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Anoop Joshi, Soma Arora

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Dr. Soma Arora, Editor MRCON 24

It is with great pleasure and anticipation that I introduce SLM, School of Leadership and Management's latest literary endeavor. In the pages that follow, readers will embark on a journey of Sustainability and Growth through Digital Innovation -the theme of our Annual Conference at MRIIRS, Manav Rachna International Institute of Research and Studies, India.

As a Business School with profound moorings in indigenous capabilities and sustenance, the conference MRCON, brought a unique perspective to the table, one that is sure to captivate and inspire readers from all walks of life. Through the keen observations and insightful prose, the readers skillfully navigate the complexities of sustainable development goals for women empowerment, gender equality, poverty alleviation, green entrepreneurship and much more.

In an era marked by rapid change and uncertainty, this compendium serves as a beacon of clarity and understanding. Whether you are a seasoned scholar, a curious novice, or simply someone with a thirst for knowledge, this Special Issue offers something of value to all who delve into its pages.

From the very first article to the closing words, it invites us to contemplate upon the intricacies of sustainable growth, challenging us to expand our minds and broaden our horizons. It is a testament to our dedication and passion for sustainability.

So, dear readers, I encourage you to explore with an open mind and a receptive heart. Allow yourself to be swept away by the wisdom and insight contained within these pages. For in doing so, you may just find yourself enriched, enlightened, and inspired in ways you never thought possible.

The MRCON 24 special issue launched on the unique platform of Journal of Asia Entrepreneurship and Sustainability, JAES is not a mere collection of words; it is a testament to the power of ideas and the enduring spirit of human curiosity. May it serve as a guiding light on your own journey of discovery.

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Navigating Virtual Education: Insights from Google Classroom Implementation in Higher Education Amidst Crisis

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Abstract

The global crisis of the past years has precipitated profound changes across numerous sectors, including higher education, prompting institutions to transition from traditional classroom settings to virtual platforms. This necessitates a thorough investigation into the factors influencing students' acceptance and engagement with virtual learning environments. Addressing this imperative, our research examines the dynamics of utilizing Google Classroom for virtual classes in higher education during the crisis period, employing an Extended Technology Acceptance Model (TAM) analysis.Through a meticulous examination of primary and secondary data, our study interrogates pivotal

questions surrounding students' technology acceptance and engagement levels within the crisis-induced virtual learning milieu. It delves into the challenges faced by students and faculty in adapting to online platforms, encompassing issues about digital infrastructure, content creation, and lecture delivery. By scrutinizing these facets, our research endeavours to furnish valuable insights for institutions and faculty in crafting efficacious online course content tailored to diverse academic disciplines.

Our findings underscore the paramount importance of accommodating students' perspectives and technological proficiency in moulding virtual learning experiences. They illuminate strategies for augmenting student engagement and optimizing pedagogical methodologies within online learning environments. By elucidating the intricacies inherent in virtual education during crises, our research enriches the ongoing discourse on educational innovation and adaptation amidst unprecedented challenges.

Ultimately, the insights derived from our study proffer pragmatic recommendations for institutions and faculty striving to cultivate meaningful and interactive learning experiences in the digital epoch, thereby fortifying resilience and adaptability in higher education amid evolving global contexts.

Keywords: Google Classroom, Virtual classes, Higher Education, TAM, COVID-19

Introduction:

Amidst the upheaval caused by pandemics, historical evidence suggests that these crises often serve as catalysts for innovation and transformation across various sectors and industries. The COVID-19 pandemic, in particular, has underscored this reality, precipitating significant paradigm shifts in business, communication, and daily life.

Within the realm of higher education, the onset of the COVID-19 crisis prompted a profound and rapid transformation as universities and colleges worldwide grappled with the imperative to suspend on-campus operations. This unprecedented challenge necessitated the swift adoption of online platforms and virtual learning environments to ensure the uninterrupted continuity of teaching and learning processes. In India, the transition from traditional offline instruction to virtual classes posed a myriad of challenges for both students and faculty members.

