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Advancing AI for an Ethical Future: Today's Innovation for Tomorrow's Sustainability

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From the Editor's Desk

We are pleased to present this special issue featuring a curated selection of papers from the esteemed Conference on Artificial Intelligence, Innovation, and Sustainability with the theme, Artificial Intelligence, Innovation and Sustainability.' This collection exemplifies the conference's commitment to exploring the transformative potential of Artificial Intelligence (AI) within the framework of ethical considerations and sustainable development.

The papers gathered here represent a convergence of cutting-edge scholarship and innovative thinking from experts, practitioners, and scholars across various fields. From AI's pivotal role in achieving sustainable development goals to its applications in climate change mitigation, each contribution underscores the pivotal role of AI in shaping a more sustainable and ethical future.

As we delve into these pages, we are reminded of the profound impact that ethical considerations have on the responsible deployment of AI technologies. The insights presented in this collection echo the sentiment shared by esteemed keynote speakers, Rev. Fr. Jose Koyickal and Dr. Dominic, emphasizing the necessity of a human-centred approach to AI.

Furthermore, the discussions around legal aspects, presented by Mr. Eric Clive and Mr. Vivek Anand Sagar, shed light on the complex interplay between AI and copyright in the creative process. Dr. Michael Parizek's discourse on "Innovation in Social Farming" reinforces the notion that AI has the potential to revolutionise even the most traditional industries.

The rigour and depth of research presented here align with the standards of prominent journals and our commitment to upholding these high standards and ensuring that the knowledge disseminated through our platform contributes meaningfully to the academic discourse.

We extend our gratitude to all the authors who entrusted us with their work, as well as the diligent reviewers who played an integral role in maintaining the quality and rigour of this special issue. It is our hope that the insights shared in this collection will inspire further exploration and collaboration in the dynamic intersection of Artificial Intelligence, Innovation, and Sustainability.

We look forward to witnessing the continued impact of these ideas and to welcoming future contributions that will further enrich our collective understanding of this critical field.

Mr. Kolhandai Yesu

Issue Editor

CONTENTS

A STUDY ON THE IMPACT OF ARTIFICIAL INTELLIGENCE ON HUMAN RESOURCE MANAGEMENT

Ms. Carmel & Ms. Kumari Mary Shylaja

ABSTRACT

There have been many studies done on the topic of AI. This study examines how the development of AI has affected human resource management as a result of changes in the IT sector. Human resources (HR) professionals can use AI from the time of hiring to the time of employee evaluation. The current study aims to determine whether or not the innovativeness and ease of use at HR operations modify the relationship between artificial intelligence and Human resource functions in the IT business in Bangalore. 200 human resources professionals from different IT companies in the Bangalore area participated in this survey. Increased usage of AI in the workplace leads to improved HR functional performance was tested using a multiple regression method, confirming the hypothesised positive association between these two variables. On the other hand, AI has a strong correlation with innovativeness and usability, suggesting that AI influences HR in the ways of innovation and convenience.

Keywords: Artificial Intelligence, Human resource functions, usability

1. INTRODUCTION

Artificial intelligence (AI) is an emerging technology utilised across all industries to enhance productivity and efficiency by simulating human intelligence in different contexts. HRM focuses on attracting, hiring, orienting, training, and retaining talented individuals.It is the responsibility of every division within an organisation to work towards achieving the company's goals and objectives, as well as its vision and mission. Human resource management focuses primarily on compensation management and payrolls, as well as on performance appraisals, with the hopes of eliciting the best possible performance from each employee.Because AI relies on chatbot agnostic solutions and algorithms to carry out tasks like recruitment, selection, training, development, etc., it can significantly lighten the load of HR managers in charge of these departments. What's more, integrating AI into HR will improve these procedures and pique workers' interest in their work.It streamlines administrative processes by reducing the need for paperwork and making it easier for human resource managers to do things like grant employees' leave requests based on the permissions in place at the time of the request, make employee information accessible online so that all workers can

view it, and set up automated scheduling processes that produce actionable results. The use of AI in HRM is on the rise as a result of the impressive results it has produced thus far, and it is expected to become standard practice in all businesses in the near future. This is because AI assists HR managers in cutting down on administrative tasks within their organisations and in making more informed hiring decisions based on applicants' resumes and other information provided therein. This means that the use of AI is rapidly becoming commonplace in businesses of all sizes. Humans and machine learning together produce a flood of HR data on the cloud, and AI analytics provide deeper understanding of how to put that data to use in practice. Transformational value at optimised cost is the key to a company's success, and this can only be achieved through the clever integration of people, process, and technology. With the use of AI, many administrative tasks may be easily automated, leading to more dependable HR transactions and service delivery. Insight into intelligent automation through the technology-agnostic chatbot is the primary subject of this document, which also covers conversational AI capabilities for HR transactions.

The research aims to shed light on the existing and future effects of artificial intelligence on human resource management. Artificial intelligence has been around for a while as a notion. However, the last 20 years have seen an explosion in AI thanks to the widespread implementation of machine learning. This research is vital since AI is already being put to use in the business world. It's facilitating better time management and strategic value addition among employees.

Human resource management plays a crucial role in organizations, encompassing activities such as recruitment, selection, training, performance management, and employee engagement. With the rapid advancements in AI, HRM professionals are exploring the potential of this technology to streamline and enhance their processes. AI-powered tools and applications offer promising capabilities in automating routine tasks, analyzing data, and making data-driven decisions. However, understanding the overall impact of AI on HRM is essential for successful implementation and to mitigate potential challenges.

2. LITERATURE REVIEW

According to Scott W. O'Connor's (2020) paper, "Artificial Intelligence in Human Resource Management," AI has already had and will continue to have a significant positive impact on the HRM sector. Human resources experts also need to be better prepared for potential difficulties. Therefore, HR experts of the future will benefit from gaining familiarity with the

latest developments in the industry and establishing a solid groundwork of HR knowledge upon which to grow.

Prasanna Vatsa & Kusuma Gullamjji (2019) An article named "To Study the Impact of Artificial Intelligence on Human Resource Management" makes it abundantly evident that combining HR procedures with AI-based applications has a more significant bearing on raising an organization's efficiency. The research shows that artificial intelligence (AI) is present in many facets of human resources (HR), including recruitment, training, onboarding, performance analysis, retention, and more; nevertheless, many businesses have yet to fully integrate AI into their HR-practices.

According to Jennifer Johansson and Senja Herranen's "The Application of Artificial Intelligence in Human Resource Management" paper (2019), few companies have fully implemented AI throughout the recruitment process because it is still a relatively new field. Companies' overall openness towards new technologies is mentioned as a big problem, while the accelerated quality and elimination of routine jobs are considered as the main benefits of AI.

Christopher Albert (2019) The author argues that AI - based applications improve worker productivity in a paper titled "Use of Artificial Intelligence in Human Resource Management." With a concentration on employee outcomes, it can assess, forecast, and diagnose resource needs with increasing accuracy. But there are obstacles, such as a lack of established applications, integration capabilities, or a talent mismatch.

In her article "How AI Is Reinventing Human Resources," Barbara van Pay (2018) explains how today's businesses are actively seeking AI solutions but are wary of handing over control of their operations to a machine. Artificial intelligence (AI) in the workplace can speed up the process of filling and hiring new employees by sifting through resumes and other application materials to determine which individuals are the best fits for each position. Artificial intelligence (AI) interviewing software like hike vue and mya are now widely employed after discovering the ideal candidate for the post. The entire recruitment process, from source to interview, can be handled by AI, greatly shortening the time it takes to fill open positions with qualified individuals.

How Artificial Intelligence and Machine Learning Will Change Human Resources in the Future by Anupam Jauhari (2017). Because chatbots powered by machine learning technology will handle all recruitment activities, it will be much easier for HR professionals to use AI to screen applicants and notify them of their acceptance or rejection via email. 53% of businesses

are prepared to implement digital technologies, while 22% have already done so, according to research from India included in Delloite's 5th annual global human capital trends study.

3. RESEARCH METHODOLOGY

Quantitative information was collected using a survey. After completing the literature review, a questionnaire was developed using the aforementioned constructs from prior studies. Each statement was given a rating from 1 to 5, with 1 indicating strong disagreement and 5 indicating strong agreement, on a 5-point Likert scale. Efficient HRM , AI technology and AI in HRM process (such as recruitment, training and performance) items were adopted from the studies of Chakraborty et al., (2020) and Almarashda et al., (2021). This study employs a comprehensive literature review approach to gather insights into the impact of AI on HRM. Relevant scholarly articles, research papers, industry reports, and case studies are analyzed to identify key themes, trends, and empirical evidence. The study also examines survey method to collect data from organizations that have implemented AI in their HRM practices.

3.1. Sample and data collection

The research is backed by a thorough literature and theory review. After identifying the issue and developing the research question, the next step is to choose a research strategy. The next stage is to actually collect data utilising those strategies. The researcher has completed data analysis using predetermined hypotheses after collecting relevant information.Randomly 200 respondents have been selected from the IT industry of Bangalore region.

This work makes use of a mixed qualitative and quantitative approach to its research.The research's primary data came from a survey of respondents, which was acquired through the development of a questionnaire. Secondary sources, such as previously published research, studies and the writings and blogs of renowned authors, have also contributed to the data set.

3.2 Data Analysis

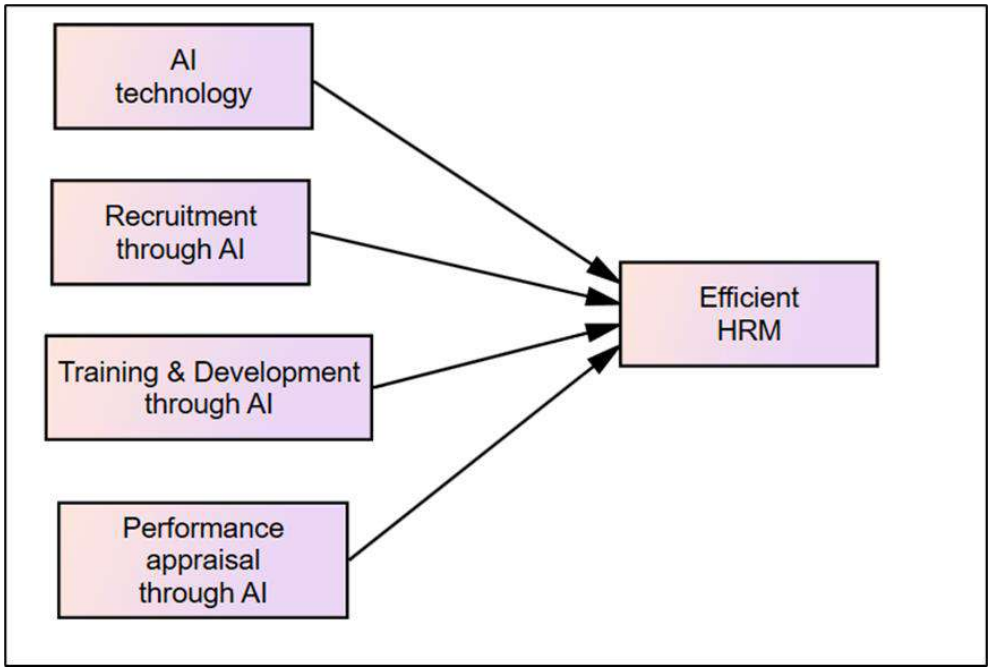
Both descriptive and inferential statistics were employed in the study's analysis and presentation of findings. IBM SPSS version 24 was used to analyze the data, and descriptive statistics including the sample's mean, standard deviation, percentage, and frequency were calculated. In order to extrapolate from the sample to the population, we used inferential statistics like correlation and multiple regression. After obtaining 215 total replies, a data screening was undertaken, during which questionnaires with missing data were discarded and 200 responses were chosen for final study.

3.3 Research Objectives

1. To understand the role of AI in Human Resource management

2. To study the Impact of Artificial Intelligence on Human Resource management

Figure 1: Conceptual Framework of the Study



4. RESULTS

4.1 Demographic Characteristics

Below is a table displaying information technology workers' profiles. The data shows that 60.5% of respondents are male, 24% are aged 28 or younger, and 45.5% are aged 28-38. A total of 48% of those surveyed are undergraduates.

Table 1: Demographic Profiles of Women Respondents (N=200)

Measures	Items	Frequency	Percentage
Gender	Male	121	60.5
	Female	79	39.5
Marital Status	Married	45	22.5
	Unmarried	155	77.5

Education	PG	81	40.5
	Secondary board/ Equivalent degree	23	11.5
	UG	96	48
Age of the respondents	<28yrs	48	24
	29 to 38 yrs	91	45.5
	38 to 48 yrs	42	21
	Above 48 yrs	19	9.5

Source: Primary data

4.2 Descriptive statistics and scale reliability

Responses were relatively concentrated in the middle of the scale, as indicated by the mean and standard deviation measures of central tendency. EHRM (M = 4.57, SD = 0.66) received the most favorable opinion followed by PAAI (M = 4.52, SD = 0.68), TDAI (M = 4.40, SD = 0.70), RAI (M = 4.43, SD = 0.78) and AI (M = 4.24, SD = 0.69).

Cronbach's alpha was chosen as the preferred measure of reliability to assess the consistency of the constructs utilized in the data analysis process. According to Nunnally and Bernstein's (1994) findings, criteria that meet or exceed a value of 0.7 are considered to be the threshold for reliability. The alpha values reported in Table 2 indicate that the data is reliable, as all values fall within the specified criteria, ranging from 0.850 to 0.912.

The values of all variables' correlation coefficients were also listed in table 2. Correlational analysis establishes a link between two factors. As the p-values for the coefficients of correlation are all less than 0.05, it can be concluded that there is a positive and statistically significant relationship between the two variables. When it comes to effective HRM and TDAI, R = 0.631 is the highest possible value.

Table 2: Cronbach's Alpha, Mean, Std. Deviation and Correlation of the Variables.

	AIT	**RAI**	**TDAI**	**PAAI**	**EHRM**
Reliability (Alpha value)	0.850	0.875	0.912	0.888	0.903

Mean	4.2413	4.4250	4.3987	4.5163	4.5650
Standard deviation	.69608	.78508	.69911	.68457	.66263
AI technology (AIT)	1				
Recruitment through AI (RAI)	0.429**	1			
Training & development through AI (TDAI)	0.558**	0.455**	1		
Performance appraisal through AI (PAAI)	0.578**	0.409**	0.580**	1	
Efficient Human resource management (EHRM)	0.593**	0.551**	0.631**	0.599**	1

*Note: ** indicates Correlation is significant at the 0.01 level (2-tailed)*

Influence of AI technology and its adaptation in Human resource process on HRM effectiveness:

Multiple regression analysis was utilised to determine how four different factors affected the study's dependent variable. The role of AI and ML in the HR process: As the dependent variable, Effective HRM was compared to the independent variables of Recruitment, Training & development, and Performance appraisal using AI. Before running the regression test, we made sure the multicollinearity assumption held up. The outcomes were addressed in more detail below.

Table 3: Multi-Collinearity Tests

Independent Variables	**Tolerance**	**VIF**	**Durbin-Watson**
AI technology (AIT)	0.573	1.746	2.123
Recruitment through AI (RAI)	0.737	1.357	
Training & development through AI (TDAI)	0.559	1.788	
Performance appraisal through AI (PAAI)	0.561	1.781	

Source: Primary Survey

Note: VIF = Variance Inflation Factor

Using the variance inflation factor (VIF) values and the tolerance value, we were able to determine if multicollinearity was present in the data. A lack of significant correlation between any two independent variables (predictors) was defined as a VIF value of less than four and a tolerance value of more than 0.02. Table 6's VIF and Tolerance values, both of which are below the established cutoff, suggest that there are no multicollinearity problems in the data. Moreover, the Durbin-Watson statistic (DW = 2.123) indicates the absence of autocorrelation in the residuals within the range of 1.5 and 2.5 critical values.

Table 4: ANOVA

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	49.305	4	12.326	63.133	.000
	Residual	38.072	195	.195		
	Total	87.377	199			

Source: Primary Survey

The F-test value =63.133 with a significance level of $p < 0.05$ ($p=0.000$) in the ANOVA table 4 indicates that the regression model is statistically significant in predicting Efficient HRM (dependent variable).

Table 5: Coefficients of Multiple Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig. (p)	Results
	B	Std. Error	Beta			
(Constant)	0.699	.246		2.840	.005	
AI technology	0.196	0.059	0.206	3.295	.001	H1 supported
Recruitment through AI	0.209	0.046	0.248	4.498	.000	H2 supported

Training & development through AI	0.263	0.060	0.277	4.388	.000	H3 supported
Performance appraisal through AI	0.211	0.061	0.218	3.456	.001	H4 supported

Source: Primary Survey

Table 5 presents the coefficients of a multiple regression model that elucidates the influence of AI technology and its implementation in the HR process on the efficacy of HRM. Unstandardized coefficients refer to the coefficients of a regression equation that have not been standardized or transformed in any way. Coefficient B explains the association between the dependent variable and independent variables. A unitary alteration in the independent variable results in a corresponding alteration in the B value of the dependent variable. The sign of the B value indicates a positive increment or negative decrement in the dependent variable.

The standardized regression weights (β) indicate the strength of impact of predictor variable on dependent variables. The strength of impact increases with a higher β value. The criteria for selection of hypothesis are based on the path having p value less than 0.05 and T value above 1.96.

The findings of Table 5 indicate the effect of AI technology efficient HRM is positive and significant as the β=0.206 with p= 0.001. Since p value is below 0.05 and T value (3.456) is above 1.96, hypothesis H1 was supported.

The utilization of AI in recruitment leads to significant improvement in HRM as the β value is 0.248 with p value less than 0.05, confirming the hypothesis of H2. Similarly, organizations using training and development through AI significantly influence Efficacy of HRM. The path coefficient value is 0.277 with p=0.000, since p less than 0.05 and T above 1.96, supported H3. Finally, performance appraisal through AI significantly and positively influenced the efficiency of HRM as the β=0.218 with p= 0.001. Since p value is below 0.05 and T value (3.456) is above 1.96, hypothesis H4 was supported.

The significance value of $p < 0.05$ proved that AI technology and its utilization in HR process have significant impact on efficient HRM and supporting all the hypotheses. Based on standardized regression weights it is confirmed that impact of involvement of AI in Training

& development is highest on achieving efficient HRM, followed by Recruitment, Performance appraisal through AI and AI technology.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.751	0.564	0.555	.44186

Table 6 shows that there is a modest level of association, represented by a R value of 0.751. The coefficient of determination (R2) for the independent variables was 0.564, indicating that they accounted for 56.4% of the variance in the dependent variable, HRM effectiveness.

5. DISCUSSION AND IMPLICATIONS

Using AI in human resources (HR) functions has been shown to have a positive impact on the HR (efficient HR). These AI-based HR tools may be able to analyse, forecast, and diagnose; yet, they lack the emotional and cognitive talents of humans. Nevertheless, they are a significant tool for any organisation.

As a result of AI's demonstrable impact on reducing jobs across numerous industries worldwide, this is the genuine problem that is overwhelming the global workforce. The truth, however, is that it is not the advent of increasingly sophisticated technological advances per se that threatens the survival of humankind, but rather the degree to which humans are able to adopt and profit from these innovations. Organisational performance is more likely to improve if HR practises are integrated with AI-based applications. These AI-based HR tools can analyse, anticipate, and diagnose, making them a valuable resource for any organisation despite their lack of human-like emotional and cognitive capacities. The findings also showed that using AI in HRM might help businesses in a variety of ways, including in terms of operations, management, strategy, organisation, data, and compliance. Better AI implementation in HRM is possible thanks to this study's insights on the practical application and impact of AI-based software in the field. Bangalore-based businesses would be able to make more informed choices about AI investments.

AI-based tools can automate candidate screening, resume parsing, and applicant tracking, reducing time and effort in the recruitment process. However, concerns related to bias, fairness, and the human touch in decision-making need to be addressed. Employee Training and Development: AI can personalize learning experiences, recommend training programs, and provide real-time feedback. Intelligent tutoring systems and virtual reality simulations enable

immersive and interactive training, leading to better skill acquisition and knowledge retention. Performance Management: AI-enabled performance management systems can track and analyze employee performance data, providing insights for objective evaluations. Continuous monitoring facilitates timely feedback and performance coaching, improving overall productivity. Chatbots and virtual assistants powered by AI can address employee queries, provide on-demand support, and enhance overall employee experience. Sentiment analysis and predictive analytics help identify patterns and predict employee behavior, enabling proactive interventions. The use of AI in HRM raises concerns about privacy, data protection, algorithmic bias, and the ethical implications of automated decision-making. Organizations must ensure transparency, accountability, and compliance with relevant regulations.

6. CONCLUSION

The integration of AI into HRM practices has the potential to transform how organizations manage their human capital. While AI offers numerous benefits such as increased efficiency, accuracy, and data-driven decision-making, it also poses challenges related to ethics, fairness, and employee acceptance. HR professionals should carefully evaluate the suitability of AI solutions, address potential risks, and ensure a balanced approach that combines human judgment with AI capabilities. As AI continues to evolve, HRM professionals must stay informed and adapt their practices to leverage the potential of this technology while safeguarding the interests of their employees and the organization as a whole.

7. LIMITATIONS OF THE STUDY

Our research shows that most companies are now using AI-based recruitment tools successfully. However, in the not-too-distant future, AI will permeate all aspects of human resources. However, most companies have yet to fully incorporate AI into their HR practises, perhaps due to the high costs involved with doing so, the extent of which will be an interesting topic for research in the years to come. Because AI improves people's lives and ushers in a brighter future if used correctly, its adoption should be seen as a cause for optimism. Further research is needed to explore the long-term effects of AI on job roles, employee well-being, and the changing dynamics of the employer-employee relationship.

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PROBLEMS AND PROSPECTUS OF NSQF INSTRUCTORS: AN EXPERIENCE FROM GOA

Shriraj G. Parsekar & Sunny S. Pandhre

ABSTRACT

National Skill Qualification Framework (NSQF) is the competent framework for promoting vocational education uniformly throughout the country. National Skill Qualification Framework (NSQF) is a flagship scheme under Goa Samagra Shiksha that was implemented in the state of Goa in the year 2014. The primary objective of the scheme is to develop interest towards skills in the students at the school level. NSQF is an exclusive platform for promotion of vocational education along with general education at the school level. It also helps to improve the present state of vocational education in the country. This study is an attempt to measure major aspects of this skill programme since its inception.

Keywords: Skill, Instructor, Vocational Education and Programme.

1. INTRODUCTION

National Skill Qualification Framework (NSQF) is the competent framework for promoting vocational education uniformly throughout the country. National Skill Qualification Framework (NSQF) is a flagship scheme under Goa Samagra Shiksha that was implemented in the state of Goa in the year 2014. The primary objective of the scheme is to develop interest towards skills in the students at the school level. NSQF is an exclusive platform for promotion of vocational education along with general education at the school level. It also helps to improve the present state of vocational education in the country. This study is an attempt to measure major aspects of this skill programme since its inception.

Government of Goa under the Directorate of Education is running the National Skill Qualification Framework (NSQF) programme from 2014 in select Government and Government-Aided Schools and Higher Secondary Schools in the state. For implementing this programme, the Central Government and State Government spend funds in the ratio of 60:40 respectively.

In this background, this study tries to get detailed information about the working and implementation status of the NSQF programme and changes to be made under the National Education Policy 2020 to implement this scheme more effectively. The study concludes that

implementation of the scheme has been done to impart skill education to the students, but lack of vertical mobility in some cases and procedural issues are encountered which need solutions.

2. STATEMENT OF PROBLEM

2.1 Importance

Goa has been facing a major problem of unemployment and under-employment and it is a great concern for citizens and the Government. The Government of Goa and Government of India are working to solve the problem and different steps have been taken by Governments in the last few years. The present study is an attempt made to evaluate the measures taken by the Government to curtail the unemployment rate in the State of Goa. The study is important as it examines the performance of vocational education through the NSQF programme in the state. It provides an overview of the working of the programme and also speaks about the procedure and support from Government and educational institutions. The study also assumes importance because it highlights the actual view of the respondents. The study tries to get detailed information about the working and implementation status of the NSQF programme and changes to be made under the New Education Policy 2020 to implement this scheme more effectively. Lastly, the findings are important because they can help the Government by providing valuable inputs as and when it wants to make changes in vocational education.

