image of the existing knowledge on the topic under question. Any research builds on the research carried out previously on the given subject. The purpose of the literature review is to review what has previously been done on the subject and analyse it in the present context so that an effective understanding can be established. Before conducting this project, some work which has been done previously on the subject of the awareness, preference & pattern of investment were consulted. This helped the author greatly in building up a framework for his project. A review of the works is presented below. Geethal & Rameshwar (2011) - They conducted the study with the objective to analyze the

investment choice of people in Kurumbalur. Analysis of the study was undertaken with the help of survey conducted. After analysis and interpretation of data it was concluded that in Kurumbalur respondents were medium aware about various investment choices but they did not know about stock market, equity, bonds and debentures. The study was conducted by taking a limited number of samples. This study reflects the perceptions of those respondents who are residing in Kurumbalur. There might be a chance that the perceptions of the respondents of different area may vary due to diversity in social life, living pattern, income level etc. All the age groups studied given more importance to investment in Insurance, NSC, PPF and bank deposits. Income level of a respondent is an impotent factor which affects portfolio of the respondent. Middle aged group, Lower income level groups respondents preferred to invest in Insurance, NSC, PPF and bank deposit rather than any other investment avenues. In Kurumbalur respondents were more aware about various investment avenues like Insurance, PPF, bank deposits, small savings like post office savings, etc. For that awareness program has to be conducted by Stock Brokering firms because most of the respondents are unaware about this new service and about stock market.

Jain (2012): In his research he points out that investment markets are becoming more risky and each and every passing day makes investors behave differently upon different market dynamics. The basic methods of market analysis (Fundamental, Technical and Quantitative) though are playing an important role in investment decisions, the behavior of the investors has become more important and hence the study "Behavioral Finance" emerging and becoming the topic of various researches and studies. In extension to the same, this study reviews the literature on one of the most meaningful concepts in behavioral finance, the decision factors which are influenced by market movements and examines the perceptions, preferences and various investment strategies adopted by investors in the Indian stock market on the basis of a survey of 110 respondents based in Udaipur and are investors in the stock market during September 2011–January 2012. The study analyses the rationality of the investors of Udaipur during different market expectations, dividend and bonus announcements, and the impact of age, income levels and other market related information on investment decisions of investors from Udaipur. The research brings out certain characteristics of investors living in

Udaipur. The ability to understand the judgment criteria like rationality and irrationality in investment pattern and behavior which enables the investor to be cautious as its consequences affect the lifestyle, asset value and relationship with others. The present study has shown that investors prefer investing in both primary and secondary market instruments. Most of the decision are rational and influenced by the various information available in market. It was also found that investors prefer the wait and watch policy for taking their decision, and are very cautious and their decisions are influenced by various psychological factors and behavioural dimensions. Agrawal (2018) noted that there is significant difference between male and female investors in the expected rate of return. Sivakumar and others (2019) explained that awareness about investment avenues is very low among rural people compared to urban people. The research scholars suggested that educational status should be improved in the rural sector. Investors invest their funds on the basis of rate of return. Most of the investors studied by him had preferred to invest in pension policies in hope of getting tax benefits. Tabassum and Sultana (2019) concluded in their empirical study that Indian individual investors are conservative investors. Marital status, earnings, occupation and number of dependents are significant factors associated with risk tolerance. Shaa and Surendram (2020) found that Mutual fund and gold were the first preference of the investors followed by bank deposits, life insurance, Bonds, derivative market and real estate were popular investment avenues for majority of the investors. Chakrabarti (2001) came with the evidence that the FII flows were highly correlated with equity returns in India and also found that the FII flows are the effect rather than the cause of these returns and hence it contradicted the view that FIIs determine the market return in general. Kumar (2001) studied the co-integration between FII and BSE Sensex and found long-term relationship between the two and observed causation running from FII inflows to returns in BSE and found a positive relation between FIIs and stock market return (BSE). Trivedi and Nair (2003) have found in their investigation that the equity return shows a significant and positive impact on the FII. But given the huge volume of investments, there is a possibility of bidirectional relationship between FII and the equity return. Badhani (2005) applied Granger Causality test on the monthly data from April 1993 to March 2004 and observed (i) bidirectional long-term causality between FII investment flows and stock prices, but no short-term

causality could be traced between the variables; (ii) no long- term relationship between exchange rate and stock prices, but short-term causality runs from change in exchange rate to stock returns; and (iii) exchange rate long-term Granger causes FIIinvestment flow, not vice versa.

## RESEARCH OBJECTIVES

- To study awareness of various financial products like Equity, Commodity, Currency, Mutual Funds, Derivatives, etc., among investors.
- To Study the preference of investors towards various investment instruments available in Indian stock market – A behavioural analysis.
- To study the lead and lag relation between FPI and BSE (Secondary data)

## RESEARCH METHODOLOGY

Research methodology is a way to systematically represent a research on any problem. It may be understood as a science of analysing the details of how research is done scientifically. The methodology may differ from problem to problem, yet the basic approach towards the research remains the same. It is undertaken by the researchers in studying the research problem along with the logic that works behind them. It tends to define the methodology for the solution of the problem that has been undertaken for the purpose of the study. This part focuses on the techniques that were used for the collection, classification and tabulation of data. The latter part explains the manner in which the data was analysed; so as to reach to conclusive results.