The shift to online education exposed a spectrum of issues, ranging from digital platform accessibility and content creation to the quality of internet infrastructure available to participants. Students and faculty found themselves navigating unfamiliar terrain, contending with technical barriers, and redefining

instructional methodologies to align with the virtual domain. Against this backdrop, comprehending the factors shaping students' acceptance and engagement with virtual class platforms emerges as a critical imperative for educational institutions and faculty members alike.

This research endeavours to explore the intricacies surrounding the adoption and utilization of Google Classroom for virtual classes in higher education amidst the COVID-19 lockdown scenario. Leveraging an Extended Technology Acceptance Model (TAM) analysis, the study seeks to unravel the complexities of student acceptance and engagement within the virtual learning environment.

Guiding the inquiry are fundamental questions: To what extent do students embrace technology and engage with virtual classes during the COVID-19 lockdown? Furthermore, what considerations should institutions and faculty prioritize when crafting online course content to optimize student engagement and learning outcomes?

Through a meticulous examination of primary and secondary data sources, this study aspires to furnish actionable insights for educational stakeholders. By pinpointing barriers to virtual class platform acceptance and proposing strategies to enhance online course design and delivery, the research endeavours to cultivate resilience and foster innovation in higher education amid unprecedented challenges. Ultimately, the findings of this study contribute

meaningfully to the ongoing discourse on educational adaptation and pedagogical innovation in the digital era.

Review of Literature:

Virtual learning, encompassing both online and blended modes of education, has emerged as a significant pedagogical approach, particularly in response to the COVID-19 pandemic. While traditional in-person teaching remains foundational, scholars have examined the efficacy and challenges of virtual learning environments.

O'Dowd, Sauro, and Spector-Cohen (2020) shed light on the limitations of virtual learning, emphasizing its inability to replicate the interpersonal dynamics and engagement fostered in face-to-face settings. Similarly, Kramsch (2014) underscores the artificiality of virtual learning experiences compared to in-person interactions, suggesting potential shortcomings in student outcomes.Martin, Stamper, and Flowers (2020) accentuate the importance of technical and communication skills for effective engagement in virtual learning environments. Their study reveals that students lacking in these competencies may face disadvantages in navigating online platforms and maximizing learning opportunities. However, a study by El-Sayad, G., Md Saad, N. H., & Thurasamy, R. (2021)emphasised that online student behaviour can be moulded

by providinga suitable instructional environment. Also, Ionescu, C. A., et. al. (2020) have stated that though there online education can be challenged due to logistics in different parts of the world. Yet a synergistic collaboration between parents, teachers and students can go a long way in building a sustainable platform to provide online education.The COVID-19 pandemic exposed the unpreparedness of educational systems to swiftly transition to online modes of instruction (Mukhametshin et al., 2021). Despite challenges, O'Dowd, Sauro, and Spector-Cohen (2020) advocate for a hybrid approach that integrates both in-person and virtual teaching methods to optimize educational outcomes in the current context.Heng, K., & Sol, K. (2021) study also pointed out that the shift in educational delivery during crisis has had a positive impact in education in particularly for developing nations and efforts should be made to continue the momentum to ensure education to the masses.

Google Classroom has emerged as a prominent virtual learning platform, offering educators and students accessible tools for online instruction. Studies by de Oliveira Dias et al. (2020), Haggag (2019), and Al-Maroof and Al-Emran (2018) attest to the effectiveness and ease of use of Google Classroom for conducting online classes and facilitating language learning.

Vaidyanathan (2018) and Ventayen et al. (2018) highlight the versatility of Google Classroom for non-academic activities such as posting notices and

grades, further underscoring its utility in educational settings. However, Ansong-Gyimah (2020) notes that users with limited computer literacy may encounter challenges with the platform, emphasizing the importance of user-friendly interfaces for sustained online learning experiences.