2.2 Problems

Unemployment and the lack of unskilled laborers are the major problems faced by the society. These problems can lead to economic instability and social unrest. The main aim of starting the vocationalisation of education is to inculcate interest in vocational education among students.

2.3 Needs

The Government of Goa started the NSQF programme under *Goa Samagra Shiksha* (then Rashtriya Madhyamic Shiksha Abhiyan) in the year 2014. For the last seven years, students of secondary and higher secondary levels from the state of Goa have availed the benefits of these schemes. In this background, the present study tries to find out the performance of the NSQF programme and also opportunities for vocational education in the National Education Policy, 2020. The study also gains importance because the findings can help policymakers improve vocational and skill education. The study is an honest attempt to analyse the current system of vocational education and prospects for the same in Goa.

4. OBJECTIVES OF THE STUDY

The objective of this study is to find out the challenges in the implementation of NSQF and vocational education at higher secondary educational institutions in the state of Goa.

5. LOCATION OF THE STUDY

The location of the study is restricted to the state of Goa only and the data till the academic year 2021-22 will be used for the study.

6. SCOPE OF THE STUDY

This study brings out the current status of the vocational education system in the state of Goa. The study tries to find out the impact of vocational education in schools and higher secondary schools in the State of Goa with special reference to the National Skills Qualification Framework. The study provides an executable solution for challenges faced by vocational education by following the guidelines of the National Education Policy, 2020.

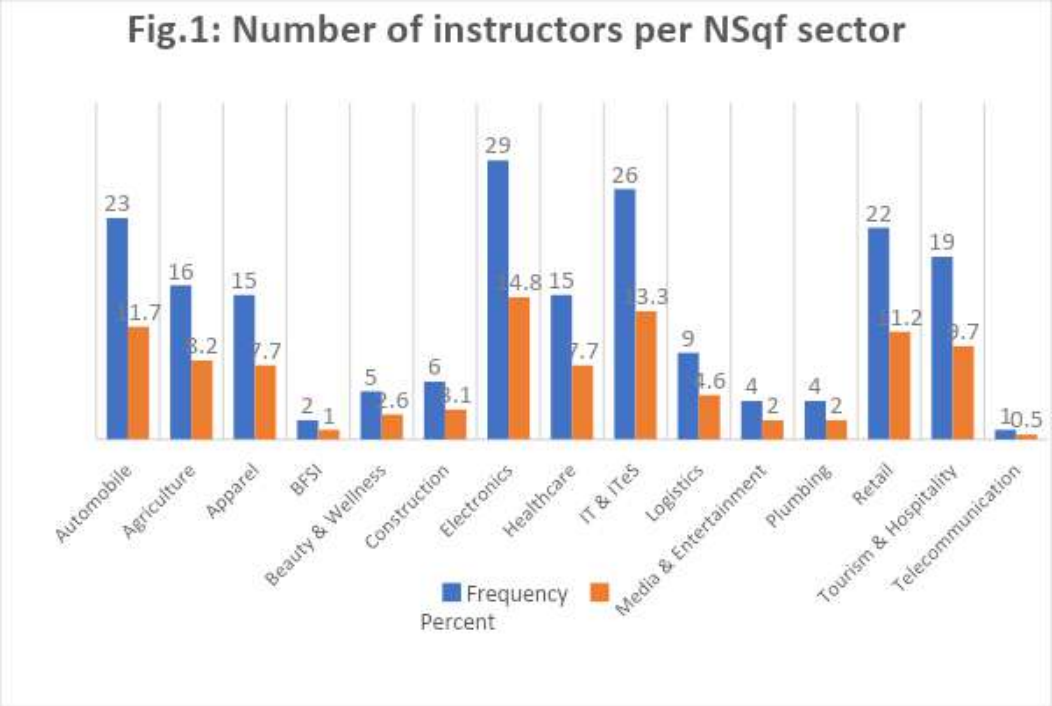
7. DATA ANALYSIS AND INTERPRETATION

7.1 Analysis of the Number of Instructors per NSQF Sector

Name of the NSQF Sector	Frequency	Percent
Automobile	23	11.7
Agriculture	16	8.2
Apparel	15	7.7
Banking, Financial Services & Insurance	2	1
Beauty & Wellness	5	2.6
Construction	6	3.1
Electronics	29	14.8
Healthcare	15	7.7
IT & ITeS	26	13.3
Logistics	9	4.6
Media & Entertainment	4	2
Plumbing	4	2
Retail	22	11.2
Tourism & Hospitality	19	9.7

Telecommunication	1	0.5
Total	**196**	**100**

Table No.1: Analysis on Number of Instructors per NSQF Sector



Observations: From Table No.1, it can be observed that Electronics specialisation has the highest number of instructors that is 29, followed by IT & ITeS having 26 instructors, Automobile has 23, Retail has 22 instructors, Tourism & Hospitality have 19 instructors, Agriculture has 16 instructors, Apparel and Healthcare has 15 instructors each, Logistics has 9 instructors, Construction have 6 instructors, Beauty & Wellness has 5 instructors, Media & Entertainment and Plumbing has 4 instructors each, BFSI has 2 instructors and Telecommunication has 1 instructor.

Interpretation: Figure No. 1 shows that the number of instructors for courses like Electronics, IT & ITeS, Automobile and Retail is higher. Whereas, instructors for courses like BFSI, Telecommunication, Media & Entertainment and Plumbing are the lowest. This analysis showcases that technical courses and courses with vertical mobility are given more weightage when it comes to recruiting instructors. This also interprets that emerging vocations are given more weightage as compared to traditional vocations. Looking at the Goa socio-economic factor, the number of instructors for sectors like Logistics, Beauty & Wellness and Tourism & Hospitality can be increased.

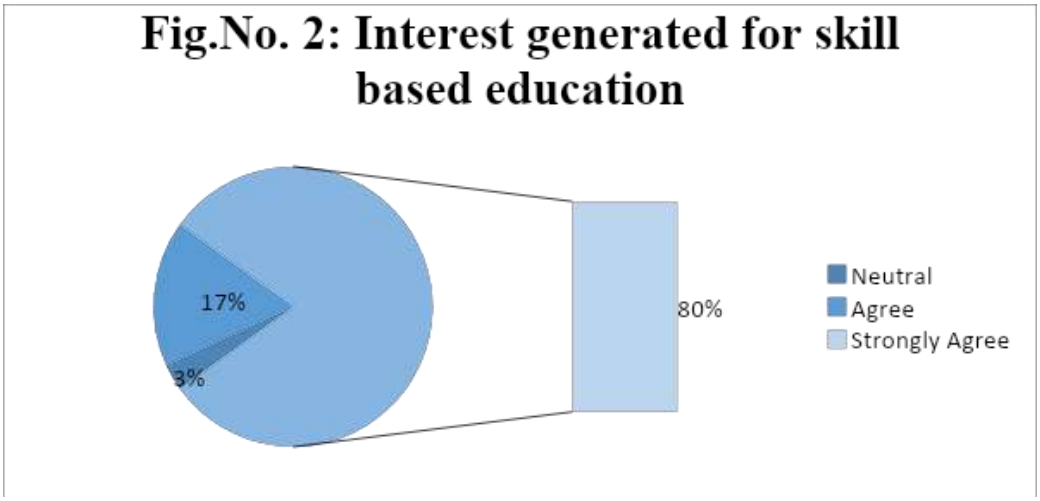
Sectors with vertical mobility are having more instructors and courses with vertical mobility are given more weightage as compared to other sector courses.

7.2 Analysis of the Statement, "NSQF Sectors have Generated Interest in Skill-Based Education among Students

Scale	Frequency	Percent
Neutral	6	3.1
Agree	33	16.8
Strongly Agree	157	80.1
Total	**196**	**100**

Table No. 2: Analysis on the Statement, "NSQF sectors have generated interest in skill-based Education among Students"

Observation: Table No.2 represents data on the statement, "NSQF sectors have generated interest in skill-based education among students" where it shows that 157 out of 196 respondents strongly agree with the statement. Whereas, 33 respondents agrees with the statement and 7 respondents had neutral view on the statement.



Interpretation: From Figure No. 2 it can be clearly interpreted that 80 percent of respondents strongly accept that NSQF Sectors have generated interest about skill-based education. 17 percent of respondents showed positive responses to the statement. Whereas 3 percent of respondents said they are unbiased about interest generation about skill-based education. This overall positive response indicates that the NSQF programme is moving in the planned direction and it has successfully generated interest among students.

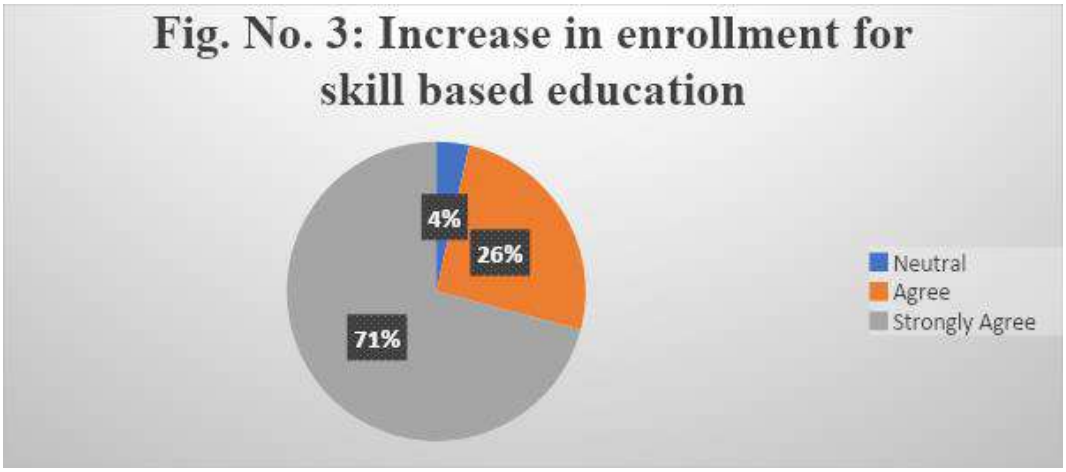
NSQF has been successful in generating interest for skill-based education and provided the required platform to vocational education.

7.3 Analysis of the Statement, "NSQF Sectors have increased the Enrolment for Skill-Based Education"

Scale	Frequency	Percent
Neutral	7	3.6
Agree	50	25.5
Strongly Agree	139	70.9
Total	**196**	**100.0**

Table No.3: Analysis of the Statement, "NSQF sectors have increased the enrolment for skill-based education"

Observation: In the Table No. 3, on the statement whether NSQF sectors have increased the enrolment for skill-based education. 139 out of 196 respondents strongly agree with the statement. At the same time, 5 respondents said they agree with the statement and 7 respondents have a neutral view.



Interpretation: Figure No.3, displays that 71 percent strongly agree on the above statement. 25 percent also agree that NSQF have increased the enrolment for skill-based education and 5 of them had no say on the statement. This interpretation confirms that after the implementation of NSQF in school enrolment for technical education have increased.

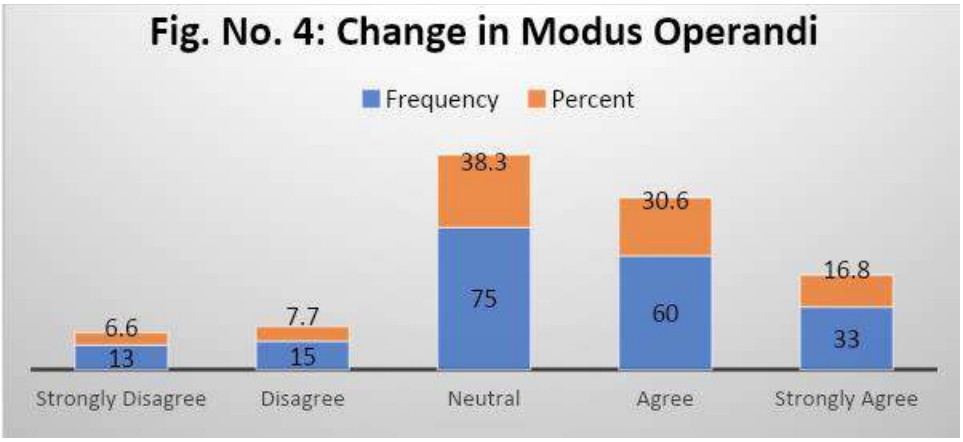
NSQF programme has the potential to revive skill-based education in the state. Therefore the NSQF programme must be wisely promoted in the future.

7.4 Analysis on, "Modus Operandi of NSQF in School Education needs to be Changed"

Scale	Frequency	Percent
Strongly Disagree	13	6.6
Disagree	15	7.7
Neutral	75	38.3
Agree	60	30.6
Strongly Agree	33	16.8
Total	**196**	**100.0**

Table No.4: Analysis on Modus Operandi of NSQF in School Education needs to be changed

Observation: In Table No. 4, it is observed that for the statement, Modus operandi of NSQF in school education needs to be changed, respondents have mixed responses. 33 out of 196 respondents said some changes are required, 60 respondents had the same opinion about the statement. Whereas 75 respondents were neutral, 15 disagreed with change and 13 showed strong discontent with changes in the functioning of the NSQF programme.



Interpretation: From Figure No. 4, it can be analysed that, more than 47 percent of the instructors accumulated are in the support to make changes in the functioning of the programme and altogether 14 percent of respondents showed negative response for change and were in support of the current functioning system.

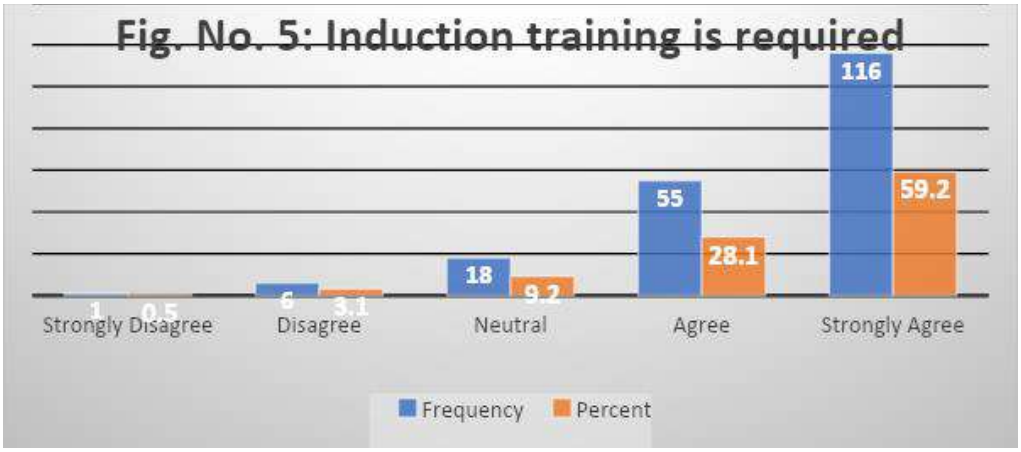
From the above result, it can be concluded that changes with regards to appointments, placements of the instructors, the pattern of evaluation, student's accreditation and overall functioning of the programme needs to be changed as per the requirement.

7.5 Analysis on "Induction Training in order to Understand the Objectives of NSQF is Required"

Scale	Frequency	Percent
Strongly Disagree	1	0.5
Disagree	6	3.1
Neutral	18	9.2
Agree	55	28.1
Strongly Agree	116	59.2
Total	**196**	**100**

Table No.5: Analysis on, "Induction Training in order to Understand the Objectives of NSQF is Required"

Observation: Figure No. 5 reveals that 59 percent of the respondents are in favour of induction training, 28 percent of the respondent agree on the statement, 9 percent have neutral opinion and 4 percent were not in support of induction training requirement for new instructors.



Interpretation: Table No.6 shows that 116 respondents strongly agree that induction training is required in order to understand the overall NSQF programme and its objective, 55 respondents also shared the same opinion by agreeing with the statement. 18 respondents were neutral and 7 of them were of the opinion that induction training is not important as the programme can be understood in due course of action. Induction training will help to understand the NSQF programme comprehensively and it should be organized at the beginning of the academic year to inform about changes in the action plan.

a. Instructors should not be transferred every year to different schools since vocational education is interaction based learning. It is important that the teacher and student know each other well.
b. Time allotted to NSQF subject must be increased, since a lot of time is required to complete the practical portion.
c. Students should be encouraged to handle tools and equipments so that they will be able to gain confidence in their course skills.
d. Job security and remuneration should be at par with other faculty.
e. Industry's expectations from the institution should be taken into consideration while preparing the curriculum in order to reduce the gap between industry and academics.
f. Parents must be oriented about the importance of vocational education in the employment prospective of their children.
g. Shared infrastructure facilities must be provided in case schools do not have required infrastructure.

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A STUDY TO UNDERSTAND AND REVIEW THE ETHICAL PRACTICES FOLLOWED IN THE HOTEL INDUSTRY

Sandhya Anilkumar & Sheeba Samuel

ABSTRACT

One of the biggest problems facing the hospitality sector, according to professionals, is unethical behaviour. Due to the frequent face-to-face interactions with clients, managers and staff, they face a variety of ethical challenges every day. A strong ethical culture fosters a healthy business by enhancing management and employee work satisfaction, improving customer experience, and boosting the company's profit, according to prior study. Studies on ethics in the hotel sector are few in comparison to those conducted in the more general business fields, despite its critical importance. The unethical behaviour of its employees, which spreads like a contagious disease across all departments of a hotel, has a strong negative impact on hotel operations. The difficulties that arise in a cash-based, labour-intensive industry are reflected in the ethical issues that arise in the hotel sector. Today's managers are taught to keep an eye out for unreported sales, food and beverage theft, inventory disappearance, and transaction problems.

According to a renowned hospitality specialist, the sector is "vulnerable to dishonesty of all kinds by workers who are chronically underpaid". Events are unexpected, and hours are frequently long. Also, although hotel management seeks to set high ethical standards in their establishments, this knowledge frequently does not reach front-line staff (Stevens, 2001). Low ethical standards have also been linked to other issues like theft and inadequate staff training. Better training minimizes workplace issues and is advised even in businesses with a high turnover rate (Poulston, 2008). This paper analyses the study on the ethical beliefs and behaviours of hotel managers, staff members, and students (future professionals). In order to help hotels grasp the root of this issue, this study aims to pinpoint the key variables that influence the moral conduct of hotel personnel. This paper also aims to raise awareness on the significance of this issue, and provide some guidance for scholars toward some key areas for future research in the hospitality ethics field.

Keywords:

Ethical Challenges, Customer Experience, Employee Satisfaction, Workplace Issues

1. INTRODUCTION

The Greek word 'Xenia,' which also indicated hospitality and shielding a traveller from discomforts, is where the concept of lodging for travellers first emerged. The city has to extend its goodwill. Even though Sparta city's strict customs discouraged visitors, goddess Athena was thought of as the city's defender of outsiders, hence her name, 'Xenia Athena.'

During this time, diplomats, philosophers, intellectuals, and academicians made up the majority of travellers. The noblemen invited guests to stay with them. Buildings were constructed in ancient *Olympia* with the intention of housing foreigners. They were created in the fourth century BC and were known as "Leonidio." The origins of hospitality can be traced all the way back to antiquity.

The monasteries provided hospitality to strangers during the seventh and eighth centuries, and while there was no fee for lodging, all visitors were expected to contribute to the Abbey treasury in accordance with their means. Early 19th-century hotel rooms were designed with a living area in front, a bedroom behind it, and a storage area for trunks behind the bedroom. This period is referred to as the "Golden Age of Hotels in Great Britain."

Manor houses were welcoming lodging options throughout the thirteenth and fourteenth centuries, and they gladly provided lodging to travellers. Travelers gave the servants tips as a 'thank you' for their kind hospitality because no payment was anticipated; as a result, tipping became common.

Many of the manor residences were converted into commercial inns when heavy taxes made it impossible for the proprietors to remain hospitable and generous.

The development of the automobile sector marked the next phase in the cycle of the hotel industry's evolution. It made it possible for people to travel to those regions of the nation that were inaccessible by railroads. Inland resorts were born as a result, and the hotel business started to boom.

The modern 'stop-over' hotel was made possible by international air travel. The number of hotels constructed near airports has increased as this mode of transportation has grown in popularity.

The motel, which is the modern equivalent of the obsolete 'Coach Inn,' is another trend in hospitality. People who cross the country by car and stay for the night at various locations need both refreshments for themselves and secure parking for their vehicles. The Trust Houses created Post Houses. Great Britain seemed to be known as the 'motherland' of the hotel industry

The new millennium has paved the way for the development of a seamless, global society built on knowledge that is characterized by a constant, brisk change that is impossible for the common person to even comprehend. The Indian economy too is under transition from government control and stagnation to one of free market economy, competition, and innovation. Businesses moving away from growth and motivation only focused on profit to one that benefits everyone, including the earth, and the people. To lessen the detrimental effects of tourism activities on destinations and local people, the UN World Tourism Organization (UNWTO) created a global code of ethics for tourism in 1999. The code was formally recognized by the UN in 2001.

Scams and other unethical practices have rocked businesses throughout the world in the last two decades of the 20th century. The acceptability of products/services of the involved companies and their credentials were an issue. This led to a rise in the importance of ethics and values in business. Hotel corporations have worked hard in recent years to address the environmental impact of their operations, particularly by assessing and lowering their carbon and water footprints. Major worldwide hospitality organisations and small enterprises agree that doing this has measurable advantages, such as increased productivity and enhanced brand reputation.

At the same time, globalization and the advancement in information technology have given Business Ethics an international perspective. The availability of enough and more information to the stakeholders through effective media penetration, greater competition in the market, and awareness on environmental and social factors have all encouraged businesses to do anything unethical. Nowadays, society determines which company wins the market. If a corporation makes a mistake, it provides the perfect opportunity for its rivals to gain market share. These and other recent market needs are what prompt companies all over the world to review their policies and act quickly to change them. Any business that is unresponsive or unable to address these issues will be penalized.

A code of ethics is a written document that outlines the general and particular norms of conduct for employees in various organisations and professions. For instance, code of ethics applies to many other professions, including doctors (Hippocratic Oath), attorneys, and journalists. Additionally, certain businesses, associations, or organisations can create codes for their workers, either required (an employee can obtain the code upon contract signing and on the basis of violation under fear of termination) or optional (with which compliance is voluntary). Fixed codes of ethics, on the one hand, make it easier to verify conformity later and, as a result,

produce the desired good results. The desire to discriminate against anyone or to favour anyone, on the other hand, is the foundation of well-crafted rules.

2. LITERATURE REVIEW

Practising ethics is considered a major challenge by hospitality industry practitioners. It is a common feeling that the hospitality sector in general is very open to unethical practices (Knani, 2014). Based on their study on the Taiwanese hotel industry Teng et al. (2018) have found that hotel management does not emphasize ethics. The authors suggest that ethics education in employee training should be implemented in the hospitality sector to improve productivity and ease of operations. As per a study, the researchers have found that hotels and resorts have shown an improvement in attracting new clients, retaining existing clients, increase in share value as well as getting new investors and employees if they focus seriously on ethical responsibility. The hotels and resorts, in context, were also able to lower the risk of compliance violations and improve their financial performance (Thomas & Kumar, 2016).

Ethics is considered one of the critical issues in the hospitality industry (Whitney, 1990). Gaps are still existing in the perception of ethical issues, especially among hospitality practitioners (Teng & Cheng, 2020). Many studies show that ethical issues have been and are a constant challenge in the hospitality industry. A previous study states that ethical scandals in the hotel industry are from different areas that include sexual harassment, discrimination among employees, workplace diversity, theft, blame game, marketing and pricing of rooms, and many more (Dimitriou, 2012).