To Investigate the Lead lag relationships between selected FPI in equity, FPI in debt and BSE index, the author employed following methods:

### Unit Root Test

Augmented Dickey-Fuller tests was employed to verify the stationarity of the data series. Further, the necessary lag length of the data series was selected.

### Granger Causality Test

Under the Granger causality test, we test whether a scalar ‘t f’ can help forecast another scalar ‘t s’. If it cannot, then we say ‘t f’ does not Granger-cause ‘t s’. In particular, if ‘t s’ and ‘t f’ are cointegrated there must

be a Granger causal link between them. According to Granger (1986), if two variables are cointegrated, then causality must exist in at least one direction (or both directions).

Consider the models:

$$s_t = a_0 + \sum_{i=1}^n a_i s_{t-i} + \sum_{i=1}^n b_i f_{t-i} + u_{s,t}$$

$$f_t = b_0 + \sum_{i=1}^n a_i f_{t-i} + \sum_{i=1}^N b_i s_{t-i} + u_{f,t}$$

Bi-directional causality exists if the coefficients i & b from both equations are jointly significantly different from zero.

## DATA COLLECTION

### Instruments Used

The primary data was collected from 100 respondents by preparing a Questionnaire & it was done by administering a survey. The questionnaire used was an online google form (due to time constrain), Well-structured formalized schedule to obtain and record specified and relevant information with fair accuracy and completeness. The questionnaire consisted mainly of close ended questions (dichotomous & multiple choices). The questionnaire was designed insuch a way that it could be understood and answered easily by the respondents. The questionnaire included questions based on the investment pattern, general awareness of investment instruments, criteria for investment & factors affecting choice of investmentinstruments. The Secondary data was taken from BSE website and Money Control, to study the lead and lag relation between FPI in equity/debt and BSE. During the research data of FPI in equity, FPIin debt and BSE Index was taken for the 5 years, i.e. 1 Jan 2015 to 1 Dec 2020.

The sample comprised of 100 respondents in an age-group of 20 to 75. The sample was selectedon non-probability basis using convenient and location sampling. A representative sample consisting of students, working professionals, businessmen and housewives was used. All people residing in Delhi-NCR between 20 & 75 years of age were considered the population.

## DATA ANALYSIS

The Information from Primary data and Secondary data was verified for accuracy, adequacy and pertinence to

the objectives of this study. The data so obtained was coded and tabulated and recorded for analysis. This was done using EViews that is a statistical package for Windows, used mainly for time-series oriented econometric analysis.

Analysis of the entire data collected from questionnaire was done by applying various statistical techniques such as Tabulation, Graphs, Pie Charts, etc., in Microsoft Excel and google forms in a systematic manner.

## DATA ANALYSIS AND INTERPRETATION

Macroeconomic factors play a vital role in attracting foreign investment in the country. This study investigates the relationship foreign portfolio investment volatility in Indian Stock market.

### Null Hypothesis

The null hypothesis is a typical statistical theory which suggests that no statistical relationship and significance exists in a set of given single observed variable or between two sets of observed data and measured phenomena.

### P-Value

The *p*-value is a number, calculated from a statistical test, that describes how likely you are to have found a particular set of observations if the null hypothesis were true.

*P*-values are used in hypothesis testing to help decide whether to reject the null hypothesis

### Data Description

The following were the details of the Data of the selected index for the paper as discussed in table.

**Table 2:** Data Description

Variables	Starting Date	Ending Date
BSE Return	1 Jan 2015	1 Dec 2020
FPI in Equity	1 Jan 2015	1 Dec 2020
FPI in Debt	1 Jan 2015	1 Dec 2020

## EMPERICAL RESULTS AND DISCUSSION

As a Primary Investigation, Unit root test were conducted on the series of data for testing the stationarity of the selected variables and the results are shown in table.

### BSE Returns

**Table 3:** Unit Root Test on BSE Returns

Null Hypothesis: BSE_Return has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic – based on SIC, maxlag = 11)		
	<i>t</i> -Statistic	<i>Prob.</i> *
Augmented Dickey-Fuller test statistic	-8.551165	0.0000
Test critical values:	1% level	-3.527045
	5% level	-2.903566
	10% level	-2.589227

Source: Authors own calculation

The above table reveals that BSE Returns are stationery. As we can see that in the above table *p*-value is less than 0.05, it implies that data is stationary and hence null hypothesis is rejected.