The Technology Acceptance Model (TAM), proposed by Davis, offers a theoretical framework for understanding individuals' attitudes and perceptions towards technology adoption. Despite its widespread acceptance, TAM has faced criticism for its limited applicability in diverse contexts (Scherer et al., 2019). Scholars, including Abdullah and Ward (2016) and Yang et al. (2019), have extended TAM to incorporate additional factors such as perceived enjoyment and ease of use, enhancing its predictive power in assessing technology acceptance.Studies by Wu and Gao (2011) and Abdullah and Ward (2016) elucidate how perceived ease of use, usefulness, and enjoyment influence students' attitudes and intentions towards interactive learning technologies. These insights contribute to the evolving discourse on technology adoption in educational settings, underscoring the importance of user-centric design and pedagogical alignment in fostering technology acceptance and engagement.

Research Gap, Theoretical Framework, Objective and Hypotheses:

Though much has been written and discussed in literature about TAM in e-learning literature immediate or unplanned use of an online platform like Google Classroom for virtual classes has not been investigated. Google Classroom is a product of Google Inc., and the software can be downloaded for both desktop and mobile application versions. In this context,in this study, we have used the extended TAM model proposed by Wu, X., & Gao, Y. (2011) to investigate the research question. Thestudy's objective is to examine the undergraduate and postgraduate students' acceptance level of Google Classroom for virtual classes. The following factors are included in this Model: perceived ease of use, perceived usefulness, and perceived enjoyment which positively influence learners'Attitudes and intentions towards using learning technology. The research modelis shown in Figure 1.

The following Hypotheses were formulated for the study:

H1: Perceived ease of use positively affects perceived usefulness.

H2: Perceived Usefulness positively affectsAttitude toward using Google Classroom for virtual classes.

H3: Perceived Usefulness positively affects Intention toward using Google Classroom for virtual classes.

H4: Attitudepositively affects Intention toward using Google Classroom for virtual classes.

H5: Perceived Enjoyment positively affects Perceived Usefulness.

H6: Perceived ease of use positively affects perceived enjoyment.

H7: Perceived Enjoyment positively affects Attitude toward using Google Classroom for virtual classes.

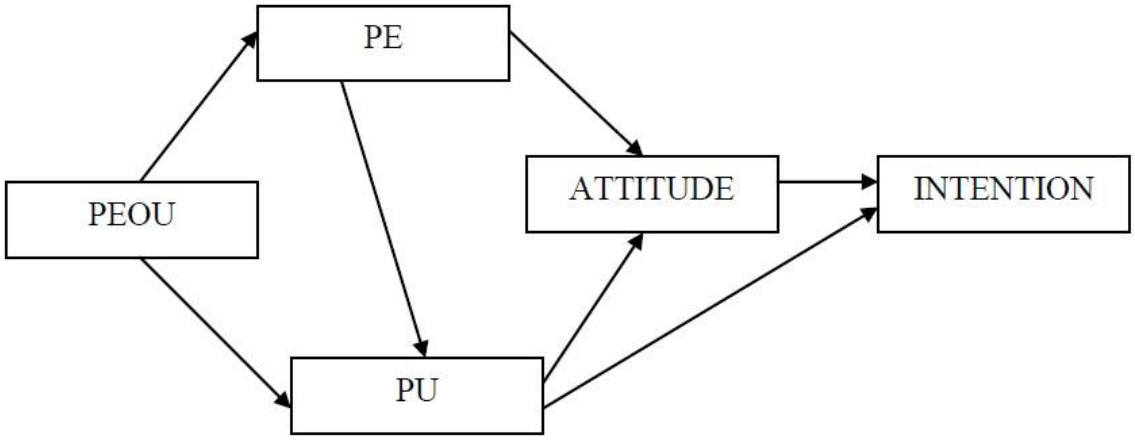

Figure 1: Theoretical Framework: Extended TAM Model

Source: Review of Literature

Methodology:

Following the comprehensive review of the literature, this study employed a quantitative research approach to investigate the acceptance and engagement levels of undergraduate and postgraduate students towards virtual learning platforms, particularly Google Classroom, within a University setting in India. The methodology involved the adaptation and administration of a structured questionnaire based on the extended Technology Acceptance Model (TAM), as proposed by Wu and Gao (2011).