Some authors recommend that awareness of ethics should be created among hospitality students as they are future leaders in the hospitality industry (Teng & Cheng, 2020). An individual's ethical behaviour can be impacted by the ethical behaviour of peers. Managers play a vital role in ensuring that the employees behave and practice ethics in the work area and that will bring about a sustainable difference in the organization's ethical culture (Dimitriou & Ducette, 2018). The study also shows that female employees have a tendency to behave more ethically than male employees.

The globalization of business has brought about a major shift in following ethical practices. The hotel industry has got exposure to the global standards of business ethics being practiced and is following up to conduct their own business in a responsible and ethical manner (Paek & Chathoth, 2013). The study also suggests that if an organisation discloses its business ethics, it significantly benefits from them and brings about a steady development in its procedures and business. If an organisation implements ethical practices in its mission and procedures and

follows up on the systematic application of these practices, then, the employees will ensure to work and behave ethically thereby bringing about a significant development in the business. Lee & Tsang (2013) have pinpointed that academics do not play a significant role to provide a deeper understanding to change the perception of ethics in workplaces for hospitality students. The study also states that students generally have a very high level of ethical standards and admit the importance of following ethics in the workplace. Hospitality students feel that solid waste disposal, theft, conditions of employment, work hours and employment discrimination are major ethical issues prevalent in the hotel industry (Knani, 2014). The hotel industry is responsible for delivering the right product and services to its guests. During this delivery process, if the hotel management gets entangled with an ethical dilemma, then, it can leave a lasting positive or negative impression on guests, employees, and other members of the management based on the decision taken by the management (Upchurch, 1998). The impression that is held by these bodies will be directly related to organizational success. Another study done on hotel General managers shows that ethics takes a back seat when there is pressure from the hotel owners and company headquarters. When there is an economic downturn resulting in loss of jobs, revenue, and lesser pay, employees tend to lose the culture of work ethic and are not dedicated to the organisation. This can also lead to theft in hotels (Stevens, 2011).

Given the increasing complexity of business ethics in organisations and frequent unethical employee practices, effectively reducing unethical employee behaviour has become an important issue for management (Dimitriou & Ducette, 2018; Martinez et al., 2021). It is simple to see that the emergence of several unethical acts on the part of hotel staff exposes the major absence of ethics in the hospitality business; as a result, management needs to modify its stance on ethical concerns. Since there are no ethical standards in the hotel business, there are still many moral quandaries that not only have a negative impact on staff performance (Fehr et al., 2019) but also negatively affect the financial growth and sustainability of hotels (Garba et al., 2018).

From the standpoint of social exchange, there is a certain interest exchange relationship between the company and its employees, which implies that the company hires employees to survive and develop, inevitably satisfying their needs, and the employees join the company with specific demands and desires. Fairness and equality are the cornerstones of morality, and organisational climate has an impact on how individuals develop their values (Killen, 2018). This study makes the case that when a firm advertises its principles as a fair organisation,

employees will be more content with the work environment and less likely to engage in unethical action as a result of not being met with needs.

The four elements of the work value, which are comparable to task value, team value, and status value except for reward value in this study, are open to change, conservation, self-enhancement. Employee loyalty to their firm will increase when they are satisfied with their monetary pay (Guan et al., 2014), which will result in a decrease in unethical activity. Therefore, it is possible that incentive value has a detrimental impact on an employee's unethical behaviour.

3. METHODOLOGY

3.1 Area of Selection

This study was undertaken to understand and learn about different ethical practices that are followed in the hotel industry. Ethics is a very common word however; its meaning is not understood by many. The hotel industry promises to follow ethics in every part of its policies and procedures right from employee recruitment to achieving guest satisfaction. This study focuses on the areas and operations where the hotel has the chance to blind away from ethics without the knowledge of its customers. Through the study, we aim to understand whether the hotel industry in general shies away from ethical practices in certain areas as per their feasibility or if they feel that ethics is a very major part of its operations and every employee and management team must follow ethics at every step. The research aims to understand the particular areas of operations where the hotels are least implementing ethical practices and if these areas are generating more revenue by doing so. The study wants to understand the mindset of people who have been associated with the hotel industry if they feel that hotels are ethical in their approach as this will affect their intention of being associated with the hotels in their career. The emphasis of the study is particularly on departmental ethical practices and the measures to be taken to improvise them. In order to achieve these aims, the research employs a mixed methodology where qualitative and quantitative approaches are used.

3.2 Sample Selection

The sample focuses on individuals who have been associated with the hotel industry in the past, individuals who are currently associated with the hotel industry, and students who have got experience by being associated with the hotel industry in the form of an industrial training. These individuals were considered as samples as they have an understanding of the hotel work culture and will be having an insight into the ethical practices that were followed in the hotels.

The study sample includes people who are hospitality professionals, faculty members, and students. The individuals taken as the sample will be able to understand the issues put across and provide an authentic response to the questions asked. They will further be able to identify whether the hotels that they were associated with or are in association with are actually following and implementing ethical practices in different aspects of their policies and operations.

3.3 Data Collection

This study includes primary and secondary data. The primary data was collected through a questionnaire based on ethical practices followed by different departments of a hotel (google form) (appendix 1). The sample description was selectively chosen as it was mandatory for them to have been associated with the hotel at some point or the other in their career. Hence, the sample includes students who are currently pursuing hospitality education and professionals associated with the hospitality industry in the form of academicians or hotel employees. The secondary data involves a review of the literature on ethical practices followed in the hotel industry. This will help to understand whether the hospitality industry has embraced the concept of ethics in its policies and procedures. Through this survey methodology research, the focus is to understand if the hotel industry is applying ethics in certain parts of its operations or if the hotel industry is shying away from this concept to keep them safe and tight.

3.4 Sample Size

The sample size for the primary data includes 49 responses. As part of data collection, the questionnaire was sent to those who have been associated with the hotel industry and who have got experience working in hotels. This will give them an idea to understand the processes of the hotels and come out with a definitive response to the questions asked.

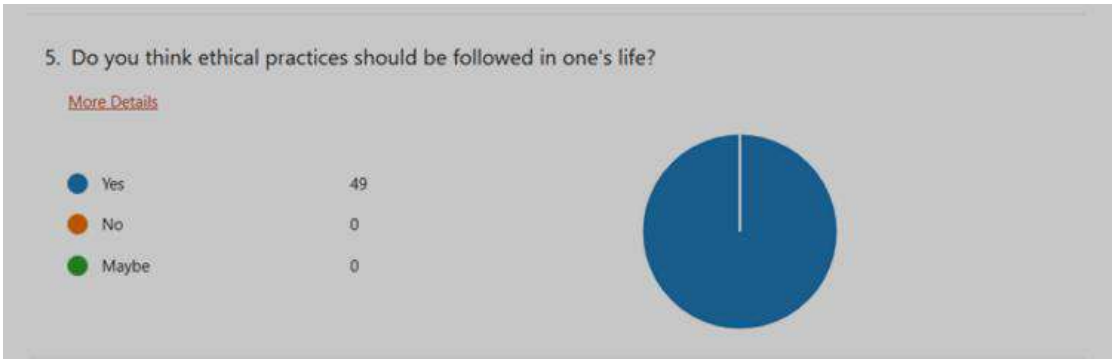
4. ANALYSIS AND INTERPRETATION

The primary data collected was analysed by the researchers to interpret the data and frame conclusions. The participants were informed that their personal information will not be recorded or used as part of the research. The participants have taken the responsibility of filling out the questionnaire voluntarily. The researchers handled the data themselves to study, analyse and interpret the responses. The secondary data will be incorporated through thematic analysis and critical analysis.

Figure 1: Occupational Details of the Respondents

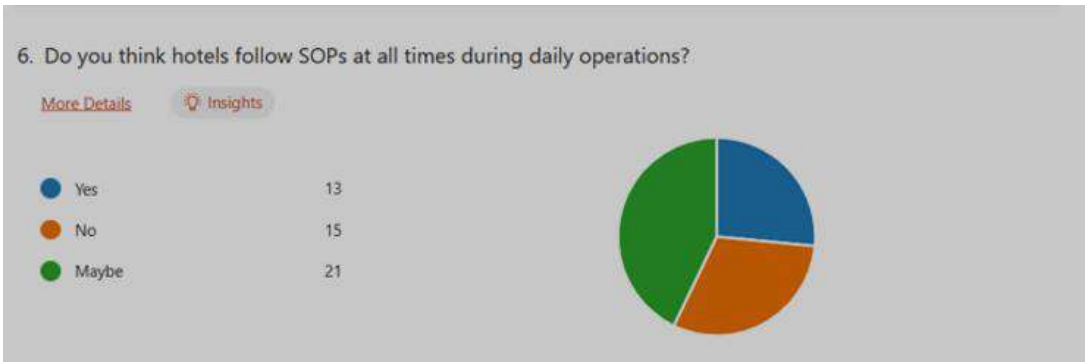
It shows the occupational details of the respondents. Students chose to respond more to the questionnaire as these questions were sent to students too who had just completed their industrial training. And they have made valuable observations on ethics in hotels.

Figure 2: Ethical Practices



All the respondents definitely understand ethics and hence have stated that ethical practices are a must to be followed in one's life to start with. A comprehensive ethical framework must cover not only life-or-death decisions but also those that are made on a daily basis. It must take into account relationships with others and acknowledge their significance for not only physical survival but also for overall well-being.

Figure 3: SOPs

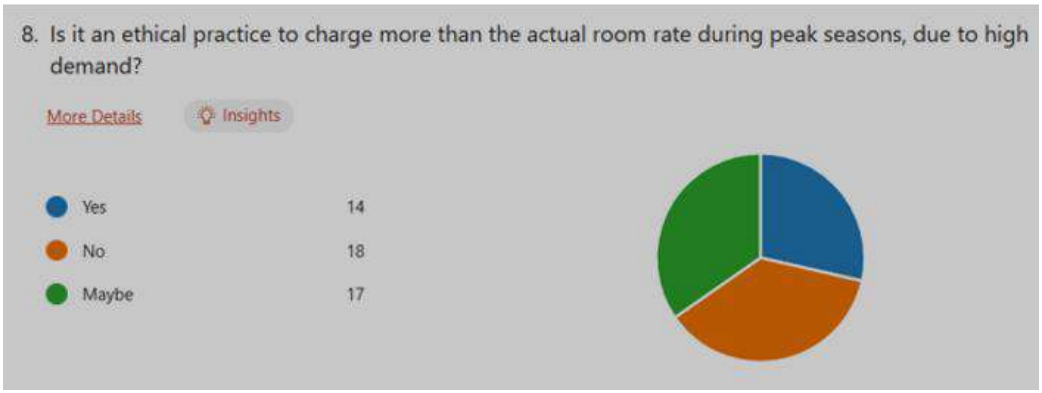


Respondents are mostly either in doubt or non-acceptance or do not want to reveal whether hotels are following SOPs. About 21 respondents out of 49 have responded as 'maybe', 15 are saying that hotels do not follow SOPs and least of the total respondents have agreed to the statement that SOPs are followed. SOPs definitely are ethics bound and of course tried, tested and standardised. Human values, ease of performance and quality can be achieved by following them.

Figure 4: Ethical Practices in Hygiene

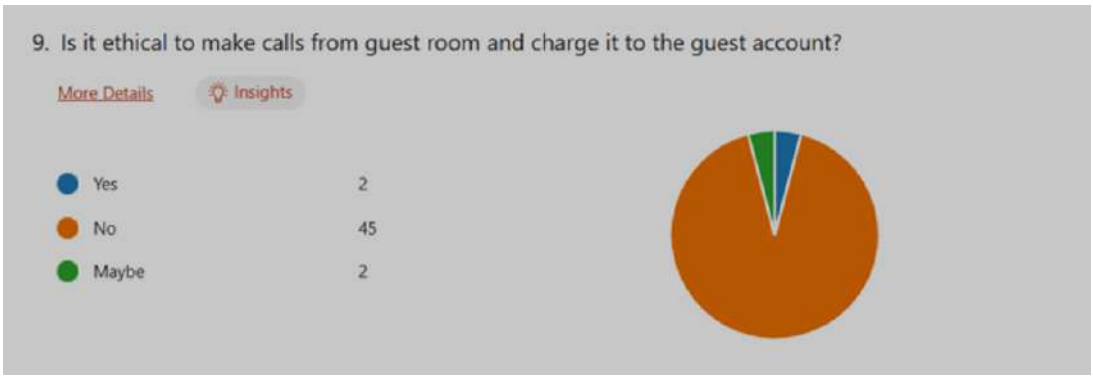
This is an important question, one that concerns hygiene, and cleanliness and speaks about the quality of the hotel services. A vast majority of the respondents have chosen 'yes' for this question. The respondents believe that hotel bed sheets must be changed for new arrivals. They feel it is ethical to do so.

Figure 5: Ethical Practices in Dynamic Pricing



There is a great variation in the responses here. So, 18 of them feel that it is not ethical to charge more than the actual room rate during peak seasons. Dynamic pricing is a revenue management strategy. 17 of them have selected '*maybe'* ethical to do so, as in they are not completely denying it.

Figure 6: Ethical Practices in making Phone Calls

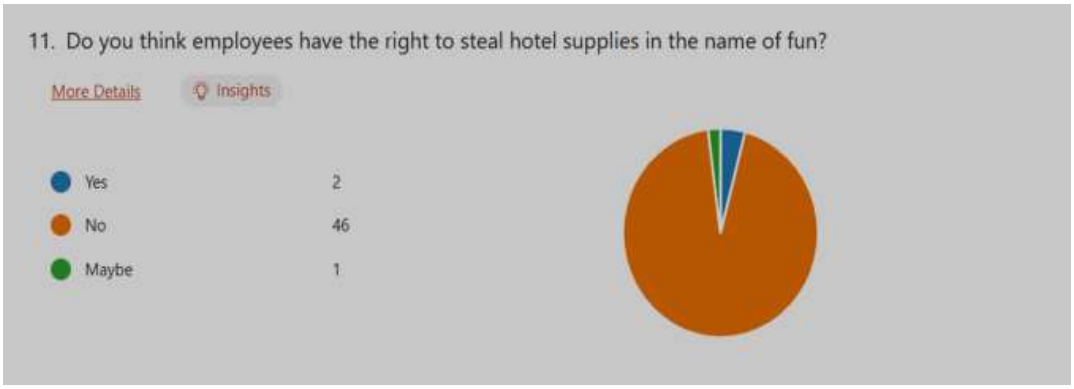


The answer to this is quite clear: the majority of the respondents believe that it is unethical to make calls from guest rooms. It is just not done.

Figure 7: Ethical Practices in Bartending

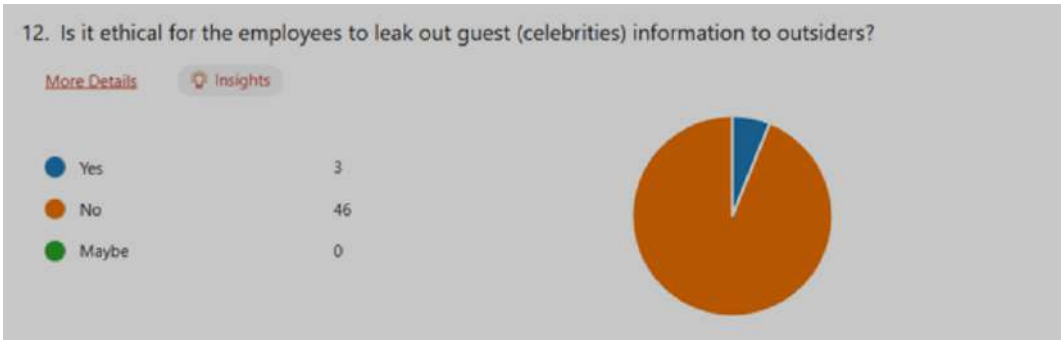
Sometimes more is poured and sometimes less, in the case of free pouring. If less, it is unethical and if more, it's a loss for the outlet. It depends on the situation. But the results of the survey says it is not ethical to do free pour.

Figure 8: Work Ethics



The majority of respondents think that it is not right to steal hotel supplies. Only 3 out of 49 feel that it is ok to steal. Employees are work-ethic-bound when they are in the organization and do not have the right to steal organizational property.

Figure 9: Guest Information

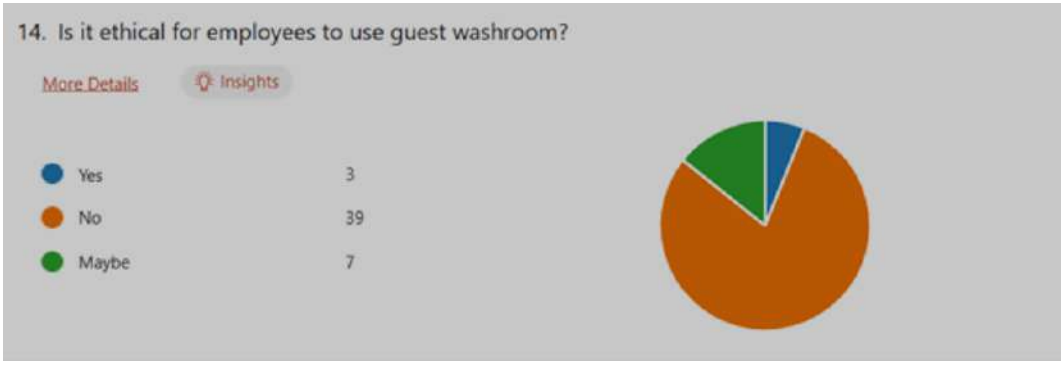


Survey shows that in most cases, hotels do leak personal information about celebrities to get popularity, to show that they are staying in their hotels, etc., but the respondents have agreed that it is unethical to do so, 46 of the respondents have said so.

Figure 10: Overcharging

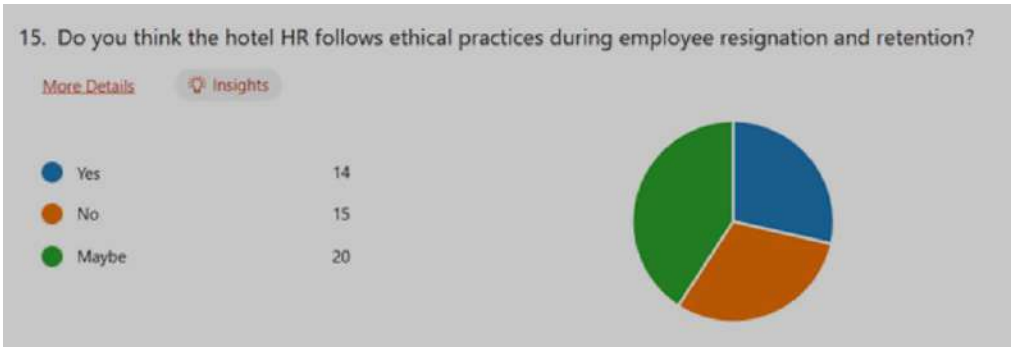
Five-star hotels charging exorbitant rates for food items is an 'unfair trade practice' and the government could seek explanations from them. Most guests could be in a hurry to leave and hence wouldn't care to get it corrected. But 46 out of 49 respondents in the survey have agreed that it is unethical to do so.

Figure 11: Guest Washroom



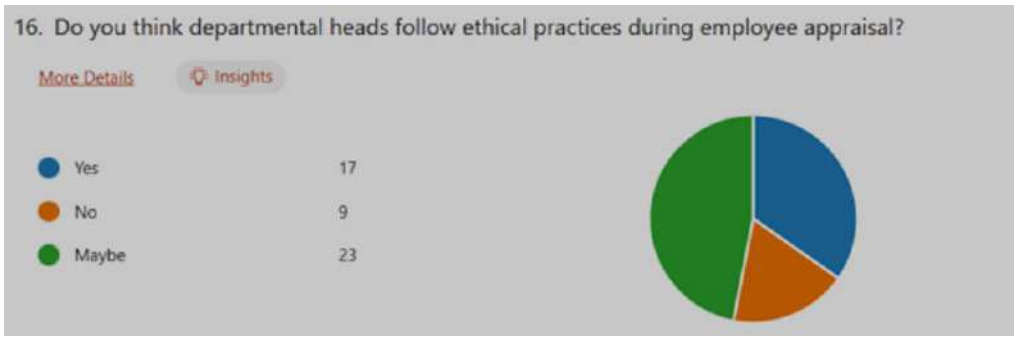
It is absolutely not right to use washrooms in guest rooms. One could go to the staff areas to use it. It is a lack of privacy and unethical, a number of respondents have agreed that it is unethical to do so.

Figure 12: Employee Resignation and Retention



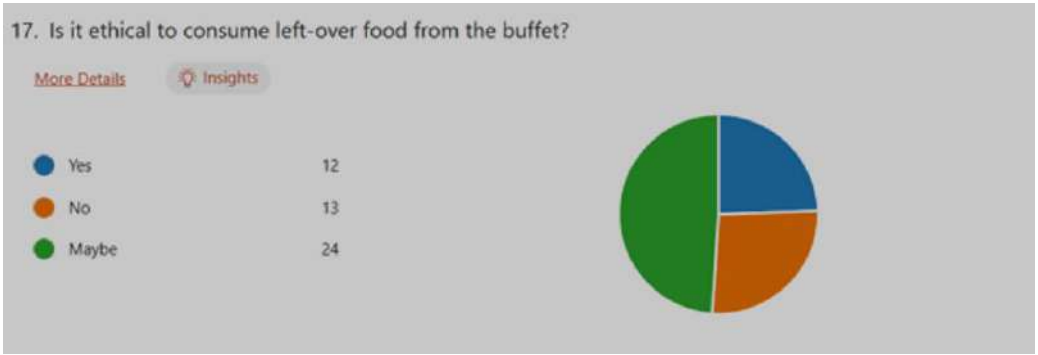
20 respondents chose to say *maybe* as they were worried about giving honest opinions. There is mixed opinion when it comes to choosing a yes or no. This question does not provide us with one strong opinion about HR practices followed during resignation/retention.

Figure 13: Employee Appraisal



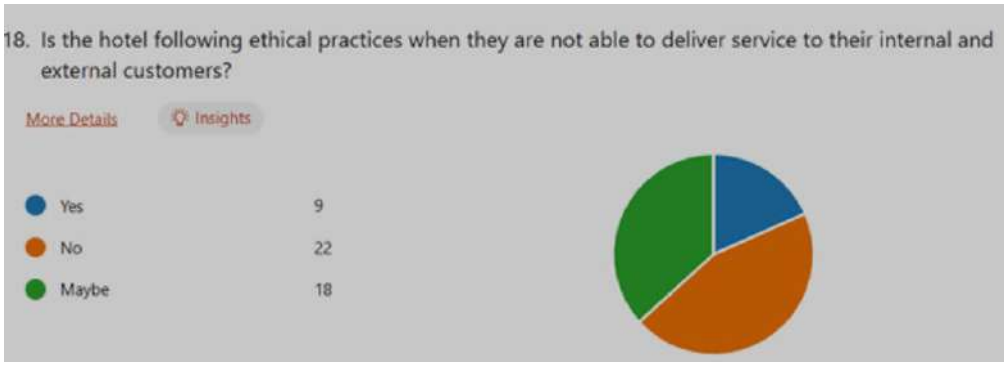
Respondents chose to say *maybe* over a firm *yes* or *no* again here so they are not completely agreeing that departmental heads are ethical when assessing employee performance.

Figure 14: Consuming Left-Over-Food



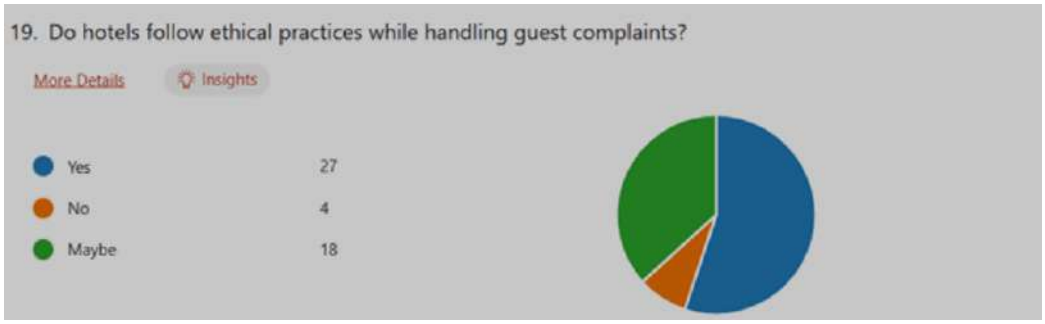
Almost equal number of respondents have chosen to support/oppose the statement. The question was designed to ask not only about eating straight from the buffet, but also to understand if instead of wasting the uneaten food, it would be alright to serve it to the staff. Looking at the responses, it could be seen that there is mixed opinion and the question needed a bit more clarity.