### FPI in Equity

**Table 4:** Unit Root Test on FPI in Equity

Null Hypothesis: FPI_in_Equity has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic – based on SIC, maxlag = 11)		
	<i>t</i> -Statistic	<i>Prob.</i> *
Augmented Dickey-Fuller test statistic	-5.025281	0.0001
Test critical values:	1% level	-3.525618
	5% level	-2.902953
	10% level	-2.588902

Source: Authors own calculation

The above table reveals that FPI in EQUITY are stationery, As we can see that in the above table *p*-value is less than 0.05, it implies that data is stationary and hence null hypothesis is rejected

### FPI in Debt

**Table 5:** Unit Root Test on FPI in Debt

Null Hypothesis: FPI_in_Debt has a unit root		
Exogenous: Constant		
Lag Length: 1 (Automatic - based on SIC, maxlag=11)		
	<i>t</i> -Statistic	<i>Prob.</i> *
Augmented Dickey-Fuller test statistic	-3.555126	0.0092
Test critical values:	1% level	-3.527045
	5% level	-2.903566
	10% level	-2.589227

Source: Authors own calculation

The above table reveals that FPI in DEBT are stationery, As we can see that in the above table *p*-value is less than 0.05, it implies that data is stationary and hence null hypothesis is rejected



Granger Causality Test was performed to test the Bi Directional Causality of the series of the data and the results were summarized in Table below

### Granger Causality Test

**Table 6:** Granger Causality Test

Pairwise Granger Causality Tests			
Date: 11/01/21 Time: 02:14			
Sample: 1/01/2015 1/12/2020			
Lags: 2			
<i>Null Hypothesis</i>	<i>Obs</i>	<i>F-Statistic</i>	<i>Prob.</i>
FPI_IN_EQUITY does not Granger Cause FPI_IN_DEBT	70	1.53778	0.2226
FPI_IN_DEBT does not Granger Cause FPI_IN_EQUITY		0.59799	0.5529
BSE_RETURN does not Granger Cause FPI_IN_DEBT	69	1.08150	0.3452
FPI_IN_DEBT does not Granger Cause BSE_RET		3.97262	0.0236
BSE_RETURN does not Granger Cause FPI_IN_EQUITY	69	1.30051	0.2795
FPI_IN_EQUITY does not Granger Cause BSE_RET		0.11611	0.8906

Source: Authors own calculation

The author used the Granger test to find out the nature of causality between FPI in EQUITY and FPI in DEBT and visa-versa. The results were as follows: From Equity to Debt p-value is 0.22 and from Debt to Equity the value is 0.55.

The null hypothesis in each case is that the variable under consideration does not “Granger-cause” the other variable and as the Prob value (p-value) is more than (0.05) 5 percent level of confidence. BSE Returns and FPI in Debt and visa versa, The result were as follows: BSE Return to FPI in Debt p-value is 0.34 and from Debt to BSE Return is 0.02.

The null hypothesis in first case does not cause Granger Causality and is accepted as the p-value is more than 0.05 but in the second case the hypothesis is rejected as the p-value is less than (0.05) 5 percent level of confidence, This means that FPI in debt causes affect in BSE return. BSE Returns and FPI IN Equity and visa versa, The results were as follows: From BSE Return to Equity p-value is 0.27 and from Equity to BSE Return the value is 0.89 so null hypothesis in each case is that the variable under consideration does not “Granger-cause” the other variable and as the Prob value (p-value) is more than (0.05) 5 percent level of confidence.

### For Primary Data

The study reveals many facts that can either be used as opportunities in exploring and expanding the business as well as can be used as safeguards against threat. To prepare an effective marketing strategy, a company must study its competitors as well as its actual and potential customers. A company should maintain good relation with distributor and retailers. A company’s closest competitors are seeking to satisfy the same customers and needs and making similar offers. As important as a competitive orientation is in companies should manage a good balance of consumer, Dealer and competitor monitoring.

The information will prove beneficial in taking proactive action or combating competition. The standing of the company and its competitors in the minds of the customers is a vital factor in deciding the success of business. The study aims at finding out the pattern of investment & preferences in choice of investment instruments in terms of certain parameters, as adjudged by consumers. This information is a good guide to management as it brings out the areas where the company needs to improve.

Thus the study is basically aimed at providing the management desired vital information about the customer’s need & problems.

### The Major Findings

The study reveals that male investors dominate the investment market in India. Most of the investors possess higher education like post-graduation and above. Majority of the active and regular investors belong to professional, sales & managerial related employment, non-financial management and some other occupations are very few. Most investors opt for two or more sources of information to make investment decisions. Most of the investors discuss with their family and friends before making an investment decision. Percentage income that they invest depend on their annual income, more the income more percent of income they invest. The investment habit was noted in a majority of people who participated in the study. Most investors prefer to park their fund in avenues like life insurance, mutual funds, fixed deposit, & real estate. Most of the investors get their information related to investment through electronic media and Internet. Most of the investors are financial literates.

## For Secondary Data

After analysing the secondary data major finds are mentioned below:

- FPI in Equity does not Granger Cause FPI in Debt and visa versa
- BSE Returns does not Granger Cause FPI in Debt but, FPI in Debt Cause Granger in BSE Returns, that means FPI in Debt causes movement in BSE Returns. BSE Returns does not Granger Cause FPI in Equity and visa versa.