The questionnaire, utilizing a 7-point Likert-type scale, was meticulously designed to encompass constructs central to the extended TAM framework. These constructs include perceived ease of use, perceived usefulness, perceived enjoyment, attitude towards technology, and behavioural intentions towards using virtual learning platforms. The scale items were carefully crafted to capture nuanced perceptions and attitudes towards online education, ensuring comprehensiveness and relevance to the study objectives.

The study population comprised undergraduate and postgraduate students enrolled at a University in India actively utilizing Google Classroom for virtual classes. A purposive sampling technique was employed to select participants from the university's student database, ensuring representation across diverse academic disciplines and educational levels.

To ensure the validity and reliability of the questionnaire, a pilot study was conducted among a subset of the target population. The pilot study facilitated the refinement of survey items and assessment of the questionnaire's clarity, coherence, and relevance to the research context. Additionally, reliability testing was performed using Cronbach's alpha coefficient, a widely accepted measure of internal consistency reliability (Nunnally and Bernstein, 1994). The Cronbach's alpha coefficient of 0.84 indicated high internal consistency and reliability of the questionnaire, surpassing the threshold of 0.7 commonly considered acceptable.

Furthermore, construct reliability was assessed using SPSS software, confirming the reliability of each construct with coefficients exceeding 0.70, as depicted in Table 2. This demonstrated the robustness and reliability of the data obtained, affirming the suitability for subsequent factor analysis and model evaluation.

Convergent validity was established by examining the degree of convergence among constructs, with a reliability threshold above 0.6 indicating convergent fitness of the model (Bagozzi and Yi, 1988). Discriminant validity was assessed through Pearson's correlation coefficient, ensuring that correlations among factors did not exceed the .50 threshold, thus affirming adequate discriminant validity of the measures.

Model testing and analysis were conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) implemented through Smart PLS

software. PLS-SEM offers a robust analytical framework for assessing the relationships between constructs and evaluating the overall fit of the extended TAM model within the context of virtual learning platforms.

By employing a rigorous methodological approach, this study aims to provide empirically grounded insights into students' acceptance and engagement with virtual learning environments, thereby contributing to the broader discourse on educational technology adoption and pedagogical innovation.

Data Analysis:

Two hundred students were emailed an online questionnaireseeking their perception of virtual classes. A total of a hundred twenty filled questionnaires were received. Following the data cleaning process, only ninety-nineresponses were found to be valid and useable.

Table 1: Respondent Profile

Gender		
	Frequency	Percent

Male	49	49.5
Female	50	50.5
Programme		
	Frequency	Percent
UG	60	60.6
PG	39	39.4

Source: Primary Data analysis

Table 1. presents the respondent profile data. The data is segmented by gender and program, with frequencies and percentages provided for each category.The gender distribution appears to be almost evenly split, with 49.5% male and 50.5% female respondents. This indicates a balanced representation of genders within the sample population.The slight discrepancy in percentages (49.5% and 50.5%) could be due to rounding errors or actual differences in the population being studied.It's worth noting that the gender distribution in the sample aligns with the general gender distribution in higher education, where women tend to slightly outnumber men in many regions.

The data shows that 60.6% of respondents are undergraduate (UG) students, while 39.4% are postgraduate (PG) students.This distribution suggests a higher

participation rate from undergraduate students compared to postgraduate students in the study.The higher representation of undergraduate students could be due to various factors such as the accessibility of the survey, the nature of courses offered, or the demographics of the institution where the research was conducted.

The reliability and generalizability of the findings depend significantly on the representativeness of the sample population. While the gender distribution seems fairly balanced, the overrepresentation of undergraduate students might affect the generalizability of the results, especially if the research aims to conclude applicable to both undergraduate and postgraduate levels.Futures researchers should acknowledge the limitations arising from the sample composition and interpret the findings accordingly. They might consider strategies to mitigate bias, such as oversampling postgraduate students or conducting separate analyses for each educational level.