Figure 15: Delivering Service



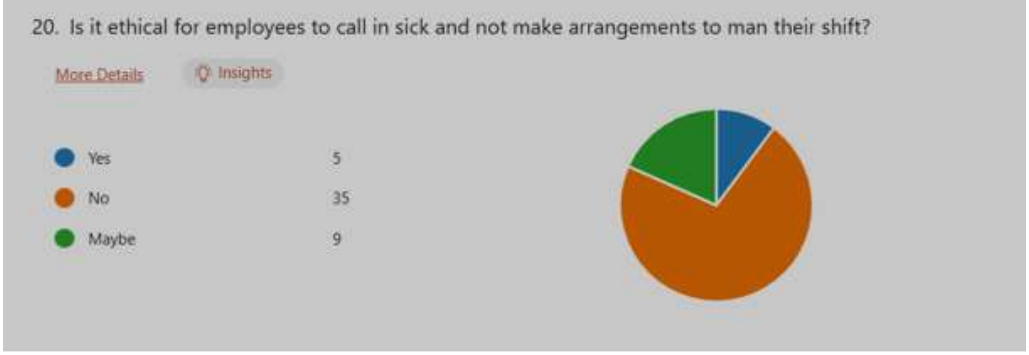
Rarely would an organization really worry about its internal customers. So, this question was to enquire what the respondents felt about it. Rest of the questions were about unethical ways of being by the staff, this question is to find out something for their welfare too. Nearly 50% of the respondents felt that hotels weren't too ethical while promising benefits and others for internal customers and also for external customers.

Figure 16: Guest Complaints



A good majority, 27 of the respondents have agreed that hotels are ethical when it comes to handling guest complaints and promise only what can be delivered. Under-promising and overperforming are good strategies in handling complaints.

Figure 17: Duty Allocation



Managing staff in various shifts is a difficult task. Duty allocation gets tough when staff call in sick without prior information. Many will be forced to cover the absent person's area; cause work needs to go on. 35 respondents felt that arrangements must be made and then leaves could be taken.

5. CONCLUSION

The ethical standards of the hospitality industry have a major detrimental effect on employees' unethical behaviour; specifically, the higher the ethical standards of the industry, the less unethical behaviour individuals engage in. This work adds to Chen and King's (2018) research finding that establishing a clear set of ethical norms at the corporate level is an effective method to deter unethical and aberrant behaviours. The higher the ethical standards of the hospitality industry, the more uniform its ethical code, and the more morally upright its managers will be. There is no justification for employees to flout rules and act unethically in a moral workplace. Secondly, in addition to team value, task value, incentive value, and status value; all partially mediate the relationship between the ethical standards of the hospitality industry and unethical action on the part of employees. Among them, reward values, followed by status values and task values, have the highest mediating effects. If employees maintain high standards of work values, it will create a positive impact to evaluate their jobs, working environments, and the outcomes they hope to achieve at work.

6. RECOMMENDATIONS AND SUGGESTIONS

Material reward is the most direct form of remuneration for low-wage hotels among the several means of incentives. When moral guidelines are more consistently applied, rewards and penalties are more obvious, and unethical activity for one's own benefit is less prevalent. Status value and task value play a key role in the prediction of employees' motivation for unethical behaviour because fairness and self-realization are crucial for personal development.

Employees' perceptions of the fairness of organizational promotion and whether it meets their potential realization play a key role in this prediction.

Hotels need to focus more on the development and application of business ethics. Hotels should specifically enhance their moral education programs and moral education approaches, such as integrating classroom presentations and role-playing and holding frequent ethics days. They should prioritize the development of moral leaders, the creation of ethical teams, and anonymous moral complaint channels in the interim. Additionally, the appropriate disciplinary guidelines and particular codes of ethics need to be strengthened. Employees and hotels will be able to agree on moral standards and develop an ethical workplace environment with the aid of a clear reward and punishment system.

By creating standards and guidelines, hotels should value and direct workers' work values. It is important to pay attention to how status, security, and development variables affect job values. For instance, effective authority delegation can motivate staff to maximize their potential and develop their capacity to solve complex issues flexibly and autonomously to realize task value, which is crucial for the next generation of workers.

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A LITERATURE OVERVIEW: BLOCKCHAIN TECHNOLOGY AND CYBER SECURITY

J. Sathya

ABSTRACT

Blockchain is a recent and powerful technology that has earned attention due to its many promising potential applications. High-level security control assures the confidentiality of data in Blockchain Technology. Blockchain provides higher security compared to all other central databases. Cyber security breaches are a serious threat to most businesses and can have harmful consequences. Cybercrime is the greatest threat to every industry and every profession. Blockchain provides strong cyber security technology. The cyber security industry can benefit from blockchain's unique features, which create a virtually impenetrable wall between a hacker and the users' information. Blockchain technology based on the concepts of cryptography, decentralization and consensus have revolutionized record-keeping. To improve the speed and efficiency of transactions, it provides many security benefits through cryptographic validation and improving the transparency of records. This paper explains how blockchain improves cyber security.

Keywords: BCT, Blockchain, CIA, Data integrity, cyber security, use cases, cyberattacks, Data availability, Data confidentiality, Decentralized.

1. INTRODUCTION

Blockchain is a shared, decentralized, and digital ledger that records transactions in the form of blocks. Each and every block has a certain storage capacity. When the stored information reaches the storage limit, it is called 'filled'. Then it is closed and linked to the previously filled block. Likewise, it will form a chain, and be named as blockchain. Each and every block is locked cryptographically with the previous block, and once a block has been included, it cannot be changed. Initially it was introduced as a cryptocurrency, called Bitcoin, later, it has been used in many other business and nonbusiness applications. Most of the existing systems are based on centralized frameworks, this emerging technology utilizes peer-to-peer networks and distributed systems which includes blockchain registers to store transactions.

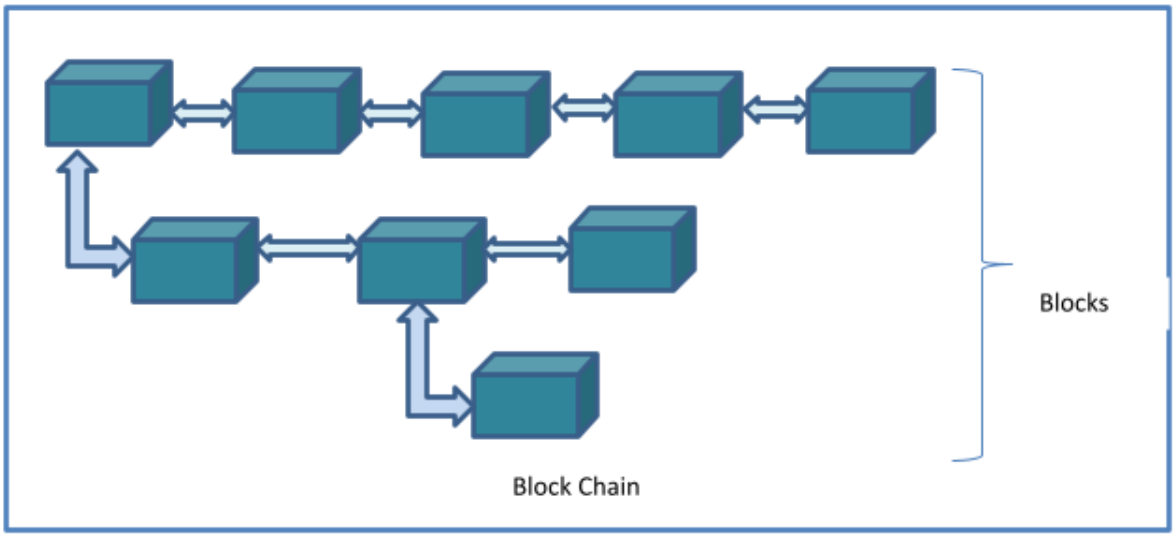

Figure 1: Diagrammatic Representation of a Blockchain

Some important characteristics of Blockchain are:

a) It is possible to store different types of information.
b) No single person or group has control as it is a decentralized database.
c) Blockchains are immutable, that is data entered is irreversible.

Blockchain is mainly used to facilitate information sharing and value exchange between parties, which can be utilized for various domains.

2. FEATURES OF BLOCKCHAIN

2.1 Immutablity

Immutable means unalterable or unchangeable. In the blockchain, one cannot do the mutation of ledgers which means that no data is corrupted. Every node on the system has a copy of the ledger. So, to alter any data, there must be a unanimous agreement of every node. This makes blockchain secure and transparent.

2.2 Decentralized

Blockchain is decentralized, meaning that no authority or government, or a group of persons, or a single individual controls this technology. Rather, it is a group of nodes that manage the whole transaction.

Decentralization is one of the most popular blockchain security features that makes this technology great for digital money and possibly many more applications. A decentralized system works without involving any third party or core administrator.

2.3 Provenance

Blockchain is transparent and provides an authentic ledger of actions and transactions in all aspects. Blockchain makes the data available to everyone giving the audience greater confidence, as well as new efficiencies and opportunities. Blockchain transparency helps to improve data security. It allows the users to freely and securely make transactions without any risks of cheating or tricking.

In the business model, provenance is a tracking mechanism which maintains recorded proof of an entity that can be used to prove its legality later, if required. When blockchain is used with provenance it provides the complete visibility of transactions to prevent fraud and counterfeiting. Provenance is very much needed in the field of Supply chain, Academic research, User authentication and Legal pieces of evidence. Some of the key features are:

- Provide an immutable record and real-time view of all transactions between the involved parties
- All transactions between the network participants are automatically validated, timestamped and recorded in the distributed ledger.
- Consensus based data validation
- Access rights are configured for participants for private or consortium blockchain

2.4 Minting

Blockchain is widely known for cryptocurrencies. In blockchain network users can independently create cryptocurrencies without the help of any government or private bodies. The process of creating digital coins or tokens is actually known as “minting”. Minting in blockchain is done in two ways.

a) Proof of Work (POW)

Proof of work means minting crypto through mining. It needs high powered computer processors to solve complex cryptographic equations for generating crypto. This solving procedure contains the verification and validation of data blocks. The transactions are secured by involute encryption techniques and the records are stored on a public ledger.

In the application of blockchain cryptocurrencies, hashing plays an important role to prevent fraudulent transactions. Hashing means transformation of varied length input data into fixed size of string which is done by a specific algorithm, Bitcoin hash algorithm is SHA-256 or

Secure Hashing Algorithm 256 bits. Hashing gives a distinct identity to each block in blockchain. The primary purpose of using hash in blockchain is to protect the information and make the ledger immutable. Each block of a blockchain contains a previous hash as a header information which ensures nothing is tampered when a new block is added.

b) Proof of Stake (POS)

Another way for processing transactions and creating new blocks in blockchain is proof-of-stake. This method is associated with the cryptocurrency consensus mechanism. This method helps to keep the database secure and to validate the entries in a distributed database. Here minting is done through staking, which means the owners must guarantee the precedent coins to validate transactions.The coins are detained while staking and unstaked later for trading. Stakeholders are randomly chosen for validating data in the network, while staking validators are not allowed to move or spend their stake. So compared to proof-of-work this way is less risky.

2.5 Consensus

Every blockchain technology has a consensus algorithm which makes the blockchain technology highly effective. All the actions are verified and approved on the blockchain using the consensus algorithm.

Consensus helps to make the decision-making process easier and better for the active nodes on the network. Cryptocurrencies use this mechanism to validate the transactions. It enables trust and security in a blockchain network. It's like a system of agreement that dictates the validity of transactions. Consensus protocols form at least half of the participants in the network agree on the upcoming change. If they agree the system gets updated, otherwise the changes will be rejected by mutual agreement.

There are different consensus algorithms for different blockchains like proof-of-work(POW), proof-of-stake(POS), Delegated POS (DPOS), proof-of-importance(POI), proof-of-capacity(POC),etc. In these, the most familiar algorithms used by cryptocurrencies like bitcoin, ethereum are POW and POS.

2.6 Distributed Ledger Technology (DLT)

Blockchain is also known as "Distributed Ledger Technology (DLT)". The most famous example for DLT is Bitcoin. In Blockchain, digital information can be recorded and distributed but the records cannot be altered, deleted or destroyed.

3. FACETS OF BLOCKCHAIN SECURITY

3.1 Data Confidentiality

Data Confidentiality defines protecting privacy and sensitive information from unauthorized persons. It ensures that only authorized parties access the appropriate data.(Sanjay,.2021)

a) *Encrypted Data*: Blockchain technology can provide high-level security control to assure the confidentiality of data. Even if an attacker accesses the blockchain network, fully encrypted blockchain data ensures that the data will not be accessible by unauthorized parties while flowing through untrusted networks.

b) *Public and Private Keys*: Private keys and public keys are among the most commonly used terms in the domain of cryptography and blockchain development. These keys are used for verification of digital signatures, ensure safe and secure communication and enable password authentication key agreement. Public and private keys are a string of letters and numbers generated by cryptographic algorithms, which are hard to decode by current computing power. They are critical to protecting your user information, the confidentiality of data, authentication and authorisation to the network.

   The public key is used to send the bitcoin and the private key is used to validate the transaction. Private key is like the password to the crypto wallet. If the person receives any bitcoin sent by someone else, the transaction is unlocked by the person's private key which ensures that the user (person) is the owner of the bitcoin.

3.2 Data Availability

Data availability in blockchain is achieved through a decentralized network of nodes that work together to maintain and validate the blockchain. When a new transaction is added to the blockchain, it is broadcasted to all nodes in the network. Each node verifies the transaction using complex algorithms and consensus protocols to ensure its validity. (https://www.caci.co.uk/insights/opinions/how-does-blockchain-improve-cybersecurity/)

Once a transaction is verified, it is added to the blockchain and distributed to all other nodes in the network. So, all nodes have a copy of the blockchain, and any new transactions are immediately available to all participants in the network.

To ensure the data availability in the network, it is important to enable all the nodes to communicate with each other and to share the data. The significance of data availability is in maintaining the integrity and trust of a blockchain network. Data availability assures that the

transaction data is available to participants to verify the data and not to download and store data by themselves.

3.3 Data Integrity

Data integrity refers to the reliability and trustworthiness of data. It refers to the consistency of data and accuracy of data. Blockchain ledgers are immutable, that is data modification and deletion is impossible.(Sambana,.2020)

Consensus model protocols help organisations to implement mechanisms to prevent and control ledger splitting in the event of cyber control attack. (Alex,.2019) In Blockchain, with every new iteration, the previous state of the system is stored thus providing a fully traceable history log. Smart contracts can be used to verify and enforce rules between parties preventing miners from mining blocks of data.(Maleh,.2020)

Blockchain is growing rapidly because data used must be accurate and reliable. The integrity of data is ensured by one specific method called “Merkle Tree” which uses the cryptographic hash function. It is a type of data structure in which hashes of child nodes are combined into the parent’s node header. This process will continue iteratively until it reaches the root node. Root node acts as a main node which contains the overall information of the entire tree. A sample binary Merkle tree structure is given below.

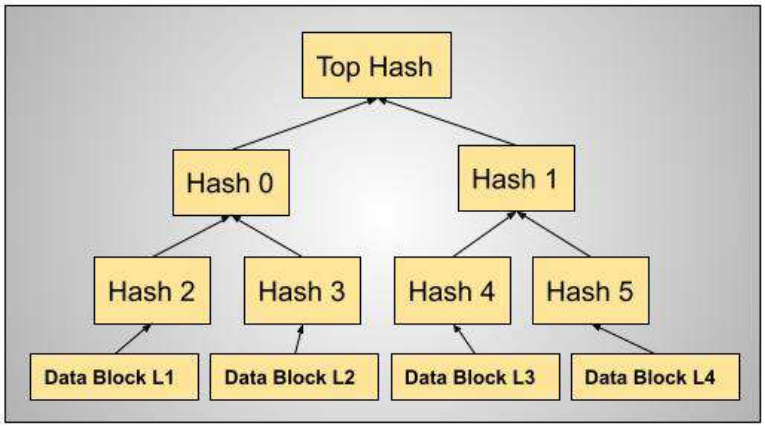

Figure 3: Merkle Tree

4. BLOCKCHAIN CYBERSECURITY USE CASES

Cybersecurity defines the method to protect data or information in a network from unauthorized access (Prakasha,.2023). The following are the challenges in cybersecurity: Protecting

centralized Data, Preventing Data Theft, False Data Entry Prevention, Dos and DDoS attacks, Ransomware, malicious applications.(https://www.bitdeal.net/blockchain-in-cybersecurity)

4.1 Securing Private Messaging

To secure private chats and messaging on social media apps, encryption on the block chain has an edge over peer-to-peer verification systems. Being a decentralized ledger, data storage is never dependent on a single location (https://www.csoonline.com/article/3252213/6-use-cases-for-blockchain-in-security.html). It's very hard to cyber-attacks or hack. Consensus protocol secures user's metadata when users exchange chats on social media apps, messaging platforms for security, privacy and verification (https://zcybersecurity.com/blockchain-in-cybersecurity-use-cases/).

Example

- *Obsidian* is one startup containing obsidian messenger which uses blockchain technology to secure metadata. Instead of email and any other authenticating method, metadata is randomly distributed among the ledger. This ensures that data is not available in one single point.
- Another popular secure messaging app signal is *Session*, an offshoot. It uses the Service Node blockchain to hide IP addresses of users on the network and allow them to exchange messages even without a phone number.
- Even with the use of metadata, participants are facing some issues. These issues are also resolved in another new service called *Secretum*. This service runs on the Solana blockchain and concludes the metadata problem by allowing users to communicate independently through cryptocurrency wallet addresses.

4.2 IoT Security

With the increasing application of AI and IoT, the security of data and systems from hackers has always been a major concern. In this case, blockchain can be used to secure such types of systems by decentralizing their administration (Paul, 2023). This approach will give the capabilities of the device to make security decisions on their own. Not depending on the central admin or authority makes the edge devices more secure by detecting and acting on suspicious commands from unknown networks.

Implementation of Artificial Intelligence (AI) allows hackers to easily access the home automation system through edge devices. Blockchain can be used to decentralise the overall system and allow systems to make their own security decisions.

Example

- *Xage Security*, a startup based on a "tamper-proof" blockchain technology platform that scatters private data and authentication at scale across a network of devices. This firm can even work with the irregular connectivity and secure different industrial systems.
- The Isle of Man government in the UK is assessing blockchain technology to identify if it can prevent IoT devices from trade-off.
- Startup Filament released a new chip based on blocklet chip which allows secure decentralized interaction and exchange. This chip is designed to enable industrial IoT devices to work with various blockchain technologies.

4.3 Securing DNS and DDoS

Hackers have tried to access the DNS(Domain Name System) and exploit these links, thus crashing sites. Due to Blockchain's properties of immutability and decentralized systems, the DNS can be stored with enhanced security. (https://www.idfcfirstbank.com/finfirst-blogs/finance/what-is-blockchain-technology-in-cybersecurity) DNS penetrates the website name to its corresponding IP address and redirects to scam websites. By blowing away the DNS service providers for websites, the attackers were able to keep away from services. Some of the recent blockchain DNS softwares are Namecoin, Blockstake, Ethereum Name Service (ENS), Emercoin – EmerDNS, Peername, Handshake.

DNS is centralized in nature and a perfect platform for launching DDoS (Distributed Denial of Service). It occurs when the users of a network resource, server, or website, are restricted/denied access or service to the target resource. These attacks shut down or slow down the resource systems. DDoS attacks target a single point of failure mostly on the web server. If it goes down, then the site may not be visible to the visitors. In blockchain any node can go down due to DDoS attack, because there is no fixed single point.

Transaction Flooding - main DDoS threat which creates blocks with maximum size at regular intervals. A block which does not fit into the current block will be stored in mempools. That will be taken into consideration for the next block. The impact of blockchain DDoS attacks are like software crashes, Node Failures, Network Congestion, and Bloated Ledger.

Few examples for DDoS attacks in the real world are Solana and Arbitrum One.

4.4 Verification of Cyber-Physical Infrastructures

The capabilities of blockchain technology in information integrity and verification may be utilized to authenticate the status of any cyber-physical infrastructures. Cyber physical system(CPS) is an embedded system that controls and monitors the surroundings with the help of sensor networks and actuators. The application of CPS is spread across traffic control and safety, process control, distributed robotics. Blockchain is used in this system to achieve robustness and reliability.

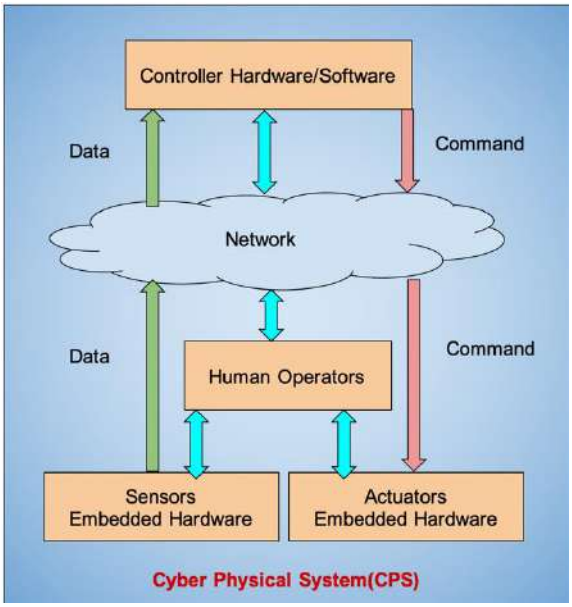

Figure 4: Cyber Physical System

The above architecture is still under construction. Some of the below mentioned functionalities are implemented in CPS:(Maleh,.2022)

- Single information space for interaction
- Cybersecurity
- Single data storage facility
- Digital twin technology through smart cards
- Equipping redundancy of equipment and communication channels

4.5 Protecting Data Transmission

By utilizing the complete encryption feature of the technology, data transmission can be secured to prevent malicious actors from accessing it, be it an individual or an organisation.

This approach would lead to a general increase in the confidence and integrity of data transmitted through blockchain (Samreen,.2022).

Many cryptographic related technologies based on mathematical functions like hash function, asymmetric encryption, and homomorphic encryption are used to secure data transmission.

- *Hash functions* are used significantly in blockchain technologies to ensure the data integrity and security. More complex hash functions are designed to minimize the probability of collisions.
- *Asymmetric encryption* also known as public key cryptography uses two different keys to encrypt and decrypt the data during transmission.
- *Homomorphic encryption* uses zero knowledge proof technology which allows data processing without decryption. User has to encrypt the data and send it to the server and the server will do the processing blindly. The result of what is produced by the server is itself encrypted.

4.6 Decentralized Storage of Critical Data

With the exponentially increasing data generated every day, blockchain-based storage solutions help achieve decentralized storage thus protecting digital information. Decentralized data storage ensures the sensitive data protection. Apollo Currency Team is a good example of an organisation that has already adopted blockchain technology in their systems (The Apollo Data Cloud).

5. CONCLUSION

Blockchain is implemented in many business areas.With the analysis of this paper, blockchain is used in some popular areas like money transfer, IOT, health care, government and media. Many companies are adopting this new emerging technology because of its decentralized nature. Data will be available in all nodes and allows the user to take their own security decision.