## CONCLUSION

In conclusion it can be stated that there is a need for the spread of awareness among the people for various investment products. When people are aware of these products then only they will invest their money. The money that is invested will ultimately go towards nation building and the development of the country.

The awareness about Equities and the secondary market operations as a long-term capital investment needs to be enhanced. This may include creating awareness amongst people about risks factors involved with investment in primary and secondary market and the allied instruments.

A few sectors have been found to be preferred over the others. New investor may be bogged down with dreams of lucrative returns and then suffer losses because of this. Proper awareness about risk mitigation instruments, hence, becomes a very important factor.

Diversification is one of the key elements. As the income level of people increases the awareness of investment instrument increases. Same is the case with education level. People prefer to invest small amounts at regular interval (say quarterly) than investing big amount at one time. Investors generally invest 10 to 15 percent of their income in stock market which provides a huge potential for broking firms to tap the market. Most of the people prefer to trade online & they trade on delivery which provides potential for earning interests by broking firms. People tend to trade when the market is bullish so it is a big challenge to make people trade during bearish market condition. The article examines the causal relationship between FPI and the sentiments of the Indian stock market by using analytical tools such as Granger's causality test. The results suggest that flow of FPI in Debt impacts the BSE returns as there is some

upward or downwards movement, returns of BSE also starts fluctuation the study also tells us that Foreign portfolio investments have more part of debt funds when compared to there investment in equity. The input of this study will also be of interest to investors and portfolio managers to understand the linkages of FPI and investment and stock market volatility to further make effective volatility strategies for their investment returns

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# Empirical Analysis of Blockchain Based Security for the Internet of Things Using Structural Equation Model Approach

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## ABSTRACT

*The Internet of Things is a phenomenon that has enabled corporations, individuals, and others to revolutionize the interconnection of corporate operations and other elements. The emergence of the Blockchain paradigm enables the effective enhancement of future IoT-based technologies. The deployment of Blockchain typically includes more robust safeguards against data leakage, information manipulation, locking the relevant access, and facilitating the swifter transfer of data via a secure network and connection. The rise of smart homes, government assistance with pollution control, energy savings, smarter transportation, and the formation of smart industries all contribute to the improvement of the environment and the achievement of sustainable growth and development. Consequently, numerous academics have asserted that the implementation of Blockchain-based security aids in advancing IoT-based future technologies. This research focuses on gaining an understanding of the opportunities presented by the Internet of Things (IoT) and addressing the key security concerns posed by IoT, as well as contributing to the development of future technologies that will enhance the flow of information, analyze the data, and assist the key stakeholders in making informed decisions. We employ both primary and secondary data for this work. We collect data from respondents using the survey method, analyze the data using AMOS statistical software, and give useful interpretations based on the analysis.*

**Keywords:** Blockchain Technology, Internet of Things, Correlation Analysis and Structural Equation Model

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## INTRODUCTION

The application of the Internet of Things (IoT) has been a critical element that enhances communication between different devices, sensors, and other aspects, which supports growth and development. It has been regarded that IoT applies various smart devices and internet services to assist in offering better and innovative solutions to address various requirements of individuals, governmental organizations, businesses, and other industries across the globe [1]. It has been regarded that IoT is more progressively key aspect in daily life, and it can be sensed in various parts of human life. In general parlance, it is noted that IoT-based applications provide revolutionary changes in enhancing the overall quality of human life. They also create many challenges concerning basic system configuration, data storage, management, privacy, and access control. These challenges can be considered as an opportunity to address real-world problems and to enhance overall sustainability [2].

Blockchain is a highly transparent access technology that offers the users and stakeholders end-to-end decentralization on security-related aspects and reduces the overall risk of human errors [3]. It offers better protection against cyber-attacks and can be of more importance in gaining access control systems. The model was introduced in the last decade with the major objective of creating cryptocurrency, allowing the information to be recorded, updated, and stored critically. The major aspect of Blockchain is stated as the decentralized model which maintains the integrity of information through the usage of related consensus mechanisms. The implementation of third-party access monitoring is not required, and trust is created through the public ledger and ensures the transaction's distribution in a creative environment.

Furthermore, with the application of Blockchain based security for the IoT in enhancing future technology, researchers have been actively focusing on enhancing the overall nature and usability of IoT for various functions

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to offer new direction and development to the normal life of individuals [4]. These devices are now being offered at very cost-effective in sustainable development. The application of Blockchain-based security in the IoT domain has enabled the creation of more advancements that make life easier for individuals and businesses. Implementing intelligent sensors, protection of various technological devices, and security-related aspects are better controlled and monitored by Blockchain technology. Many researchers have stated that the integration and application of Blockchain through IoT devices have supported rendering a consistent ledger shared across the distributed network and effectively supporting the verification of each transaction [5]. This possesses major advantages in managing the overall access control mechanisms. The major implications of Blockchain-based security measures in the field of IoT are considered effective resource management, supporting in applying better permission enforcement, scalability, proper access, and rights transfer and attribution management [6].