While blockchain features are rapidly growing in order to reinforce cybersecurity, hacking techniques are also growing and creating more and more dangerous attacks. For cybersecurity specialists, staying up-to-date with the latest changes is essential. Cybersecurity will be boosted to double the amount of cybercriminals rate, only when blockchain technology has been used as a medium of data storage. Blockchain applications for cyber security have evolved and strengthen the existing efforts to enhance security and to deter malicious actors. Fraud

prevention and detection mechanisms are required as an add-on to Blockchain Technology to ensure that trustworthy and privacy-preserving attributes of the users are maintained.

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ELDERLY AND ARTIFICIAL INTELLIGENCE: BOON OR BANE

Dr. Vatika Sibal

ABSTRACT

Artificial Intelligence or (AI) has infiltrated our social lives and expanded to AI-based services and tasks, including areas with a large impact on people, such as healthcare. The shortage of manpower in the healthcare and social system requires alternative arrangements to meet the ever- increasing health needs, especially of the elderly population. Streamlining the current health resources and making them more efficient is the need of the hour. Extensive reliance on AI has helped in prevention, diagnosis, drug designs and after-care, and thus, may drive meaningful changes across the entire patient journey.

AI-enabled technologies could help address age-related challenges like physical impairments and cognitive decline. While recent researchers continue to study elderly experiences with specific AI-enabled products (e.g., conversational agents and assistive robots), it remains unknown how elderly population perceive and experience AI-enabled everyday technologies, which could impact their adoption of future AI-enabled products.

Surveys and semi-structured interviews were conducted on the elderly to understand their experiences and perceptions of AI. The study concluded that the elderly were enthusiastic about learning and using AI-enabled products, but they lacked learning avenues. Additionally, they worried when AI-enabled products would outwit their expectations, intrude on their privacy, or impact their decision-making skills. Therefore, they held mixed views towards AI-enabled products. The design recommendations conclude that it helps to make the elderly feel secure, inclusive and in control of themselves without being dependent on their younger generation.

Keywords: Artificial Intelligence, Elderly, Assisted Technology, AI-enabled Products

1. INTRODUCTION

Although people from all ages benefit from technological advances, different age groups may have distinct healthcare needs. Thus, in contrast to younger adults, whose priorities are inpatient experiences, the elderly face a number of barriers in reaching the local healthcare doctors and facilities. They even lack standardized information systems and health care centers which are essential to address their complex health care and social care needs. The elderly has a much higher prevalence of nearly all major chronic and long-term conditions. In addition, they are more likely to succumb to adverse health events, such as falls or

infections, and these can lead to drastic changes in their physical and mental well-being even after an apparently minor incident. However, personal and family-focused care, self-management resources, and successful collaborative practice have been all highlighted as facilitators of good healthcare provision both by elderly and their families. All of the above highlight the importance of diagnosis, monitoring of disease risks and their prevention, as well as management and optimizing of geriatric syndromes in the community for elderly living independently or in 24-hour care facilities.

AI technology can make a difference in the health and social care provision for the elderly. AI and virtual reality environments help to improve social isolation, loneliness, anxiety, depression, gait, posture and even pain in older adults. Maintenance of good friendly care, a clean environment, and optimized supply chains could help the elderly indirectly.

The health system has accumulated massive datasets, largely due to the introduction of electronic records, which include demographic information, medical history, laboratory tests and radiological investigations, history of surgical interventions, medication history and allergies, lifestyle etc. Such data can be used productively for improving diagnosis and treatment, prevention, diagnosis and cure of communicable, acute and chronic diseases. Considering information on lifestyle, general health and demographics aid in timely diagnosis and prediction/prevention of disease onset at an early stage. A promising avenue is the secondary use of electronic health records, where patient data are analyzed to conduct clinical and translational research. One of the advantages of AI is its use in geographically isolated areas, where there is limited access to healthcare, and also overcoming the increasing lack of specialized medical staff. With this, machine learning algorithms are paving the way, enabling extensive data sets to be analyzed using algorithms, a set of rules given to an AI program to find patterns which are far too complex or numerous to be done manually.

The algorithms help to predict and analyze the details of dozens of diseases including heart failure, several types of cancer, congestive heart failure, diabetes, schizophrenia and attention deficit and disruptive behavior disorders. It will help to prevent and lead to further research in AI.

AI-enabled products, such as online shopping and autonomous driving, are becoming so increasingly integrated into daily lives that people are often unaware of their presence and potential impact on daily lives. Recent researches began to understand people's experiences and attitudes toward AI and showed that age may affect their attitudes and experiences with AI. While younger adults tend to encounter AI products more often and are generally positive about AI, older adults aged 60 years or above tend to have relatively less experience. People

may face challenges adapting and using AI products but AI could potentially help the elderly to deal with age-related issues such as physical impairments, cognitive decline, and emotional isolation. It is crucial to understand older adults' personal encounters and experiences with AI so that these technologies add greater value to this section of the population.

2. OBJECTIVES OF THE STUDY

The objective of this study is to explore the experiences, perceptions, and challenges faced by elderly individuals (aged 60 and above) when using AI-enabled products such as Alexa, Google Home smart appliances, and assistive robots. The study aims to understand the elderly's perceptions and expectations of AI technology and its applications in order to identify any barriers or difficulties they encounter. The specific research questions addressed in the study are:

a) What are the personal experiences of elderly individuals with AI-enabled services?

b) Do elderly individuals face any challenges in using AI-enabled products, and if so, what are they?

c) What are the perceptions of elderly individuals regarding AI technology in AI-enabled products?

d) By conducting an online survey targeting elderly individuals who use and have experience with AI-enabled products, the study aims to gather insights into their usage patterns, knowledge levels, and trust issues related to AI. The findings will help identify areas where elderly individuals may require additional support or education to enhance their engagement with AI technology. Additionally, the study aims to investigate the role of personal experiences, perceptions, and product designs in facilitating the acceptance and accessibility of AI products for older adults.

3. REVIEW OF LITERATURE

Technology helps individuals from ordering food, shopping, managing health care, financial to social security services. In this way, technology weaves into the lives of all, including the elderly. Keeping pace with the changing technology becomes crucial for oneself (Delmenhorst et al). Adapting to the rapidly changing technology is often left to an individual's technological capabilities and skill-sets. It has been understood that the elderly deters to adopt new advancements in technology not because of usability issues or cost, but because of their lack of awareness about the benefits or value the technology could provide. Elderly motivation

to use and invest their energy in new technology depends on their knowledge of its perceived advantages and worth.

Digital literacy is very important for the individual to understand and determine how one could perceive the use and value of a technology. Digital literacy means individuals' ability to discern the usefulness of a particular technology and their comfort in using it for various purposes (Leahy and Dolan). It applies and helps anyone from a non-technological background, including older adults to get help. However, to attain this skill and proficiency, technology should be usable and accessible to everyone. The elderly experience anxiety, fear, lack of control, and unawareness of existent services while using any technological product, therefore they are hesitant while using them (Long and Maguro). They also encounter ergonomic and usability issues in all technological products like online banking, mobile phones, tablets, computers, and websites (Holder et al).

One can say that the elderly's motivation to use and adapt technology depends on three factors: i) technology's perceived usefulness and potential, ii) digital literacy to experience technology's benefits, and iii) personal apprehensions in using digital technologies. However, these factors were mostly derived based on non-AI technologies. Therefore, it is emphasized that the importance of AI literacy for users and that digital literacy is the prerequisite for it (Holder et al).

AI technology has become part and parcel of our daily lives. AI has revolutionized many sectors like the e-commerce industry, from providing personalized recommendations while shopping, virtual shopping assistants to help with queries, to detecting frauds. Additionally, AI is extensively used in healthcare sectors for early disease diagnosis and in social media to enhance users' engagement. Many times, users are not aware that they interact with products that use AI, which affects their perception and may create false expectations from AI systems. AI has been used in enhancing the lives of the elderly. They experience various age-related issues such as loneliness, functional decline impacting their physical and mental abilities hindering them from performing their daily life activities comfortably. Most of the research studies aim at resolving/assisting the elderly with age-related issues through specific AI-enabled technological interventions. For example, how conversational agents like Alexa, smart appliances like a smart cleaner or television, or assistive robots augment their physical or cognitive abilities, alleviate the social isolation felt by elders, and their feelings towards it.

A few recent studies studied people's awareness, applications, challenges, benefits, and drawbacks of AI. A survey study showed that respondents of 60 years and above have limited AI knowledge and limited exposure to AI products as compared to younger adults. Most of the

studies were disoriented towards studying the elderly perceptions of general AI technology, experiences and needs in using an AI-enabled product(s) effectively. Further, these studies have not focused on how elderly perceptions impact their usage or vice-versa.

4. METHODOLOGY

To understand elderly experiences in using AI-enabled products and their perceptions about AI technology, an online survey was conducted to select participants aged 60 or above, a common age threshold for the elderly. Google form was administered after explaining the details for the research. Elderly experiences in using AI-enabled products and their perceptions about AI technology survey method and in-depth interview schedule was followed. To identify older adults aged 60 or above with experience in using AI-enabled products, questionnaires were administered where questions included open and closed ended. It was taken for granted that the respondents were using AI in their daily chores. Examples of AI-enabled services were used to probe their perceptions and understanding of AI: (i) customer service chat-bot (ii) email spam filter (iii) navigational maps like Google Maps (iv) search engines like Google (v) video recommendation and thumbnail features on YouTube, Netflix (vi) online shopping recommendation features on Amazon (vii) personal finance like mobile-check deposit (viii) ride-sharing applications like Ola, Uber (ix) robotic vacuum e.g. e-Robot (x) social-network applications like Facebook and instagram (xi) voice-assistants like Alexa.

The questions were centered around collecting: (i) demographic information (older adults' age and gender) (ii) their perceived AI knowledge level (iii) frequency of AI-enabled services used by them and iv) their sources, if any, used to learn AI.

Further, to gain qualitative insights into the experiences of older adults in using AI-enabled products, and their feelings and attitudes towards AI technology, online interviews were conducted. Semi- structured interviews were designed to learn participants': i) understanding of AI technology ii) feelings towards AI and reasons for those iii) experiences using AI-enabled product(s) iv) barriers in embracing AI technology and v) perspectives on making AI more accessible and usable for older adults, and follow-up questions on participant's survey responses. Semi-structured interviews were conducted on Zoom. The sessions were recorded for data analysis with the consent of the participants.

The researcher interviewed the participants, and their demographic details and then understood the perceived AI knowledge level, and AI-enabled products used by them. A list of the most frequently used AI-enabled products reported by the elderly was made.

5. OBSERVATION AND ANALYSIS

Respondents were asked to report about their perceived AI knowledge level. Most of them reported having some knowledge about AI.

The survey revealed that most of the respondents prefer using various AI products irrespective of their age and have some knowledge of AI. Moreover, respondents leverage search engines, newspapers, and depend on families and friends to learn about AI. However, the elderly had limited knowledge of AI technology and their sparse use of certain AI products.

The survey study did help to identify the elderly who use AI-enabled products but could not give a proper understanding of the reasons for the elderly facing difficulties in using AI-enabled products, and regarding their experiences if they used it or what were their expectations from the AI technology.

The research explores how elders adopted and learned about various AI-enabled products and their unique insights into how such products changed their interaction behavior. Researchers analysed that the elders use various AI-enabled products. However, one did not know how they gain knowledge about a product and learn how to use a product. The interviews revealed that while using the search engines, navigational maps, and email spam filter etc. the products have become part and parcel of their lives. However, they were happier to share their experiences about other AI-enabled products like videos, shopping platforms, and voice-assistants. Few of the respondents relied on using AI services while booking air travel tickets as it guided them in the process from selecting flights with lowest or moderate fares and also in the process of payment.

The study reveals that the participants adopted an AI-enabled product not because of their active choices but rather accidentally discovering those. For instance, they either received such products as gifts or bought the AI-enabled products because other conventional non-AI products were out of stock.

Alexa, artificial conversationalists, communicating via auditory or textual methods, are other methods of care delivery that reduce people's loneliness by providing social support. The survey results highlight that elders need several types and uses of robotics embedded in the environment that is a different set of furniture, walls, ceiling to offer enhanced support and maintain activities of daily living. Voice-controlled intelligent personal assistants - Amazon Echo and Google Home similarly can provide companionship, reminders, emergency communication and even entertainment for elderly living alone, while also reducing caregivers' burden. However, these services should be used in early-stages and need to be both standardized and properly validated for large- scale industrial manufacture.

6. CONSTRAINTS AND CONCLUSION

The number of single-person families over the age of 50 is expected to increase, and problems such as health, safety, and loneliness may occur due to aging. According to a research report by the National Health Insurance Service the total medical expenses for the elderly over 65 years of age would increase.

Vulnerable people are relatively alienated from information and service benefits compared to the general public, and they face psychological alienation. All this leads to loneliness and depression. Many institutions are using daily care and welfare AI robots, still, the vulnerable are facing challenges and find it difficult to sign up for AI-enabled products and so they do not have access to the service benefits. It is necessary to expand advanced daily care services and integrate control management through an open platform linked with the government/local government.

There is always a need for continuous supervision and quick diagnosis in the case of the elderly. The promise of modernizing the health system by delivering efficient, precise, person-centered and cost-effective healthcare has been a main cause to implement new technologies. However, very little has been delivered to date in terms of direct patients' care and benefits. The ethical issues remain unaddressed and without this regulated the wider AI implementation within the healthcare system cannot proceed. Health care professionals should not blindly embrace technological advances but instead take them carefully when discussing algorithm-driven clinical decisions. Understanding and learning new skills in statistics and computer science to help develop the clinical algorithms and their evaluation in routine clinical practice would need time and experience. This will require evolving the general healthcare culture, updating current medical curricula and training future doctors with new diagnostic and management concepts. In addition, acceptance of digital clinical decisions should be approved by healthcare regulatory organizations, so that legal and clinical backing is required. Considering the novel and potential impact of AI on future healthcare systems, consideration must be given to legal, ethical and social implementation with all stakeholders before its implementation including patients, public, and a wide range of healthcare providers need to be aware of it.

In this study, it was possible to analyze the empirical data of the vulnerable class through an open platform and predict anomalies. Through future studies, it will be possible to eliminate blind spots in welfare services, provide proactive health care and active welfare services for the helpless by linking with the government welfare system through preemptive care of daily care services tailored to the elderly living alone.

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ETHICAL ISSUES IN E-LEARNING: A STUDY CONDUCTED ON STUDENTS PERSPECTIVE ACROSS BENGALURU CITY

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ABSTRACT

E-Learning has become a part of our everyday lives. Other than our routine school and college learning that sticks onto a particular discipline, E-Learning provides an opportunity for people to acquire interdisciplinary knowledge as well. The onset of the pandemic expanded the learning horizon into a prominent virtual environment where all the students, no matter which discipline, had to stay back at home and learn through devices.The introduction of new technology in learning can be both a boon and a bane. Learning was made convenient with the help of technology when it came to examinations, assignments, etc but it tested the ethics of students. This research tries to understand such ethical issues and its impact on e-learning.

Keywords: E-Learning, Ethics, Perspective, Pandemic, Virtual Environment, Online Learning.

1. INTRODUCTION

E-learning or Online learning is a method of learning or training through the digital resources such as the internet, digital devices, etc. It is a term that initially came up in 1999 and since then, its reputation has only increased through the years.

Fast forwarding onto 2020, the term e-learning gained more popularity throughout the world when the pandemic hit. The entire nation had to switch to digital ways of working, learning and connecting with people. Using technology may have its pros and cons.

The Pros of E-Learning are as follows:

a) Cost effective - there is no requirement for an establishment or centre. There is no commuting cost for both the trainer and the learners.

b) It saves time where there is no requirement to commute between classes, there is also time management that is done while we schedule meetings.

c) Learners are able to be more productive and are able to complete their courses on time.

d) Making learning digitised is also environment friendly. Making courses, the study material, etc all available online helps to reduce the carbon footprint.

The Cons of E-Learning are as follows:

a) Inability of the learners and teachers to adjust to the software or platforms where the training takes place.
b) Network issues keep occurring which distract and let the learners lose the flow.
c) Not everyone can afford to get a device and it also increases the screen time for young learners.
d) A distraction of all sorts at home, the outside environment and social media that would not allow the learners to concentrate.

2. ETHICS IN E-LEARNING

Ethics refers to moral principles of a system. It is a way that one is to conduct themselves at a particular event. According to Cambridge dictionary, Ethics is defined as, “A system of accepted beliefs that control behaviour, especially such a system is based on morals”.

Ethics is important in a person’s life and in their learning as well.

Ethics in education means, granting the students equal opportunities regardless of their gender, age, mental and physical well-being. Ethics in e-learning also means that students are able to maintain the decorum in an online environment such as the following:

a) Not unmuting oneself during the class when it is not necessary.
b) Not muting others during the class.
c) Not throwing people out of the class.
d) Communication from both the teachers and the students.
e) Not copying and pasting others' work during tests and assignments.

Ethics is also needed for the academic integrity of a person. Academic integrity helps the students as well as the teachers to take back some knowledge and learning, and come up with a variety of ideas. Coming up with ideas and creativity is going to help the students achieve academic excellence.

Ethics is required so that the following issues do not occur:

a) Difficult to manage time.
b) Difficulties in understanding and grasping concepts.
c) Network issues.
d) The loss of social connection.

3. LITERATURE REVIEW

Christine Greenhow, C., Charles R. Graham, C. R., , & Matthew J. Koehler, M. J. (2022) investigated in their paper titled,. "Foundations of online learning: Challenges and opportunities" E-learning, that is, learning that involves interaction using digital technologies, often online learning, is extensive, multifaceted, and continuous evolution, that creates challenges and opportunities for educational research in the wake of the pandemic. *Educational Psychologist*, 57(3), 131–147. https://doi.org/10.1080/00461520.2022.2090364.

Elizabeth Agyeiwaah, E., Frank Badu Baiden, F. Badu, Emmanuel Gamor, E., , & Fu-Cheih Hsu, F.-C. (2022) investigated in their paper titled "Determining the attributes that influence students online learning satisfaction during Covid-19 pandemic" the disturbances caused by pandemic in the education sector. This paper suggests that stimulation and attractiveness is one of the major attributes that kept the students satisfied in online learning.

Dr.Dr Nitin Bajpai, N. (2022) investigated in their paper titled "Ethical issues of online teaching and learning" studies the impact of online learning and teaching. It also studies the ethics followed in online learning and discusses the parameters of ethics such as competency, maintain discipline etc.

Anjankar , A. J., Mohite , P. M., Waghmode , A., Patond , S., , & Ninave , S. (2021). "'A Critical Appraisal of Ethical issues in E-Learning"' studied the lasting impact Covid-19 pandemic had on the entire education sector, with around 90% of the world''s educational institutions in at least 188 countries closed and traditional education going offline. It also talks about the various social, infrastructural, academic, and psychological problems that increased due to online learning such as, the need to address ethics in online learning- academic dishonesty, plagiarism, and copyright infringement.

Mystakidis, StylianosS., Eleni Berki, E., and , & Juri-Petri Valtanen, J.-P. (2021)in their paper titled "Deep and Meaningful E-Learning with Social Virtual Reality Environments in Higher Education: A Systematic Literature Review" studied the effectiveness of e-learning and the factors and conditions that led to deep and meaningful learning using online mode of education in higher education. The research shows the cognitive, social, and affective aspects of deep and meaningful learning. The results demonstrate that the use of online modes of learning can provide authentic and simulated experiences in engaging and nurturing environments for social and collaborative interaction and personalized learning.

Talib, A. A., & Mahasneh, O. M. K. (2020) . The findings indicate that there is no statistically significant variation between the gender and academic level of undergraduate students in relation to their awareness of ethical issues. Hence, it is imperative for undergraduate students

to possess a comprehensive understanding of ethical concerns in order to mitigate the risk of engaging in unethical conduct when utilizing the e-learning platform.

Muhammad, A., Ghalib, M. F. M. D., Ahmad, F., Naveed, Q. N., & Shah, A. (2016) The study''s findings indicate a decrease in moral behavior among e-Learners due to the absence of essential factors in the e-learning environment. This study also highlights the necessity of a theoretical framework that outlines strategies for educational institutions to address these deficiencies and promote ethical development among higher education learners.

Schulz, R., Isabwe, G. M., & Reichert, F. (2015) This paper elucidates the ethical considerations surrounding the effective motivation of teachers in embracing novel technology within their pedagogical approaches. This study aims to examine the ethical considerations associated with the design process of gamified e-learning systems and the utilization of gamified tools in educational settings. The objective is to assess the potential impact of ethical aspects of gamification on the roles and responsibilities of teachers.

AlHamad, A. Q., & Alet al. Qawasmi, K. I. (2014). The primary objective of this paper is to present a proposed ethical framework that can be utilized by students and tutors within Learning Management Systems at the university level. The utilization of an ethical framework can facilitate the establishment of shared ethical standards within the e-learning environment, encompassing both tutors and students.

AbdulHafeez, M., Asadullah, S., Rosydi, M., & Farooq, A. (2013). In the context of e-Learninglearning platforms, the absence of a physical teacher is contributing to the diminishing presence of hope. This study aims to examine various learning models and explore the significance of ethical development within them. This study aims to examine various learning models and explore the significance of ethical development within them. The proposal also presents a model that utilizes Information and Communication Technologies (ICTs) to facilitate the character development of students within the e-Learning environments.

Bušíková, A., & Melicheríková, Z. (2013) . The utilization of information and communication technology (ICT) has experienced an unparalleled surge, offering a transformative approach to education due to the ease of accessing specific information through the Internet. One of the technological approaches in the realm of education is e-learning, also known as electronic learning. The objective of this article is to identify and examine instances of ethical misconduct within the realm of higher education, with a specific focus on the potential threats posed by e-learning.

4. STATEMENT OF PROBLEM

Covid-19 pandemic saw the rise of utilisation of online mode of learning using various apps. The usage of online mode of learning made it easier to attend classes and motivated students to take up various certification courses. Though it was a benefit, it also raised concerns regarding the ethics of students. This research paper aims to understand such ethical issues in e-learning and understand its impact on the ethicality of students.

5. OBJECTIVE

The following are the objectives of this study:

a) To study the perspectives of online learning among the students.
b) To identify the ethical issues in online learning.
c) To evaluate the impact of ethics in E-Learning.
d) To suggest ways to reduce ethical issues in online learning.

6. RESEARCH METHODOLOGY

The methodology followed for conducting the study included the specification of research design, sample design, questionnaire design, data collection and statistical tools used for analysing the collected data.

The research was conducted and analysed in a descriptive and analytical way. The questionnaire was circulated among 110 students of Bengaluru City out of which only 104 responded.

6.1 Sources of Data

To get the study done and meet with the objectives, the data has been taken from both primary and secondary sources. The focus has been given more for primary sources in this study.

6.1.1 Primary Data

Primary data is the main source of data in this research paper which has been collected through circulating questionnaires. The data for the research was collected from respondents directly through a survey method which used questionnaires with closed-ended questions.

The questionnaire was tested for reliability using the Cronbach alpha, the Cronbach Alpha measure was at 0.873 for 10 items indicating the attitude of the students. The measure affirms to internal consistency of the instrument

6.1.2 Secondary Data

The secondary data utilized here was taken from the following sources such as textbooks, published articles and websites.

6.2 Sample Size

For this Research paper, a survey method of simple random sampling has been applied to select the respondents. Data is then collected from as large a percentage as possible of this random subset. The data was collected from the students of Bengaluru city by circulating questionnaires through google forms. The forms were circulated to 110 students of Bengaluru city out of which 104 responded.

6.3. Research Design

The data collected has been analysed by descriptive and analytical study. The data used for this study is both primary and secondary data. The data collected has been summarised to study and understand the student's perception of ethical issues in E-Learning.

7. LIMITATION OF THE STUDY

a) The data was collected only from the students of Bengaluru city.
b) The questionnaire was circulated to only 110 students of Bengaluru andonly 104students responded.
c) Time given for the study was very limited.

8. ANALYSIS AND INTERPRETATION

8.1 Demographic Profile of the Respondents

A majority of 58.3% students in the study are in the age group of 16-20 years, 28.2% belong to 21-25 years. A small percentage of the respondents were in the age group of 11-15 years. The researchers aimed at focussing the study towards the student learning community and hence, this age brackets. 56% are male students and 42% are female and remaining 2% did not want to reveal their gender. A vast majority of 69.9% students are Undergraduates.