Moreover, the application of Blockchain support enhances the speed and accuracy of the flow of data and information, enabling a trust chain for better data management. Permission enforcement is regarded as tailored-made services configured based on the needs and requirements of the end users. This is considered a key aspect in offering and managing an access control system with more flexibility. Also, it is noted that the researchers have made a critical convergence of new and innovative Blockchain technologies to enhance the sustainable access control mechanism in IoT devices. Different tools like machine learning and deep learning approaches support improving the overall access control by understanding the different patterns and support in optimizing the network patterns effectively [7]. Integrating Blockchain in IoT devices provides many opportunities covering network operations' scalability, supporting better security measures, and interoperability.

The paper focuses on critically investigating Blockchain-based security for the internet of things in enhancing future technology. The major factors considered in the paper are better resource management, access rights transfer, and scalability.

## REVIEW OF LITERATURE

The transfer of access control is significant since it enables defined access rights from one device to another.

For instance, a qualified car mechanic can perform maintenance per the vehicle's owner's guidelines. Typically known as the transfer of access permissions from one entity to another. In an assignment, the entity that grants access rights is referred to as an agent, and the entity that receives access rights is referred to as a proxy. In large-scale systems with high mobility, such as IoT, outsourcing plays a critical role in providing flexible, accurate, and flexible access to resources, allowing users to control access distribution [8]. Nonetheless, it is challenging for an IoT system to define a comprehensive set of trusted access control policies centrally and in advance.

Regarding IoT access control, numerous smart devices offer various services to users and other system components. IoT systems must ensure efficient storage/computer resource management, allocation, and sharing. Moreover, customers desire efficient access to these resources and rapid, accurate access to the services they require in a secure, dispersed environment [9]. Rapid progress and growing demand in IoT device usage might cause assets to underperform if the corresponding increase in demands for resource utilization is not met. In order to meet the increasing resource utilization demands, it is crucial to develop an IoT-device-based framework for efficient resource management. A Blockchain could be an alternative to standard central access control systems to provide a more flexible and adaptive framework for resource management in IoT access control [10]. Blockchain eliminates control from a central node, gives greater resource management flexibility for various scenarios, such as supply chain, transportation, and energy, and comprises multiple IoT devices. Blockchain technology uses smart contracts to ensure the irreversible and hermetic qualities of the data in these instances [11].

The main objective of the proposed architecture is to offer safe communication and dependable policy application amongst next-generation IoT devices supported by, for instance, Blockchain-based features. Controllability, scalability, and visibility. The hierarchical structure of the private Blockchain provides finer-grained permission at various access levels (such as the user and Blockchain levels) [12]. At the level of the user, cryptographic functions are utilized. Light authorization procedures are used at the Blockchain level based on IoT access control requirements. The proposed architecture is capable of supporting a large number of IoT devices



and provides a decentralized access control function that connects a large number of IoT devices.

## METHODOLOGY

We hope to use a quantitative research strategy to understand how Blockchain might facilitate security and related measures via the Internet of Things devices to improve future technologies [13]. We employ a closed-ended questionnaire to collect primary data from our respondents. Using a convenience sampling technique, we decided on a sample size of 181. Secondary data is utilized to comprehend the prior research performed in the same field. A critical analysis and a path analysis are performed with the help of AMOS software [14] for this investigation.

Our research questions for this study are as follows:

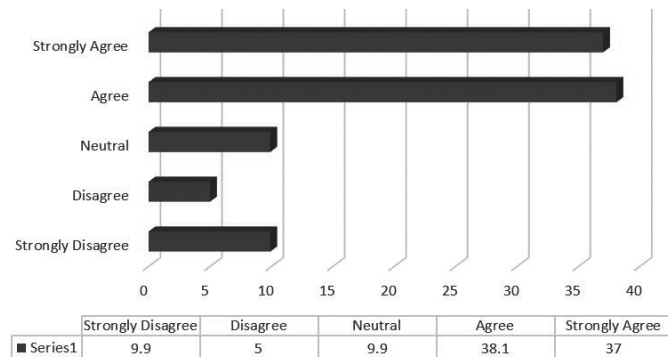
1. Does the application of Blockchain technology support better resource management, thereby enhancing the security of IoT devices?
2. Is the Blockchain technology focused on managing access rights effectively in supporting the security of IoT devices
3. Will Blockchain offers better scalability and adaptability for IoT devices in the future?

## EMPIRICAL RESULTS AND ANALYSIS

The data collected from the respondents are analysed critically in this section.

**Table 1:** Blockchain is Cost Effective

<i>Blockchain is Cost Effective</i>	<i>Frequency</i>	<i>Percent</i>
Strongly Disagree	18	9.9
Disagree	9	5
Neutral	18	9.9
Agree	69	38.1
Strongly Agree	67	37
Total	181	100



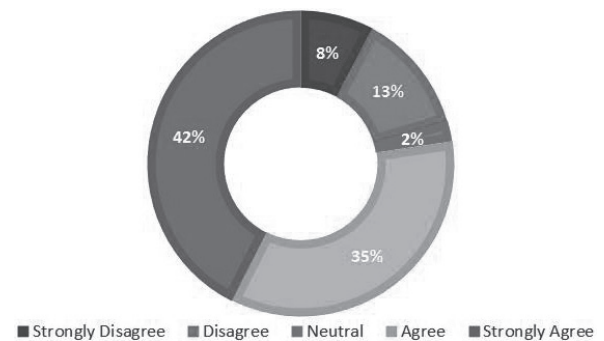
**Figure 1:** Blockchain is Cost Effective

Figure 1 shows that 37% of respondents strongly agree that using Blockchain to improve the security of IoT devices is cost-effective, while 38.1% agree with the statement. This suggests that many respondents believe using Blockchain to improve the security of IoT devices is highly effective and helps to reduce operational costs.

**Table 2:** Support in Permission Enforcement

<i>Support in Permission Enforcement</i>	<i>Frequency</i>	<i>Percent</i>
Strongly Disagree	14	7.7
Disagree	23	12.7
Neutral	4	2.2
Agree	63	34.8
Strongly Agree	77	42.5
Total	181	100

The subsequent research determines how Blockchain reinforces the enforcement of permissions; this feature is crucial as it enables the consideration of policy management flexibility for the movement of data and information via IoT devices. Nearly 42.5% of respondents strongly agree that Blockchain facilitates the expansion of permissions, and 34.8% agree with this statement.



**Figure 2:** Support in Permission Enforcement

## Correlation Analysis

This section describes in detail the correlation coefficient between the variables, which aids in analysing the nature of the relationship between the independent and dependent elements.

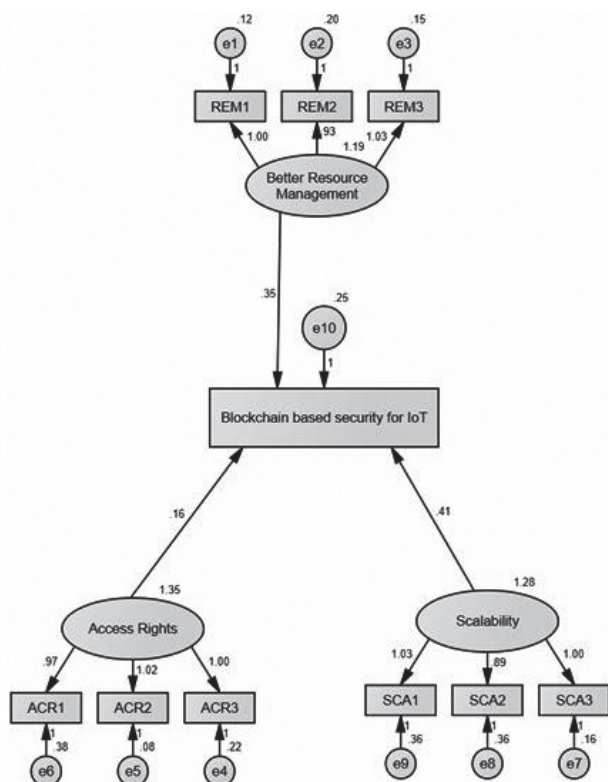
According to Table 3, the coefficient of correlation between the independent and dependent factors is greater than +0.8000, indicating a stronger positive link between the factors. The strongest correlation coefficient is seen between enhancing Access Rights and using Blockchain for IoT, which is +0.870, followed by Better Resource management with roughly +0.862 and Scalability with +0.825. Thus, each element substantially affects the application of Blockchain in IoT environments.

**Table 3:** Correlation Analysis

Dimensions	Better Resource Management	Access Rights	Scalability	Blockchain Based Security for IoT
Better Resource management	1	0.889	0.826	0.862
Access Rights	0.889	1	0.859	0.87
Scalability	0.826	0.859	1	0.825
Blockchain based security for IoT	0.862	0.87	0.825	1

### Structural Equation Model

Structural equation modelling (SEM) is a crucial model that evaluates the linear causal relationships between variables and analyses the correlations between observable and latent variables.

**Figure 3:** Path Analysis of SEM Model

The above path analysis shows that the independent variables positively affect the dependent variable.

Table 4 reveals that the P-values for all variables are less than 0.05. Therefore, the alternative hypothesis is considered. In addition, significant coefficients such as

**Table 4:** SEM Analysis and Output

Dependent Variable	Independent Variable	Estimates	Std. Err.	P Coeff.
Blockchain	Better Resource management	3.94	2.66	0.001
Blockchain	Access Rights	3.25	2.17	0
Blockchain	Scalability	0.58	2.22	0
Model Fit	GFI	RFI	CFI	PCFI
Default	0.817	0.881	0.93	0.62

the Goodness of Fit Index (GFI) are 0.817, the Relative Fit Index (RFI) is 0.881, the Comparative Fit Index (CFI) is 0.930, and PCFI is 0.62, indicating that the model is the best fit.