8.2 Use of Platform for E-Learning

A total of 87% students used online platforms for e-learning. A vast majority of 77% used Microsoft teams for their e-learning activities, followed by 56% using Google meet. A small percentage of 21% students used Zoom and 7% used Webex.

8.3 Attitude of the Students towards E-Learning

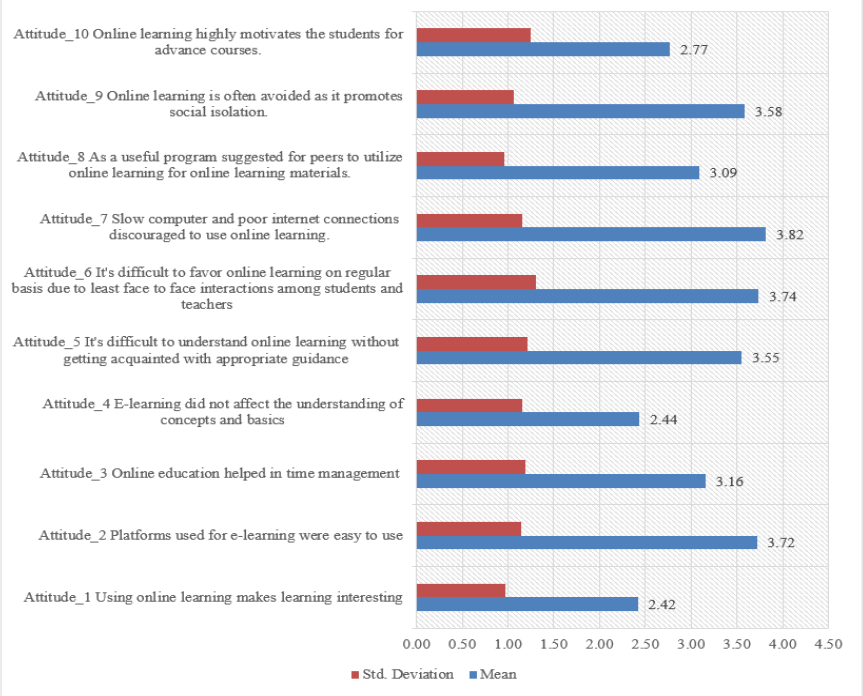

Table 1: Attitude of the students towards e-learning

An enquiry into the attitudes of the students by administering Likert scale question where 1- strong disagreement and 5- Strong agreement revealed that the students agree that it is difficult to understand online learning without getting acquainted with appropriate guidance with a mean score of (M=3.55), it is difficult to favour online learning on regular basis due to least face to face interactions among students and teachers (M=3.74). Most students felt that slow computer and poor internet connections discouraged to use online learning (M=3.82) and students felt that Online learning is often avoided as it promotes social isolation (M=3.58)

With mean scores below 3.00, the students disagreed that using online learning makes learning interesting (M=2.42), E-learning did not affect the understanding of concepts and basics is a reverse scoring item which measures the negative attitude of the students(M=2.44) and online learning highly motivates the students for advance courses (M=2.77).

The Standard deviation is within the range of 1.0 indicating least variation in the responses.

8.3 Distraction Affecting E-Learning Process

The students expressed that they felt Internet connectivity, social networking, family disturbances, navigating through features of app, peer disturbances, external environment are

major distractions in e-learning process and internet connectivity (78%) was the most significant distraction followed by family disturbances (55%).

8.4 Ethical Issues in E-Learning

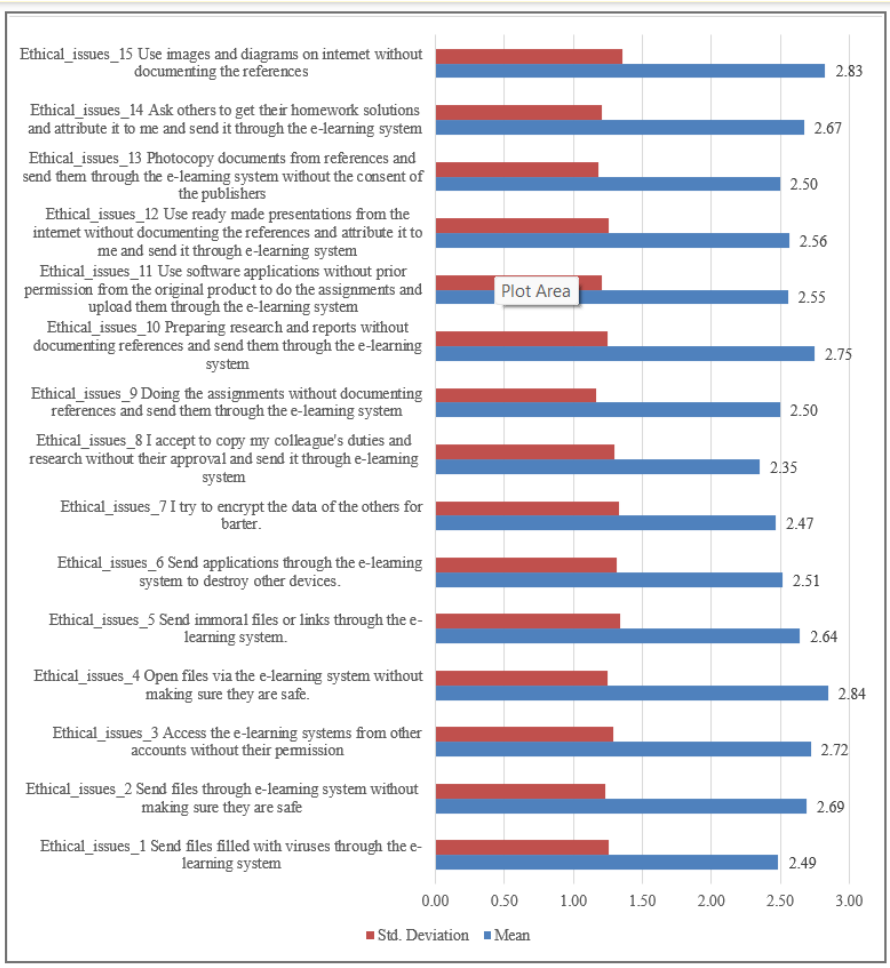

Table 2: Ethical Issues in E-learning

An enquiry into the ethical issues faced by the students by administering Likert scale questions where 1- strong disagreement and 5- Strong agreement revealed that there is disagreement towards the ethical issues in learning. The mean scores below 3.00 for all the ethical issues statements indicate neutrality to disagreement range of responses. The standard deviation is above 1.00 indicating varied responses.

8.5 Major Ethical Considerations

Privacy concerns, institutional support not provided, peer-to-peer connection not found, no academic integrity, security issues such as muting people, asking students to leave the online classroom are the major concerns of the students with regard to ethical issues in e-learning.

8.6 Ethics followed by Students

Discipline, integrity in class, commitment towards academics, compassion towards teachers, responsibility towards work given are the major ethics followed by the student in e-learning platforms.

8.7 Testing of Hypothesis

H1- There is an impact of gender on the ethical issues faced by the students

ANOVA RESULTS		
	F	**Sig. p=0.05**
Ethical_issues_1	0.978	0.380
Ethical_issues_2	2.046	0.135
Ethical_issues_3	3.926	0.023
Ethical_issues_4	2.449	0.092
Ethical_issues_5	1.104	0.336
Ethical_issues_6	0.639	0.530
Ethical_issues_7	0.875	0.420
Ethical_issues_8	0.815	0.445
Ethical_issues_9	2.570	0.082
Ethical_issues_10	4.045	0.020
Ethical_issues_11	0.396	0.674
Ethical_issues_12	1.848	0.163
Ethical_issues_13	0.802	0.451
Ethical_issues_14	1.790	0.172
Ethical_issues_15	2.011	0.139

Table 2 - ANOVA Results for impact of gender on the ethical issues faced by the students

The significance values for ANOVA test are above the accepted significance value of 0.05, and hence, it is concluded that there is no impact of gender on the ethical issues faced by the students.

Alternate Hypothesis - H1- There is an impact of gender on the Ethical issues faced by the students is rejected.

8.8 SUGGESTIONS

a) The participants in the study conveyed their desire for a more practical-oriented approach to E-Learning.
b) Incorporate group discussions and interactive sessions into the E-Learning platform.
c) Enhance engagement and promote voluntary participation in E-Learning among students.
d) It is advisable to provide acknowledgment whenever feasible in order to enhance student motivation.
e) Strengthening students' privacy concerns.
f) Enhancing the quality of teaching.

9. CONCLUSION

E-learning, also known as electronic technology-facilitated learning, endeavours to enhance students' retention of information, proficiency, and performance. The alternative to the traditional classroom setting offers instruction with reduced limitations in terms of time and space, a setting that is devoid of age and racial biases, simplified record-keeping procedures, and a decrease in behavioural challenges. Despite the indisputable merits it possesses, a significant number of individuals maintain the viewpoint that online education falls short in comparison to in-person interaction. There is a prevalent argument suggesting that students exhibit reduced levels of motivation as a result of insufficient individualized engagement. Scholars also contend that students' lack of accountability results in work that is below standard. Another disadvantage of e-learning is the heightened probability of ethical issues emerging within these systems. The objective of this study was to examine students' perceptions towards online education and assess the ethical dilemmas associated with virtual learning environments. A slight majority of students expressed agreement regarding the presence of certain drawbacks associated with e-learning platforms, whereas less than half of the surveyed individuals voiced ethical concerns pertaining to e-learning. The findings of the study suggest that there is no significant correlation between gender and the occurrence of ethical issues in educational settings.

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THE ROLE OF ARTIFICIAL INTELLIGENCE IN INVESTMENT MANAGEMENT: A LITERATURE REVIEW

Thriveni. S.R. & Dr Irshad Nazeer

ABSTRACT

In recent scenarios, it is very difficult to analyse and predict market trends by using old-school models because they are very simple and heuristic-based. In recent periods Artificial Intelligence(AI) is being used in all sectors. At present, there are 439 financial services start-ups which are based on AI in India. Artificial Intelligence is providing various new opportunities for management firms in taking and managing assets in the proper manner which can yield good results and create value. Investment consultants or management firms can rapidly take up portfolio investment decisions by changing business models, operations, and capabilities. Artificial Intelligence models aid investors to build retirement portfolios and use smart strategies. Artificial Intelligence is helping advisors to get more insights while advising the investors, and also they can customize the asset allocation as per the investor's needs. Sometimes humans can make wrong decisions in investments, but AI models predict market trends and help investors to minimize the investment risk.

Jim Simons, a mathematician, was the first to use proprietary AI models for investment in famous global hedge funds. AI Models have been used by asset management firms in the market for the last half-century, but now AI is used more and more by investment firms. Robo – Advisors use automated, algorithm-driven models to analyse the markets and optimize risk and return in investments. Artificial Intelligence models can forecast the changing volatility patterns and stock and commodity markets. AI plays a crucial role in extracting information from unstructured data. AI helps investors to increase their accessibility to the financial markets by automatic analysis based on diverse data sets and choosing stocks, bonds, ETFs and other investment opportunities.

Keywords: Artificial Intelligence, Assets Management, Models, Investment Strategies, Operational Efficiency, Risk.

1. INTRODUCTION

The use of AI in investments focuses on helping investment firms to serve investors in a better manner and offer better services, and products to their clients in an effective way. Artificial

intelligence algorithms are designed to produce highly refined investment strategies that provide high-velocity data to avoid competition–think competition and increase the value to the investors. Artificial Intelligence can identify and analyse the uncertainties associated with probable pandemic imperatives to an organisation's business model. Artificial Intelligence and its various forms, including device learning, deep learning, natural language processing, and optical character recognition, play an increasingly important role in various areas of the asset management market. This also applies to portfolio management, where advanced technological solutions offer substantial enhancements to investment processing intelligent machines. These machines perform problem-solving, planning, reasoning, learning etc

The world is changing faster due to technological advancement and there is a shift from manual operations to smart operations. The lives of the people are changing due to the technological revolution. Continuous technological advancement is used for the betterment of one's life. Automation, machine learning, and other AI-related technologies can specify eloquent systems, in them relatively easy to apply for specified purposes. The arising use of artificial intelligence based on computing capabilities and big data impact on our daily lives. We use artificial intelligence in business, education, healthcare entertainment, security, utility and other various purposes. In India, as per an International Data Corporation (IDC) Research reports, that the Artificial Intelligence market may reach $7.8 billion by 2025 growing at a CAGR of 20.2%.

AI has the potential to add US$957 billion, or 15 percent of India's current gross value in 2035. The combination of the technology, data and algorithms creates intelligence systems, these systems make it possible to reach critical mass, and extraordinary growth in AI investment.

AI can serve as a tool to take on much larger incumbents. Start-up companies can be established by entrepreneurs by using the Artificial Intelligence

AI can improve public safety and save lives of the people. We can have a safe and peaceful society through the use of Artificial Intelligence.

As per the researchers, behavioural finance has been affected by the introduction of Robo-advisors in the financial service industry, particularly during the last half of the 20th century. Investors and financial markets are considered to be emotional decision-makers rather than rational forces that define every aspect of the financial market, and how it must be operated. Human beings make investment decisions rationally as per the traditional theory, but it is not valid all the time. People are social animals and various behavioural factors influence their decisions, these decisions sometimes bring great loss to the investors. These problems can be avoided by using the Robo – advisors. Robo – Advisors provide better data analysis and predict

market trends, so investment firms can choose investment options that offer high returns and relatively low risk as per the priority for modern investors. Robo – Advisors provide an opportunity to systematically choose their options as per their needs. Robo – advisors can offer balanced decisions as per the investor's wish, which also includes all the attributes as per investors' preferences. Artificial intelligence draws the customer's attention to the most specific options and attributes and also assists in making proper investment decisions at their cognitive capabilities.

2. REVIEW OF LITERATURE

As per the studies of Baker and Dellaert, (2018), Artificial Intelligence provide a better decision-making process, which leads to customers' attention on the most important options and attributes while taking investment decisions. In turn, this assists customers to make better utilisation of their learning and understanding capacities.

The paper, “Fuzzy Confrontations of Models of ESG Investing versus Non-ESG Investing Based on Artificial Intelligence Algorithms” Doubravsky. (2022) examines how investors consider the ESG parameters while taking investing decisions. Investors prefer those investment firms which use AI in their operations to minimise the risk. The study found that there is slight compatibility between dominantly ESG-related investing tools and non-dominantly ESG tools. The researcher concludes that the most similarity is shown by stock indices that are in line with usable investing.

The study of Faloon and Scherer, (2017) reveals that the new generation of Robo-advisors might focus on behavioural Characteristics with customers' preferences and enable them to customize to a higher degree.

According to Haenlein and Kaplan (2019) Artificial Intelligence is gaining more importance in the present era. The usage of AI systems is increasing in one’s daily lives and expect usage excessively raises soon, this situation may raise the question of whether it is required to regularise and limit scope of the Artificial intelligence. what kind of guidelines need to be considered from manifold perspectives.

By using advanced technology investors can get the benefit of Real-Time Data analytics to understand the market patterns in the financial markets. Firms can do proactive preparations to avoid risk and to get better returns on their investments. (Kilpatrick and Barter, 2020).

The paper titled "Application of Artificial Neural Networks in predicting Financial Distress in the JSE Financial Services and Manufacturing Companies” was presented by Muzindutsi (2022), with a major objective to explore the role of artificial intelligence (AI) in predicting

the financial distress of companies using Artificial Neural Networks (ANN). The listed companies in the Johannesburg Stock Exchange (JSE) were taken as samples for the study. The study revealed that AI has a high potential to solve financial problems. AI models considered in the study could be used by creditors, investors and business managers as a tool for decision-making and ensuring long-term financial sustainability.

As per the study of Sheng et al, (2020), Artificial Intelligence models help in the decision-support purpose. The extensive use of AI models was the effect of Covid – 19 pandemic. The importance of AI is increased through the new normal of Covid-19, where the collection of digital data and footprints is becoming more prominent through digital devices and altered workforces.

AI can be deployed for proper monitoring and to minimise the errors in predictive analytics by the Asset Management companies (Tranter, 2020).

3. **RESEARCH DESIGN**

A descriptive research method is used in this research study. The research is based on secondary data sources, which have already been collected by others. The researcher collected this data, from various related data sources through Articles, Journals, and various published statistical statements and from other internet sources.

3.1 Objectives of the Study

a) To study the role of Artificial Intelligence/ Big Data in investment decisions.
b) To understand the impact of AI on the asset management agencies

3.2. Data Sources

The study has been conducted based on secondary sources of data, the data is collected from published articles, internet and newspapers**.**

3.3 Limitations of the Study

The study is limited to investment firms, and how Artificial Intelligence is used in investment firms and the application of AI/ML in investment operations.

4. ARTIFICIAL INTELLIGENCE FOR INVESTMENT FIRMS

Investing is one of the most crucial and intensive fields. Investment firms need to satisfy the various needs of the investors and also they need to compete with their competitors by providing an edge over others. Investment decisions are taken based on the available market data. When gathering and analysing data still many organisations are using old models which are very simple and heuristics–based.

Asset and wealth professionals encounter various problems such as increased passive investment, minimisation of investment fees and uncertainties about the future. In the past, investment firms have experienced the impact of the changes on their business models, an all-out price war was the outcome of fee pressure and the move to passive investment has put active managers on the defence. Artificial intelligence, machine learning and data Analytics technologies have helped to bring positive change during these situations. The use of Artificial Intelligence brings efficiency into investment operations, there is a need of using advanced technology in data collection and analysis in a speedy manner so they can take the right move in the investment.

A few of the capabilities of Artificial Intelligence that brings in great advantage to investment managers are :

a) **Risk Assessment**: in risk management, AI/ML has become synonymous with improving efficiency and productivity while reducing costs. Artificial intelligence can analyse large data at a faster speed. AI solutions can generate a large amount of timely data, which allows investment agencies/ firms to build competence by enabling them to use investment strategies which minimise losses. Forecasting errors and analytical errors by humans can be minimised by the use of artificial intelligence models.
b) **Value addition**: artificial intelligence add value to various operations by bringing efficiency and effectiveness. Firms can focus more on enacting strategies to grow money instead of wasting human skills on data analysis. Investment management firms can modify business models, and operations, and upgrade internal capabilities as per the requirement. However, to get the maximum benefit from Artificial intelligence firms need to carefully consider and manage the intersections between technology and talent. Artificial intelligence is helping investment firms to get more insights so that firms can understand investors' needs and customise content more effectively.
c) **Decision making**: people make decisions sometimes these decisions are taken under bias, there are chances of taking the wrong decision while doing an investment or choosing the wrong portfolio, which may lead to a greater loss in the long run. Artificial

intelligence can be used to minimise these human errors and avoid the risk of losing money due to wrong decisions.

d) **Consistency**: investment firms can bring consistency in business performance by utilising technology. Artificial intelligence helps firms to continuously improve operational efficiency. The firms can transform their traditional operations cost centres into AI-enabled service offerings.

e) **Portfolio optimisation**: AI can analyse various factors such as risk tolerance and market conditions to optimise the investment portfolio.

f) **Dirty Data Bath**: Asset management firms would rather have some dirty data than risk losing precious information or paying to get it cleaned. According to MIT Salon, Data cleaning is very expensive and also consumes huge manpower. which can increase the operational cost of the firm. As per the research firms that don't clean their data may lose an average of 15% to 20% of their revenue from this. Many of these kinds of problems have been addressed by the application of Artificial intelligence.

5. DIFFERENCE BETWEEN AI-POWERED STOCK ADVISORY AND TRADITIONAL STOCK ADVISORY SERVICES.

Traditional stock advisory uses manual research by using the knowledge of a handful of research analysts, but AI-powered investment firms use 12 million parameters while doing research data.

Traditional advisory firms use model portfolios for investing, but AI-powered service firms use personalised portfolio models to match investors' needs. It uses customised portfolio models for every investor.

The risk management process will be done manually with a set of frequency like monthly or quarterly. AI-powered firms do risk analysis all the time i.e. 365 days.

Possibilities of Human errors are very high in traditional investment firms because the decisions are biased. But AI-powered firms' decisions are not biased, because the decisions are taken by robots after using large data analytics. so human errors are not going to take place.

Ongoing stock recommendations are provided whenever an opportunity arises in the market regardless of investors' profile in the traditionally powered firms, but AI-powered firms do that only when the portfolio demands.

6. ROLE OF AI IN ASSETS MANAGEMENT

Algo trading involves a well-designed mix of mathematical models, software codes, and formulas to enter and exit trades. The predetermined criteria follow instructions that combine to make the algorithm. This executes trades on the traders' behalf, thereby saving time from manual scans.

Before making transactional decisions, these trading commands factor in volume, price, and timing. Large firms often deploy such automated mechanisms to make thousands of trades in a short period.

By analysing every quote and trade in the market, identification of liquidity opportunities, and the ability to turn information into intelligent trading decisions, algorithms have become revolutionary game-changers in the stock futures and options and securities arena.

7. STRATEGIES INVOLVED IN TRADING WITH ARTIFICIAL INTELLIGENCE

The strategies while coding instructions impact the trading patterns by a wide margin. Here are some of the strategies in algo trading to help traders/investors identify the best algo trading strategy.

7.1 Arbitrage

Arbitrage is when investors buy stocks of the entity from a market with a lower price and sell them in other exchanges at slightly higher prices. This can be done when investors have real-time data about the stocks and prices at various markets. Artificial Intelligence provides such information to traders to identify stocks. These stocks are trading at different prices in different markets. Traders deploy algo trading systems to profit from the difference. An algorithm helps investment firms exploit market fluctuations and price differentials to convert into profitable opportunities. Designing and implementing an algorithm to spot tiny differences in the asset's listed price in different markets enables profitable opportunities.

7.2 Trend Following

Algo traders usually do identify trends like moving averages, channel breakouts, and price movements to curate codes for the algorithmic trading software. It helps in making the simplest executable strategies that do not deal with any kind of predictive forecasting.

The accurate trend identification capability of the algo trading system helps execute the order for the trader/investor at the opportune moment. The codes also consider the support, resistance, volume, and other indicators before transacting.

7.3 Mathematical Index Model

Expert traders often suggest deploying mathematical models as one of the best algo trading tips for risk management in a volatile market . Tested and proven mathematical models like the delta-neutral trading strategy enable trading on options and the underlying security. Deltas are usually the ratio that compares the changes in the ratios in the price of an asset to the respective fluctuation in the price of its asset. It involves trading on the same underlying asset's stock and derivative. This is why algo trading software is used for the identification of such classes and execution based on price changes. The delta-neutral strategy consists of multiple positions with offsetting positive and negative deltas. This adds up to making the overall delta of the assets zero.

7.4 Volume-Weighted Average Price (VWAP)

By definition, VWAP is an intraday trading benchmark that stands for the average price that a security has traded throughout the day, considering both the volume and price.

Investors often look to execute orders nearer to the volume-weighted average price. Algorithmic trading enables them to break large order volumes into smaller pieces to reach the closing price goals.

Using the stock-specific historical volume profiles leads to increased returns via the right timing. In practice, traders use VWAP as a tool to confirm trends and build trading systems/rules around them. Usually, stocks with prices below VWAP are deemed undervalued, and those above it as overvalued. This effectively means that if prices below VWAP move above it, traders long the stock, and vice versa.\

7.5 Time Weighted Average Price (TWAP)

By definition, TWAP is pulled by averaging the entire day's price trend (including open, high, low, and close points). Following this, every day's average price is taken to calculate the average of the entire duration's price.

Drawing parallels to VWAP, this strategy aims to break big order volumes into smaller chunks. In this strategy, traders incorporate specific time slots between the start and end time.

7.6 Mean Reversion

Mean Reversion relies heavily on the idea that no matter the lows and highs, the asset price is bound to revert to its mean value or average rate. So algo traders define the asset's price range and ensure that the asset transaction occurs if it pops in or out of the specified range.