The Internet of Things application is a new phenomenon that has assisted organizations, individuals, and others in modifying how businesses and other aspects interact. Future IoT-based technology will be efficiently upgraded due to the introduction of Blockchain technology. In general, the Blockchain application offers enhanced protection against data leaking, information spoofing, access blocking, speedier network data transfer, and a secure connection. Introducing smart homes, aiding governments in regulating pollution, conserving energy, generating smarter transportation, and creating smart industries will result in a cleaner environment and sustainable economic growth [15]. It is predicted that IoT will adopt various intelligent Internet tools and services to deliver better and more innovative solutions to fulfill the diversified demands of individuals, governments, businesses, and other industries worldwide. IoT is increasingly seen as a vital feature of daily living and can be found in several aspects of human existence. IoT-based applications frequently result in significant improvements to the quality of human existence, but they also present several setup issues. Aspects of fundamental systems data storage, administration, data protection, and access control [16]. These challenges are an opportunity to address genuine concerns and enhance global sustainability.

Consequently, several academics asserted that the Blockchain-based security support application aims to enhance future technology via IoT. This research focuses on gaining a better understanding of the possibilities, addressing significant security concerns posed by the Internet of Things, and fostering the development of better future technologies that will enhance the flow of information, analyze data, and assist key stakeholders in making informed decisions. In the previous decade,

Blockchain was introduced to build a cryptocurrency that permits information capture, update, and secure storage. Blockchain's decentralized paradigm that maintains the information's integrity through suitable contribution mechanisms is a crucial feature. There is no requirement for a third-party access monitoring application, and the public directory establishes confidence and ensures transaction dissemination in a creative context.

## CONCLUSION

Blockchain-based IoT security has resulted in more advancements that make life easier for individuals and businesses. By utilizing Blockchain technology, the usage of smart sensors, the protection of various technical devices, and security elements are better managed and monitored. Numerous studies discovered that integrating and implementing Blockchain through IoT devices made it feasible to construct a consistent network that will be shared in the distributed network and support efficient transaction control. This has major benefits for all access control mechanisms. The primary implications of Blockchain-based security measures for the IoT business include efficient resource management that enables improved licensing, scalability, precise access and broadcasting rights, and distribution management. In addition, the Blockchain support application improves data speed and accuracy, as well as information flow, to establish a chain of trust for enhanced data management. License maintenance is a unique service designed to meet price requirements and criteria.

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## Book Review

Tabassum Ahmed\*

**Title : The 7 Habits of Highly Effective People**

**Author : Stephen R. Covey**

**Publisher : Mango**

**Edition : The Infographics Edition**

**ISBN : 9781642509403**

Stephen R. Covey is one of the most renowned non-fiction author in the world, who became a torchbearer for the masses yearning to attain leadership skills and personality traits, both inside and outside the business world. He inspired many eminent personalities by his success mantra and was often called a management guru by the business community. He was the master of many talents, which made him stand out in every field that he ventured in. He was not only an eminent speaker, but also an established businessman and an educator with exceptional capabilities.

Stephen R. Covey has to his writing credits, one of the most impactful and bestselling books of the past century, by the title of The Seven Habits of Highly Effective People. He started his early journey as an author by writing books on spirituality. His book Spiritual Roots of Human Relations laid the foundation for further work around the idea of integration of human relations with spirituality. His book The 8th Habit, a sequel to his book The 7 Habits of Highly Effective People, gave a new perspective to world about dealing with the complexity and challenges faced by the leaders in the dynamic social environment. Leader in Me is yet another phenomenal literary work by Stephen R. Covey which inspired many leaders to tackle the adversities faced by the younger generation.

‘The 7 Habits of Highly Effective People’ is not just a book, it is in fact a key to reaching the pinnacle of success. It tells one about, how by adopting a few habits in life, one can turn every challenge into an

opportunity. The seven habits as elaborated by Covey are as under:

- First – Be Proactive
- Second – Begin With The End In Mind
- Third – Put First Things First
- Fourth – Think Win–Win
- Fifth – Seek First To Understand Then Be Understood
- Sixth – Synergize
- Seventh – Sharpen The Saw

His emphasis is on how each habit plays a pivotal role in shaping and transforming an individual’s personality. The book encompasses various facets around each one of these habits and gives one a clear and concrete idea about not only keeping yourself motivated but also about motivating others around you. The book gives one an opportunity to retrospect themselves in the social paradigm, to make self judgment and to work upon self improvement, if they realize that there are actually things they are doing which need to be done differently, in order to create a better version of themselves.

The central idea around which the whole book revolves is, self improvement. It guides one to maneuver their way out of self doubt and inhibitions by incorporating these simple yet powerful habits of highly effective people. The book decodes the behavioral patterns of people who have achieved the greatest milestones of

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\* Faculty, Department of Management, Gurugram University, Gurugram.



success in life and represents the simple habits which made these people stand out of the rest.