8. COMPANIES USING AI IN THEIR PORTFOLIO INVESTMENT

The main objective of the financial industry is to provide better, accurate and reliable services to its customers. The application of Artificial Intelligence by the investment firms and financial institutions will surely provide upgraded services by bringing efficiency in its operations. The financial industry is required to conduct the research on the application of Artificial Intelligence in creating value and to develop strategies to promote the further development in the financial industry.

Around the world, many investment firms use artificial intelligence in their investment operations to bring efficiency and to get an edge over competitors.

The top investment banking companies in India are known for their expertise, experience, and reputation in the industry. Certain firms have been doing investment operations for many decades, while some firms are relatively new entrants that have quickly gained market share through their innovative and customer-centric approach.

Deutsche Bank, Citi Group, Morgan Stanley, and J.P. Morgan are the major investment banking companies in India, using their expertise and knowledge to provide solutions to their customers. Banking companies have implemented innovative and advanced technology in their operations to provide customised services to clients. These companies are committed to bringing sustainability in finance for the development of ESG financing solutions.

Some of the other companies using AI in their portfolio investment decisions are MLQ Sentieo.ai., Numerai, Kavout, Brain Co, Precision Alpha and Trade ideas.

9. DRAWBACKS OF ARTIFICIAL INTELLIGENCE IN INVESTMENT MANAGEMENT

a) The rapid selling/ buying of stocks and shares leaves investors devoid of the chance to profit from price fluctuations.
b) The faster execution of trades negatively impacts live trades and settlements. It limits the power of trading platforms and financial markets. It also introduces unwanted volatility in the markets.
c) Ethical issues arise due to the misuse of Artificial Intelligence. corporate firms can use AI to have control on the governments, and act like Big Brothers. In democratic countries, governments can monitor and detect the activities of citizens with the help of

Artificial Intelligence which may cause big nudging and result in losing human rights. Transparent deliberation cannot be promised.

d) Choosing the right software or apps is very difficult for investment firms because there are many AI products in the market, picking the right one is very difficult as they invest a huge amount of money in trading.

e) One of the authors of the AI textbook "Artificial Intelligence: A Modern Approach", Stuart Russel stated that "AI is as hazardous as nuclear-powered weapons" based on the basic scenario of 'value misalignment' of AI goals without passable deliberations of human elements and values.

10. CONCLUSION:

Artificial Intelligence in investment firms is the best avenue for investors looking to diminish errors related to human participation and increase profits. Algo trades demand data analysis, coded instructions, and an understanding of the financial industry. Investors must understand algo trading before involving in algorithmic trading with real money. AI systems may not be able to replace human intelligence, but they may provide precise outputs that can distant swap human efforts. AI systems will increasingly be part of daily lives soon, people are overly dependent on artificial intelligence technology in day to day work, and this may rise the question of how far the AI can be applied and what kind of controlling system need to be framed via legally and ethically.

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IMPACT OF SOCIAL MEDIA ON YOUTH'S EMOTIONS, BEHAVIOUR AND SELF ESTEEM

Ms Rosemary FN

ABSTRACT

In the world of gadgets, youngsters, especially adolescents and youth spend most of their time using social media on a daily basis. Institute of Governance Policies and Politics (IGPP), Social Media Matters (SMM) and Youth Online Learning Organisation (Yolo) conducted a study in the year 2020 on the theme "Patterns of Internet Usage Among Youths in India". According to this study it was found that 85 percent of the majority of youth who are categorized as non-adults have access to smartphones. It was found that most of them spend five hours online and 80 percent of them spend their time on social media. About 30 percent of respondents responded saying that they shared their sensitive information online. (IGPP, 2020). Youngsters feel anxious, experience depression, reduction in their esteem and it is also leading to new abnormal behaviours among youngsters such as FoMo (Fear of Missing Out) and Phubbing (the practice of ignoring one's companion or companions in order to pay attention to one's phone or other mobile device). Use of extensive social media among youngsters also resulted in poor social skills, avoiding or escaping from reality and poor school performance. (Ciacchini, 2023).

The paper explores various factors which are affecting the youth's overall well-being due to the excessive usage of social media on their emotions, behaviour and self-esteem. The paper is a secondary research paper. It concludes with possible solutions and recommendations on how the negative impact of social media can be reduced.

Keywords: Youth, Social Media, Emotions, Behaviour, and Self Esteem

1. INTRODUCTION

When Social Media Networking sites were first introduced in the early 2000s, numerous young people were delighted that they could connect with friends and families who lived far away. These social media platforms, starting with Orkut (which is no longer in existence), Facebook, and Instagram, provided a venue for numerous constructive aspects, such as using social media to locate missing persons or pets, promoting businesses, disseminating information, and earning a livelihood through social media marketing. However, Social Media Platforms also have drawbacks, as over time they have had an adverse impact on the social skills and psychological well-being of young people. The paper probes those problems faced by the

youngsters and the problems it has created due to extensive usage of social media platforms. Following are the important concepts this paper tries to understand in brief.

Self-respect pertains to an individual's affirmative or negative assessment of oneself; in other words, the degree to which someone regards themselves as valuable and capable (Coopersmith, 1967). (Vogel, 2014)

The phrase **"social media"** pertains to all websites and mobile applications that contain user-generated material. These platforms permit their users to engage in digital interactions, share their self-produced material, and become members of virtual communities. They are predominantly utilized by adolescents and young individuals, and the most frequently utilized social media platforms include Facebook, Instagram, Snapchat, and Twitter. (Jiotsa, 2021)

The way a person sees their physical appearance, which includes the size and shape of their body, as well as their personal attitude towards these characteristics, is what makes up their **body image**. (Afana, 2021)

Self-esteem, refers to an affirmative or pessimistic assessment of oneself.

2. SOCIAL MEDIA AND SELF IMAGE

With the surge in social media usage among youths, a phenomenon has arisen in which influencers exert their influence on the thinking of adolescents in both positive and negative ways. A multitude of social media influencers propagate unattainable body standards that could instigate negative self-image and eating disorders among adolescents. Further, these influencers promote consumerism and materialism by endorsing products that are unaffordable for a significant portion of the population, ultimately resulting in reduced self-esteem among the younger generation (Bareth, 2023).

Several studies have indicated that by using social networking platforms, a considerable proportion of individuals tend to contrast their physical traits with those whom they regard as more attractive than themselves, such as celebrities or models, which can result in the likelihood of encountering dissatisfaction with their bodies. Studies have also suggested that social media exposure could encourage an adverse body image and result in unhealthy eating patterns by presenting thinness as a desirable goal for people to achieve (Jiotsa, 2021).

Owing to the influence of social media, many youngsters are struggling to accept their bodies and themselves as individuals. As social media promotes the concept of a perfect body, which includes their height, weight, body size and body form, many youngsters are getting dissatisfied with their body and nurturing a negative self-image of themselves. A negative self-image of youngsters also affects their self-esteem as they don’t match to the expected beauty standards.

It is also observed that excessive usage of social media has led many youngsters dealing with mental health issues which has led few of them to depression and some to end their lives. Between the years 2007 to 2017, suicide rates among youngsters between the ages 10 to 21 has risen about 56 percent. (Kusuma, 2020)

If teenagers are feeling discontentment with their physical appearance because of their excessive use of social media, it might lead to mood swings and the development of eating disorders such as anorexia nervosa. A study conducted by Fardouly and his team in 2015 revealed that prolonged exposure to social media affected their mood and body mass index. Social media presents slim, appealing, and flawless female bodies as the standard to pursue. Even though it's nearly impossible to attain this perfect body, numerous adolescents strive to achieve it. If they fail to do so, it results in frustration and disappointment. (Alanazia, 2019).

3. SOCIAL MEDIA AND SOCIAL SKILLS

When adolescents use social media platforms more often than spending time with friends in person it results in lack of developing social skills, they may experience a decline in their ability to form relationships. Additionally, it may be challenging for them to socialize and make new friends. Many young people are now using slang and relying on abbreviated language, even when writing assignments, and often depend on spell-checkers. Therefore, social media has a detrimental impact on their communication abilities, both in written and oral forms (Akram, 2017).

The results of the HomeNet Project (Kraut et al., 1998) suggest that individuals who allocate a substantial portion of their time on the internet experienced elevated levels of distress and isolation throughout the day. A separate investigation revealed that frequent internet browsing was linked to an increased likelihood of developing depression (Kraut et al., 2002). Studies show that involvement in online social activity can modify current attachment patterns within human society, especially among young adults and teenagers (Chukwuere & Chukwuere, 2017; Kontos et al., 2010; Prensky, 2001). The absence of eye contact during online interactions promotes candid and straightforward communication, resulting in high levels of personal revelation (Mesch & Talmud, 2010). Although self-disclosure can bring emotional relief, encourage self-reflection, and mitigate emotional distress (Hawi & Samaha, 2017; Leung, 2002; Moody, 2001; Smyth, True & Souto, 2001), it also amplifies the possibility of bullying and harassment (Chukwuere & Chukwuere, 2017; Fuchs, 2017; Hinduja & Patchin, 2008). It is crucial to consider that virtual friendships differ significantly from conventional face-to-face friendships, and a preference for virtual connections can cause a decline in social skills

(Bonebrake, 2002; Fuchs, 2017; Kraut et al., 1998). Direct communication is a crucial aspect of effective communication and is essential for developing social skills. It involves nonverbal cues such as eye contact, facial expressions, and tone of voice. Research indicates that individuals with fewer Facebook acquaintances exhibit superior social skills compared to those with hundreds of virtual friends. This is because social media's virtual realm has alienated young people from reality, and they feel more at ease within that confined space. (Fahad, 2017) Several researchers have investigated whether virtual social networks offer a suitable and fulfilling solution to the feeling of loneliness that adolescents and young adults often experience. According to Hu (2009), young individuals report a statistically significant increase in loneliness following "chats" online, compared to their level of loneliness after in-person conversations. Dror and Gershon (2012) discovered a clear correlation between loneliness and a high volume of social network "chats" with virtual companions. They observed that virtual friendships may be less satisfying than those formed in person. (Yavich, 2019). Hence, social networking sites do not aid young people in forming online friendships, as they do not assist them in coping with feelings of isolation.

Several studies have confirmed that frequent use of Facebook results in sadness and reduced achievement in people. Most people use Facebook due to the feeling of isolation, but they end up feeling less satisfied with their lives. Chou and Edge (2012) contend that most Facebook users assume that unknown individuals are leading a happy, healthy and successful life. Such assumptions about the lives of others can cause depression. According to Pantic (2014), Social media networks such as Facebook can lead to anxiety, mental illnesses, and poor self-confidence (Jan, 2017).

A researcher who studied how social media affects youngster’s interaction with family members in Turkey claimed that the concept of socialization on social media is an illusion and on the contrary use of social media makes individuals asocial not wanting to interact with any one in social context (Unal, 2018). Youngsters who spend most of their time on social media can fall prey to catfishing. The Catfish refers to those who create fake social media identity. Catfishing refers to a process of individuals befriending individuals with fake profiles and deceiving them. (Damota, 2019) Catfishing can be used to lure youngsters to meet perpetrators and then push them to sex trafficking or use them for other illegal activities.

4. SOCIAL MEDIA AND SELF-ESTEEM

Self-esteem of the individuals are affected by the addiction to social media. Studies have shown that the people with low self-esteem find it safer to express themselves on social media

platforms than people with high self-esteem. Studies also indicate that the people with low self-esteem spend more time on social media to improve their self-image and self-esteem. Individuals with high self-esteem tend to have better social relationships and higher academic achievements. (Ardiana, 2020) Instagram is primarily utilized for sharing images and videos. The use of visual content boosts social presence and impression formation, according to Johnson and Knobloch-Westerwick (2016), and visuals are also easier to remember than text-based information (Noldy et al., 1990). As a result, social comparison becomes more prominent on Instagram, which can have an impact on self-esteem. (Jiang, 2020)

As per Sundar's observations, individuals with inadequate self-confidence are highly concerned about the content others share about them on Facebook. Conversely, individuals with high self-esteem tend to share information about their family, education, and profession on the platform. Those with low self-esteem frequently monitor their Facebook wall and tend to remove posts made by other users.As per the study carried out by the University of Georgia, social media channels affect our self-esteem and may result in an escalation of narcissistic inclinations. Despite being labeled as "social" networks, numerous users concentrate chiefly on their own selves while using these websites. The research, which was published in the journal Computers in Human Behavior, proposes that frequent usage of platforms like Facebook might be feeling that it boosts their self-esteem (Frowler).

5. SOCIAL MEDIA AND ADOLESCENT BEHAVIOUR PATTERNS

It is apparent that the youth have become detached from in-person social interactions and are refraining from participating in activities such as spending time with family or hanging out with friends, likely due to the influence of social media. Furthermore, social media is promoting negative behaviour among those who have an uncontrollable addiction to it, leading them towards anti-social tendencies. Additionally, individuals who already exhibit anti-social tendencies are beginning to accept it as a norm. Examples of anti-social behaviours could be speeding on the road, performing dangerous stunts on the road and posting it online for likes and followers, drug abuse, etc. Adolescents are gradually neglecting the significance of their families as they discover joy in the guise of approvals and admirers. (Fahad, 2017) As social media becomes increasingly prevalent, there has been a surge in the incidence of narcissism among young people. Narcissism is defined by an excessive preoccupation with oneself and an intense craving for constant attention. This insatiable desire for attention drives young people to take actions that will garner more followers online, which can in turn foster the development of narcissistic tendencies. Even though the social networking sites do not promote violence but

some of its content is violent in nature. And it is very alarming as to how youngsters are becoming neutral to violence. Despite many social networking sites having community standards, these sites cannot completely get rid of the provocative content online. India has witnessed many incidents where youngsters get influenced by provocative content and indulging in violent behaviour. It is found that it has become easy to encourage violence among youngsters using social media platforms. Social media can also be used by someone who is frustrated or has jealousy on someone as a weapon to humiliate, ridicule, offend or insult others. Youngsters these days are also suffering from Nomophobia. Nomophobia refers to the fear of being without one's mobile phone, also known as "no mobile phone phobia" (Bragazzi and Del Puente, 2014). The criteria for this condition include regular and time-consuming use of mobile phones, anxiety when the phone is unavailable, "ringxiety" which means repeatedly checking one's phone for messages, constant availability, a preference for mobile communication over face-to-face communication.(Bragazzi and Del Puente, 2014).

6. POSSIBLE SOLUTIONS FOR HELPING YOUNGSTERS ADDICTED TO SOCIAL MEDIA

Youngsters who are excessively using social networking platforms may benefit in engaging in rehabilitation programs that emphasize the importance of using social media effectively without compromising one's mental health (O'Reilly et al., 2018). This approach aims not only to prevent social media addiction among young adults but also to reduce the likelihood of cyberbullying. Research has shown that young females benefit from interacting with their real-life friends, whereas young males benefit from making new friends (Aksoy, 2018). Moreover, it is recommended that young people engage in community activities, such as volunteering, and socialize in real-life situations to promote healthy social interactions.

Counsellors who work with youngsters using social media networks can use the framework of Social Cognitive Theory focussing on self-efficacy. As it is noted that individuals with high self-efficacy are better at regulating the usage of social media and are less likely to be addicted to it. Creating awareness among youngsters about the cons of the extensive use of social media can also allow them to spend more quality time with real friends rather than virtual friends. The awareness on the possible negative impact of social media must begin from childhood itself by the parents (Xuan, 2020).

One could also prioritise their time that is spent on social media every one minute spent on social work networking sites could be productive. One can use their leisure time to learn a new language, read a book or exercise. One could also call instead of conveying wishes or messages

using social media. Having conversations with friends and family also strengthens the bond. Getting out of the house and spending time with friends and family such as dining out, running, jogging also helps one to avoid social media. One must also try avoiding joining every group on Facebook and Whatsapp or Telegram which could consume one's productive time (Ayeni, 2019).

Social media can be a boon if used consciously. It is also important that youngsters understand the importance of reducing their screen time and spending more quality time with families and friends. The technological innovations are meant to make our lives better and not to make us their slaves or create problems in relationships, harm our mental health, deprive sleep etc. Life is meaningful if we get to live to the fullest by making right choices especially about those factors which may affect us negatively.

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ARTIFICIAL INTELLIGENCE (AI) AND UNEMPLOYMENT: AN ANALYTICAL IMPACT

Neha Guleria

ABSTRACT

Artificial Intelligence (AI) is a rapidly evolving technology that has the potential to revolutionize the way we live and work. While AI has already had a significant impact on various industries and sectors, it has also raised concerns about its potential impact on employment. The fear is that as AI systems become more advanced and capable of performing tasks previously carried out by humans, it may lead to widespread job losses, particularly in industries that rely heavily on manual labour. India is one of the fastest-growing economies in the world, with a large workforce that is largely dependent on manual labour. As AI technology continues to develop and expand, it has the potential to disrupt the Indian job market and lead to significant unemployment. This research paper aims to analyse the impact of AI on employment in India, both in the short term and the long term.

Keywords: Artificial Intelligence, Digital Age, Employment, Technologies, Unemployment

1. INTRODUCTION

Artificial Intelligence (AI) is a rapidly growing field that is poised to revolutionize the way we live, work, and interact with one another. While there are many potential benefits to AI, including increased efficiency, productivity, and innovation, there are also concerns about its impact on employment. As AI systems become more advanced and capable, there is a risk that they will replace human workers, leading to unemployment and economic disruption. India is a country that is particularly vulnerable to the impact of AI on employment. With a large population and a growing economy, India has a significant number of workers who are at risk of losing their jobs to AI systems. At the same time, India has a strong tradition of innovation and technological development, which could help it to adapt to the changing landscape of the global economy.

This research paper will explore the impact of AI on unemployment in India, using analytical methods to assess the potential risks and opportunities associated with this technology.

The paper will begin by providing an overview of AI and its current state of development in India. It will then examine the potential impact of AI on different sectors of the Indian economy, including manufacturing, healthcare, finance, and agriculture. The paper will also

explore the potential benefits of AI, such as increased productivity and efficiency, as well as the potential risks, such as job displacement and widening income inequality.

The paper will also consider the broader economic and social implications of AI in India, including the potential for increased productivity, innovation, and economic growth. Finally, the paper will conclude with a set of recommendations for policymakers, businesses, and workers, outlining strategies that can be used to ensure that the benefits of AI are shared equitably across society and that the risks are minimized.

The research will also consider the potential benefits of AI adoption for the Indian economy, such as increased productivity, innovation, and competitiveness. Furthermore, the paper will examine the Government's role in addressing the challenges posed by AI adoption and facilitating a smooth transition to the AI-enabled economy. The paper will draw on existing literature on AI and employment, as well as empirical data on the Indian economy, to provide a comprehensive analysis of the topic. The findings of this research paper will contribute to the ongoing debate on the impact of AI on employment and inform policymakers on strategies to mitigate potential negative consequences and maximize the benefits of AI adoption in India.

To understand the impact of AI on employment in India, the paper will draw on existing literature, as well as data and statistics on employment trends in India. The paper will also analyse case studies and examples of AI implementation in different industries to better understand the potential impact on the workforce. Overall, this research paper aims to provide a comprehensive analysis of the impact of AI on employment in India and the potential consequences for the country's economy and society. By examining both the benefits and risks of AI, the paper will provide insights into how policymakers can best manage the transition to an AI-driven economy while minimizing the negative impact on the workforce.

2. LITERATURE

The impact of AI on employment has been a topic of increasing interest in academics. Automation and AI have the potential to displace workers in many industries. Some estimates suggest that up to 47% of jobs in the US are at risk of being automated in the next decade or two (Frey and Osborne, 2017). The impact of AI on employment is likely to vary across industries and occupations. Jobs that are routine and repetitive, such as assembly-line work or data entry, are most likely to be automated. Jobs that require creativity, interpersonal skills, and judgment, such as those in healthcare or education, are less likely to be automated. The impact of AI on employment is also likely to vary across regions and countries. The OECD published a report that estimated that around 14% of jobs in OECD countries are highly

automatable, while an additional 32% are likely to be transformed by automation (OECD, 2021).

Developing countries that are heavily dependent on low-skilled labour may be particularly vulnerable to job displacement, while developed countries with strong education systems and a highly skilled workforce may be better equipped to adapt to the changing nature of work. Some researchers argue that AI will create new jobs and industries, such as those in data science, cybersecurity, and AI development (Acemoglu and Restrepo, 2020).

Others suggest that the pace of job creation may not keep up with the pace of job destruction, leading to long-term unemployment and social unrest. Policy responses to the impact of AI on employment have been proposed at the national and international level. These include investment in education and retraining programs, adjustments to tax and social welfare policies, and the creation of new forms of social safety net (Brynjolfsson and Mitchell, 2017).

Overall, the existing literature suggests that AI will have a significant impact on employment in the coming years. While some jobs may be lost to automation, new jobs will also be created, and workers who are able to adapt and acquire new skills may thrive in a world with AI. However, there is a need for policy interventions to ensure that the benefits of AI are shared equitably and that workers are supported through the transition (World Economic Forum, 2018).

Many other studies have explored specific industries and job types that are likely to be affected by AI, such as manufacturing, transportation, healthcare, and finance.

3. SIGNIFICANCE OF THE STUDY

The significance of a study on AI and its impact on employment lies in its potential to contribute to a better understanding of the complex relationship between technology and the workforce. Specifically, a research paper on this topic can have several important implications.

3.1 Inform Policy Decisions

The findings of the research paper can inform policy decisions aimed at mitigating the potential negative impacts of AI on workers and society. For example, the research may highlight the need for education and training programs to prepare workers for the jobs of the future or the need for regulatory frameworks to ensure that AI technology is developed and used ethically and responsibly.

3.2 Guide Business Strategies

The research paper may provide insights into the potential impact of AI on different industries and occupations, allowing businesses to develop strategies that harness the benefits of AI while minimizing the negative impacts on workers.

3.3 Contribute to Academic Knowledge

A research paper on AI and employment can contribute to the academic literature on this topic, advancing our understanding of the complex and multifaceted relationship between technology and the workforce.

3.4 Raise Public Awareness

By highlighting the potential impacts of AI on employment, the research paper can raise public awareness of the need to address these issues and promote a more informed debate on the role of technology in the future of work.

4. OBJECTIVES OF THE STUDY

The study objectives for this research paper on AI and its impact on employment includes the following objectives:

a) To examine the current state of AI technology and its potential impact on employment across different industries and occupations.

b) To analyse the factors that influence the adoption of AI technology in the workplace, including the costs and benefits of automation, the availability of skilled labour, and regulatory and policy frameworks.

c) To investigate the short-term and long-term effects of AI on employment, including job displacement, job creation, and changes in the nature of work.

d) To identify the potential ethical, social, and economic implications of AI on employment, including the potential for AI to exacerbate existing inequalities, impact worker well-being, and reshape labour markets.

5. RESEARCH METHODOLOGY

The base of this research is of secondary sources of data collection. Previous publications have been chosen to fulfil the research objectives. The current research paper is of descriptive in nature which involves the research work from various authors and experts. The overall focus of the study is to examine the role of artificial intelligence in our life and how it is impacting the scenario of employment and unemployment.

6. FINDINGS

The topic of AI and its impact on employment is a complex and multifaceted issue that has attracted significant attention from researchers in recent years. AI has the potential to significantly disrupt the traditional job market and create new opportunities while also posing significant challenges for workers and society. In this section, some of the key findings from the existing research on the impact of AI on employment are presented.

6.1 The Rise of AI and Automation

One of the most significant trends in recent years has been the rapid development of AI and automation technologies. These technologies have the potential to significantly improve productivity, reduce costs, and increase efficiency across a range of industries. However, they also pose significant challenges for workers who may find themselves displaced by these technologies.

6.2 The Impact of AI on Employment

The impact of AI on employment is a complex and multifaceted issue that depends on a range of factors such as the type of job, industry, and level of education and training required. While some studies suggest that AI may create new job opportunities, others predict that it could lead to significant job losses, particularly for low-skilled workers in industries such as manufacturing, transportation, and retail.