It's not just a good read, it is in fact a must read for everyone, irrespective of their academic, professional or social backgrounds. And the bonus point is that you won't feel preached by anyone. The book has been written as if you are having a conversation with the author. You may also enjoy the testimonies and the

little stories shared by the author from his own life's experiences.

All of us have a drive to achieve big in life. The 7 Habits of Highly Effective People gives you small lessons to be learnt and tiny changes to be made in your lifestyle in order to make a style in life that becomes an inspiration for others.



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- Corporate Governance
- Technology Management
- Knowledge Economy and Knowledge Based Development
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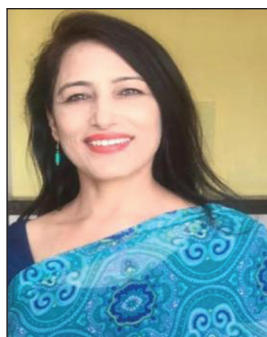
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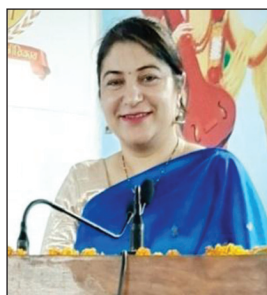


An accomplished academician; an exemplary leader and an action-oriented self-motivated individual; Dr. Amarjeet Kaur has nearly three decades of experience in education and food industry. She is currently working as professor of Accounting; Dean, Faculty of Commerce & Management and Director, Foreign Students Cell at Gurugram University, Gurugram, India. She holds a Ph.D in Commerce from MD University, Rohtak, India and is a Certified Management Accountant (CMA) from the Institute of Management Accountants (IMA), USA. She has dual master's degree: an MBA from The University of the West of the Scotland (UWS), UK and M.Com from MD University, India. She has traveled extensively and has taught at two prestigious Universities of USA, viz., College of Business (AACSB Accredited) at Valparaiso University, Indiana and North Dakota State University, North Dakota. She has 8 books and 51 research papers to her credit; about half of these papers are published in Emerald, Sage, Inderscience and ABDC listed journals.

Dr. Amarjeet is associated with UGC EDUSAT program for higher learning and delivers live lectures on Television at Doorsarshan VYAS Channel for Higher Education and has more than 120 videos available on YouTube. She has been conferred with 'Excellence in Academic Leadership' Award by Top Rankers, New Delhi and has been felicitated by Indian Society for Training & Development (ISTD) for her Innovative Practices at her workplace in the year 2015. She has also been conferred with 'Great Indian Woman Leader in Education' Award by Golden Signatures in the year 2021. She holds vast administrative experience as Director and Dean while working with prestigious business schools and regularly conducts training programs for corporate clients. As corporate trainer, she conducts management development programs on Trade Finance, IFRS, Cost Analysis, Letter of Credit and Finance for Non-Finance Executives. She is a very dedicated person, who loves and admires nature and enjoys yoga & travelling.

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### Dr. Monika Bhatia – *Editor*



Dr. Monika Bhatia is qualified academician having a passion to work in a dynamic and stimulating environment. She has obtained her Doctorate Degree from UTU Dehradun. She is an alumna of Punjabi University Patiala (M.Com & MBA). She is UGC (NET) qualified. Her areas of interest are Accounting and Finance. She has a teaching experience of 18+ years at both under graduate and postgraduate levels. She has attended and presented more than 30 research papers in international and national conferences. She has published 30 research papers in international refereed journals. She has edited a Handbook of Management and Behavioral Science (A refereed publication of society of Management and Behavioral Science). Her heart lies in helping and mentoring students to grow as

capable professionals and complete individuals. She is a person who is positive about every aspect of life and is passionate about learning and development.

**Dr. Hawa Singh – Associate Editor**

Dr. Hawa Singh is a person of high intellect and insights. He started his academic journey with completion of Ph.D degree in Management from Institute of Management Studies And Research (IMSAR), Maharishi Dayanand University, Rohtak, Haryana. In 2012, he qualified the National Eligibility Test UGC-NET/JRF in Management subject. He obtained his master's degree in Master of Business Administration with specialization of Human Resource Management & Marketing Management. He has participated in a number of seminars and conferences and presented research papers. He has published several research papers/articles in the esteemed national and international journals and magazines of national repute.

**Dr. Naveen Kumar – Associate Editor**

Dr. Naveen Kumar has done B.com (Hons), MBA, M.Com; B.Ed. He has obtained his Ph.D Degree from Department of Commerce, MDU Rohtak. He has passed the UGC NET-JRF exam in both subjects (Commerce & Management). He is also passed the HTET (HSBE, Bhiwani), CTET (CBSE) & RTET exams (conducted by RPSC Rajasthan). His areas of interest are Quantitative Techniques, Statistics, Income Tax and Finance & Computer Application in Business. He has four-year teaching experience in the Department of Commerce, MDU Rohtak as a research scholar. He was the founder member of Commerce Department at Gurugram University, Gurugram. He has published 15 research papers in Peer-Reviewed International and National Journals. He has presented various research papers in National Seminars and Conferences.

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