6.3 The Future of Work

Many experts predict that the rise of AI and automation will lead to significant changes in the nature of work. Some suggest that it could lead to the creation of new types of jobs that require skills such as creativity, critical thinking, and emotional intelligence, while others suggest that it could lead to a more polarized job market with a significant number of low-skilled workers being left behind.

6.4 Policy Implications

The rise of AI and automation poses significant challenges for policymakers, who must balance the need to promote innovation and economic growth with the need to protect workers and ensure social stability. Some suggest that policymakers should focus on supporting workers through education and training programs, while others suggest that they should consider

policies such as a universal basic income or a tax on automation to ensure that the benefits of AI are shared more broadly.

7. CONCLUSION

The impact of AI on employment is a complex and multifaceted issue that requires careful consideration by policymakers, researchers, and society as a whole. While AI has the potential to significantly improve productivity and create new job opportunities, it also poses significant challenges for workers and society. By examining the existing research on this issue, we can gain a better understanding of the potential impact of AI and begin to develop policies and strategies that ensure that the benefits of AI are shared more broadly.

The ethical implications of AI and employment are also an area of concern. Questions have been raised about the fairness of AI-driven hiring and promotion decisions, the potential for AI to exacerbate existing inequalities, and the impact of AI on workers' mental health and well-being. The literature suggests that AI will have a significant impact on employment in the coming years, with potentially far-reaching economic, social, and ethical consequences. Further research is needed to better understand the specific ways in which AI will affect different industries, regions, and groups of workers, as well as the most effective policy responses to these challenges.

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INTRUSION DETECTION SYSTEM USING MACHINE LEARNING APPROACHES AND ITS DATASETS: A STUDY

A. Kalaivani & Dr. R. Pugazendi

ABSTRACT

With the tremendous growth in technology, the need for security for the information communicated and to the network has become more indeed than before. As technology advanced, the user's communication on internet-based systems has increased and has led to several cyberattacks.

Sometimes, a few cyberattacks go unnoticed by the users. An active defending system for the network and for the information has become more important. To protect networks, sensitive data and resources, the Intrusion Detection System (IDS) and Intrusion Prevention System (IPS) have become more important for all organizations to prevent cyber criminals activities. Several approaches have been developed for the IPS and IDS. Machine learning methodologies are playing a vital role in detecting network intrusion, which further helps the developers to take precautionary measures for preventing the intrusion. This paper gives a detailed analysis about the different approaches using machine learning and different datasets used, which can be beneficial for the further research and development of IDS and IPS.

Keywords: Cyberattacks, IDS and IPS, Machine Learning Approaches, Datasets.

1. INTRODUCTION

Technology development has evolved a lot along with the increase in the need for security to the data and to the systems. IDS is a well-known technique to protect networks and systems against attacks and to ensure the safety of the systems. IDS is a software or hardware designed to detect any suspicious activity against the system or network. Many IDS products were developed to satisfy the needs of network security, however the immense evolution in the technology over the last decade has resulted in a large expansion of the network size, usage of technology for data communication and number of users. The IDS is about firewall security. The firewall protects an organization from the malicious activities from the internet and the IDS detects if someone tries to access in through the firewalls or manages to break in the firewall security and tries to have an access on any system in the organization and alerts the system administrator if there is a suspicious activity in the firewall.

The roles performed by IDS are:

a) Monitoring network traffic and computer systems and analysing the traffic for possible hostile attacks.
b) Keeping an eye on the system and user activities.
c) Verification of the system error.
d) Evaluating the integrity of system and data files.
e) Identification of any abnormal behaviors.
f) Marking statistical records.

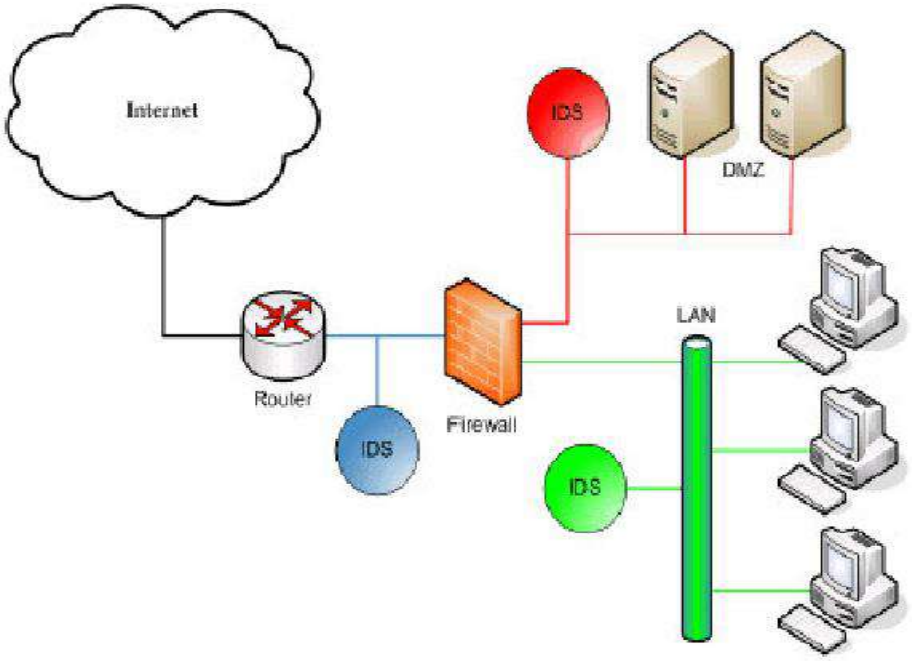

Figure 1: Working of IDS

Figure 1 explains the complete set of IDS present at different levels for detecting the system and network. An IDS should be used as a tool in conjunction with standard security products like firewall, and anti-virus to increase the system-specific or wide network security. Based upon these alerts, a security operations centre (SOC) analyst or incident responder can investigate the issue and take the appropriate actions to remediate the threat. In the above, the IDS is placed first in the network while connecting to the internet to detect any malicious activity on the entry-level itself, then IDS is deployed at the LAN connection and finally IDS deployment at the individual system entry-level to safeguard the system from attacks.

2. TAXONOMY OF IDS

The Taxonomy of IDS explains the process of IDS. IDS collects data from the source and works based on the mode of working designed for the intrusion to be detected.The working process for the host based or network based can be by using any of the other strategies like signature based or anomaly based .The different techniques associated along with the main methods are invoked for the working of the IDS .

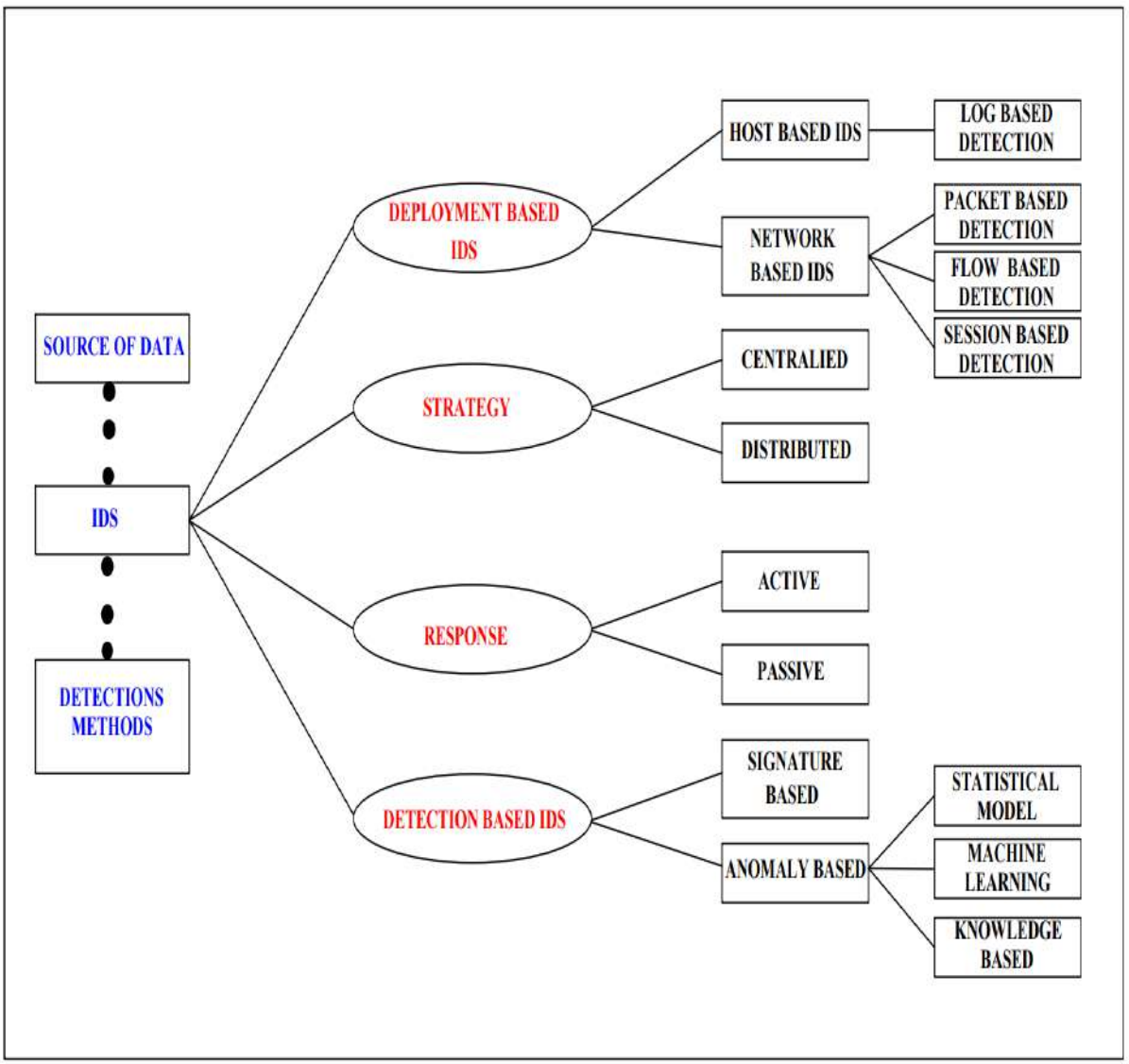

Figure 2: Taxonomy of IDS

Figure 2 explains about the complete taxonomy of the IDS. It can be classified as:

a) Based on deployment, it can be classified as host based or network based.
b) Based on the strategy of accessing, it can be classified as centralized or distributed.
c) Based on the response strategy, it can be classified as an active or response method.
d) Based on a detection-oriented approach, it can be classified as signature-based or anomaly-based IDS.

3. ANOMALY BASED DETECTION (AIDS)

Anomaly based detection method has generated more interest and the attention of the researchers due to its feature which overcomes the drawbacks in signature-based IDS. Any deviation between the observed behaviours and model is known as anomaly, works on the fact that malicious behaviours are different from user behaviour (Shannon C, 2004). Anomaly is used to detect unknown attacks. There are different methods to find out the anomalies.

In AIDS, a normal model of the behaviours of a computer system is created using any one of the approaches such as statistical based, knowledge based and machine learning based.

4. MACHINE LEARNING BASED IDS

Machine learning (ML) is the process of extracting knowledge from large quantities of data. ML is a subset of AI that includes all the methods and algorithms which enable the machines to learn automatically using mathematical models in order to extract useful information from the large datasets (Mrutyunjaya Panda, 2011). The idea of applying ML techniques for intrusion detection is to automatically build the model based on the training data set. Techniques for the anomaly detection technique can be classified into supervised and unsupervised learning.

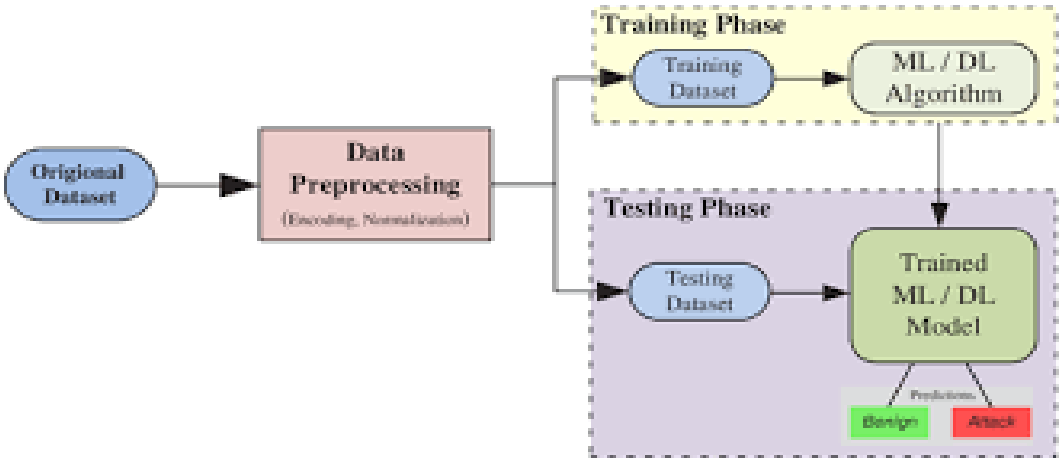

Figure 3: Working Model of ML

The original dataset is taken for the working process using ML. Data preprocessing is done for the feature extraction as per the requirement. Then the data is fed into the training phase. Here the data is trained using any one of the Machine learning algorithms. Then finally the dataset is tested against the trained ML model for identifying the attack and the result.

The machine learning approaches for IDS are as follows:

Supervised Learning	Unsupervised Learning
Decision tree classification	K-means clustering
Naïve Bayes	Probabilistic clustering
Genetic Algorithm	Principal component analysis
Artificial neural network	Hierarchical clustering
Fuzzy logic	Singular value decomposition
Support vector machine	Independent component analysis
K-nearest neighbours	

Table 1: (Two Methods Classification of ML for IDS)

5. MACHINE LEARNING BASED METHODS

Machine Learning (ML) methods have become an effective and emerging technique for identifying and categorizing many network attacks. Machine learning-based intrusion detection systems are very useful in effectively processing the huge data, detecting any malicious or harmful behaviour, efficiently controlling it, and identifying attacks of such sorts. Machine Learning based methods make the IDS able to learn and improve the system's performance by analyzing the previous data. Several machine learning-based methods are implemented for IDS. Some of the important techniques are explained in the following section.

5.1 Decision Tree Classification

Decision tree is one of the most powerful supervised ML algorithms. This algorithm is used for classification and regression of the given dataset by applying the series of decisions. In figure 4, the model has a tree structure with tree structure format, where the nodes, branches and leaf are present, each representing rule (Ankit Thakkar, 2019). Root represents the topmost mode node in the tree, it is the starting point of the decision process. Leaf represents an outcome. The best feature is selected for building the tree by removing the irrelevant branches. Example for the decision tree model is CART.

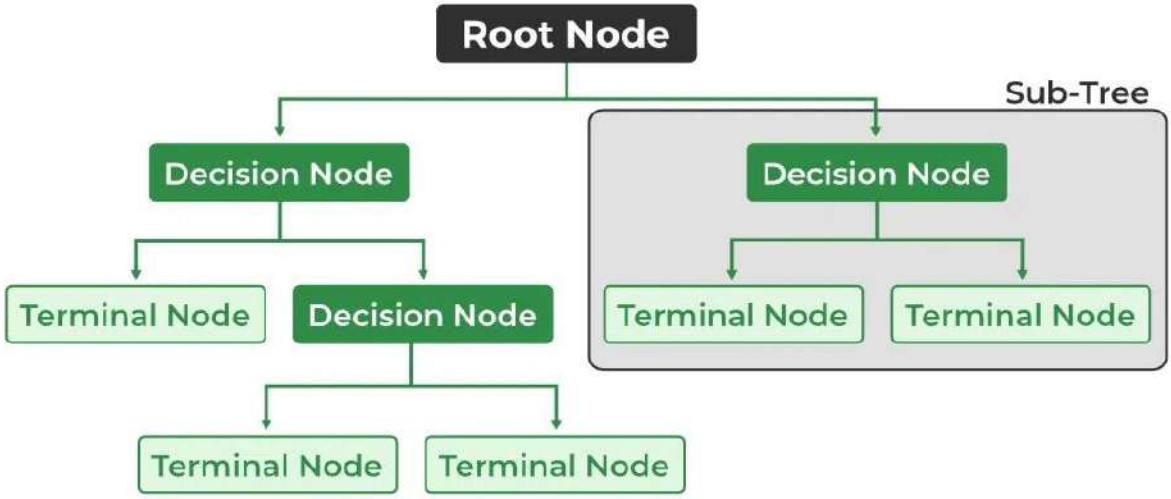

Fig 4 :Tree decision classification

5.2 Fuzzy Logic

Fuzzy logic techniques are derived from the fuzzy set. Intrusion detection system uses a fuzzy logic method. The fuzzy logic part is responsible for both handling the large number of input parameters and dealing with the inaccuracy of the input data. The fuzzy logic minimizes the false alarm rate in determining the intrusive activities.The fuzzy logic architecture consists of four components like rules, fuzzification, inference engine, and defuzzification. Fuzzy rules are used to identify normal and abnormal behaviour in computer behavior. Inference logic is used for determining the intrusion.

5.3 Clustering

Clustering is one of the commonly used unsupervised techniques for classifying huge datasets and detecting the intrusions. Clustering is an unsupervised learning technique which divides the datasets into subparts, which share common properties. The clustering approach is based on two assumptions. The first assumption is that the number of normal connections is larger than abnormal connections, and the second assumption is that the feature of the abnormal network is different from the normal network. Many clustering techniques are used like hierarchical, partitional, grid based and density-based clustering techniques. For clustering data , there should be both high intra cluster and low inter cluster similarity. A clustering method which results in such types of clusters is considered a good clustering algorithm.

5.4 K-Nearest Neighbour

The K-nearest neighbour is used to classify programme behaviour as normal or intrusive. KNN is a supervised classifier. It is very easy to implement and understand. The trained dataset is loaded first (Ankit Thakkar,2019). This technique aims to separate ‘n’ data objects into ‘k’ clusters, in which each data object is selected in the cluster with the nearest mean. It is an iterative clustering algorithm. This utilizes the idea that feature similarity’s parameter ‘k’ affects the performance of the model. If ‘k’ is small, the model is acceptable. If the ‘k’ value is big, it results in misclassification.

5.5 Artificial Neural Network

Artificial Neural Network is inspired by the working of the nervous system of the human brain. The nodes in this are arranged in an order as input layer, many hidden layers and finally from large datasets. Main advantage of using this method is to perform nonlinear modelling by learning. Time consumption is more due to its complex nature. This method seems to be successful in detecting malwares (Ankit Thakkar, 2019). The method is a powerful tool in classification tasks which includes IDS. ANN has the ability of organizing their own structure (known as neurons) to handle some specific computational activities, such as the pattern recognition, in a much more efficient way in comparison to the faster known digital computer.

6. DATASETS

A dataset is a collection of data. It is an ordered collection of data. Collection of information obtained through observations, measurements, study or analysis is referred to as data. It could include information such as data, it has even the basic decryption of objects.

IDS collects and alters the data packets, usage of disk, processes of the system.

The behavioural patterns of network attacks change gradually and therefore it is required to upgrade the conventional dataset in the dynamic environment. It will help in manifesting different network scenarios and attack patterns that are easy to adapt, learn, and redefine. Few organizations have the dataset which are particularly developed for their own research and are not freely available. Freely available dataset is not updated to the current attacks’ choosing the dataset for the IDS is a critical task.

A few characteristics of a good dataset are as follows:

a) A good dataset should be complete, which means they should include both audit logs and raw network data. Audit logs along with raw data improves in the detection of threats.

b) Intrusion detection datasets should include wide varieties of attack types which represent the current landscape.
c) Recently created dataset should be used.
d) Dataset generators can be used which can adapt and create relevant attacks.
e) Datasets should not include normal traffic networks which cannot be later transmitted to the real computer networks.
f) Diverse selection of servers, audit logs types, users, network information, network types and workstations of the users should be considered in the dataset.

7. DATASET FOR IDS

7.1 KDD-99

It is the most widely used data set for the evaluation of anomaly detection methods. A DARPA dataset namely KDD-99 consists of traffic traces of the network of seven weeks. It contains five million records in the form of binary data which is nearly four gigabytes. Several types of attack are included in this dataset like user to root (U2R), probing and remote to local (R2L). These attacks which gain the access of the root node, scan the entire network and gain access to the system. These types of attacks are controlled in the dataset with the help of 41 features described as normal or attack.

7.2 ISCXIDS2012

This dataset is a profile-based dataset which includes distribution models for network entities and applications at the lower level. Users' behaviour is stimulated using the profile. The component of this dataset was created using various multistage attack conditions, later agents are used to stimulate user action and run these profiles. This dataset highly covers the no malicious and malicious network behaviour. The ISCXIDS2012 has characteristics like realistic network and traffic, labelled dataset, total interaction capture and complete capture.

7.3 CIDDS

CIDDS (Coburg Intrusion Detection Data Sets) is a concept to create evaluation datasets for anomaly-based network intrusion detection systems. Coburg intrusion detection dataset is used in the virtual environment. It is a flow-based dataset. This dataset is used in environments like web server, python scripts, email server. This dataset contains 14 attribute (Koch R, 2011). It is a tiny network which works with few servers and clients. Attacks like brute force attack were identified in this dataset.

7.4 UNSW-NB15

UNSW-NB15: a comprehensive data set for network intrusion detection systems (network data set). It contains nine different attacks, including DoS, Worms, Backdoors, and Fuzzers. The trending newer dataset is the UNSW-NB15 which addresses the good criteria of a dataset developed along with the network generator to produce synthetic network data that included both normal and simulated attack traffic. A special tool is used named Argus to create richer features. Nine different types of attacks have been found in this dataset. It is labelled and it is synthetic data.

7.5 CICIDS2017

CICIDS2017 dataset contains the most up-to-date common attacks, which resembles the true real-world data (PCAPs). It includes the results of the network traffic analysis using CICFlowMeter with labeled flows based on the timestamp, source, and destination IPs, source and destination ports, protocols and attack (CSV files). A few protocols are introduced in this dataset like HTTP, HTTPS, FTP and SSH. This includes the action of 25 individuals. Security attacks are also included like web, DDOS attacks. This dataset works by creating the traffic based on the human behavior using the B-profile method.

7.6 ToN-IoT

The TON_IoT datasets are new generations of Industry 4.0, Internet of Things (IoT) and Industrial IoT (IIoT) datasets for evaluating the fidelity and efficiency of different cybersecurity applications based on Artificial Intelligence. This dataset includes the telemetry data from connected devices like Linux and Windows OS system records, IoT network traffic (Kanakarajan NK, 2015). The cyber range and UNSW Canberra IoT labs collaborated to form this dataset. This dataset is represented in the CSV format. The subcategory section was included to mention which type of attack happened. This dataset is highly useful in the IoT world for the sensor's protection and security.

8. CONCLUSION

Technology has made an intelligent network intrusion detection system that can protect against different types of malicious attacks. But still cybercriminals are targeting computer users by using sophisticated techniques as well as several strategies. Intrusion detection system along with the firewall is working hard along with the other technologies to keep the system and data

safe, but still attackers keep coming with new threats and new technology which hides their communication, obscure their identities, and use infrastructure that is resistant to compromise. The machine learning algorithm though it is used to find the unknown attacks, it still faces challenges with datasets which are used. The KDD Cup 99 and NSL-KDD datasets are mainly used and they are quite old to address modern network attacks and hence limits the performance of the proposed methodologies in a real time environment.

This paper summarizes all the methods and datasets which are used currently for the IDS. The future research has to design a novel model which is efficient enough to handle all the upcoming threats. The datasets which are implemented in the upcoming technologies should support all the features to identify and handle the threats. Technology changes, threats evolve, and datasets lose their relevance very fastly. IDS should be established with all good criteria and should choose a dataset keeping in mind about these criteria. Emerging technologies like deep learning along with choosing the good dataset which is very efficient enough to handle all sorts of unknown attacks should be implemented in the field of research of IDS towards the secured future with all developing technologies and all types of attacks.

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