Understanding the demographic composition of respondents is crucial for interpreting the findings and drawing meaningful conclusions. Future researchers should explore how gender and program differences might influence virtual education experiences, perceptions, and outcomes. For example, there could be differences in technology adoption, engagement levels, or learning preferences between male and female students or between undergraduate and

postgraduate students.Further analysis could involve examining interactions between gender and program variables to uncover nuanced insights that may inform educational practices and policies.

In summary, while the gender distribution appears balanced, the overrepresentation of undergraduate students raises considerations regarding the generalizability of findings across different educational levels. Future researchers should acknowledge these limitations and explore the potential implications of demographic differences on virtual education experiences.

Table 2: Item and Construct Reliability

Constructs	Item Statistics			Reliability Statistics
Question	Item mc	Mean n	Std. D	Cronbach's Alpha

	o d e		e vi at io n	
Perceived Ease of Use (PEOU):				0.798
Learning to use Google Classroom would be easy for me.	P E O U 1	5 . 9 1	1. 3 1	
My interaction with Google Classroom was clear and understandable.	P E O U 2	5 . 6	1. 3 6 2	

It would be easy for me to use Google Classroom.	PEOU3	5.95	1.024	
I found Google Classroom easy to use.	PEOU4	5.89	1.142	
Perceived Usefulness (PU):				0.795
Using Google Classroom would enhance my effectiveness in learning.	PU1	6.78	0.581	

Using Google Classroom would improve my course performance.	PU2	6.668	0.667	
Using Google Classroom would increase my productivity in my coursework.	PU3	6.664	0.721	
I found using Google Classroom useful.	PU4	6.552	0.873	
Perceived Enjoyment (PE):				0.743

Using Google Classroom is enjoyable.	PE1	5.43	1.099	
Using Google Classroom is entertaining.	PE2	5.84	0.681	
Using Google Classroom is fun.	PE3	4	1.221	
Attitude (ATT):				0.888
I believe it is a good idea to use Google Classroom in	ATT1	6.17	1.011	

my future courses.				
I have a generally favourable attitude toward using Google Classroom.	ATT2	6.03	0.942	
I dislike the idea of using Google Classroom (R).	ATT3	5.95	1.004	
Intention:				0.846
I intend to choose classes using Google Classroom if available.	BI1	6.25	0.861	

I will recommend courses using Google Classroom for my friends.	BI2	6.03	1.156	
I intend to take courses using Google Classroom in the future.	BI3	6.33	0.926	

Source: Primary Data analysis

The Confirmatory factor analysis results using principal component analysis with varimax rotation of the sample collected showed the KMO test to assess data adequacy value 0.777, which is over a value of .6, a suggested minimum as shown in Table 3. Bartlett's Test of Sphericity's chi-square value was found to be significant (chi sq.= 1858.215, p=. 000), which means the factor analysis is acceptable. The confirmatory factor analysis generated five components with eigenvalues above one, as shown in Table 4.

Table 3: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.777
Bartlett's Test of Sphericity	Approx. Chi-Square	858.215
	df	136
	Sig.	.000

Source: Primary Data analysis

Table 4: Rotated Component Matrix

Rotated Component Matrix

	Component				
	1	2	3	4	5
PEOU 1	.556				
PEOU 2	.793				
PEOU 3	.775				
PEOU 4	.888				
PU1		.837			
PU2		.791			
PU3		.800			
PU4		.463			.528

PE1					.830
PE2					.849
PE3					.719
ATT1			.843		
ATT2			.892		
ATT3			.838		
BI1				.850	
BI2				.836	
BI3				.868	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Source: Primary Data analysis

Table 4 presents the Rotated Component Matrix derived from a Principal Component Analysis (PCA) with Varimax rotation method applied to the data. The purpose of PCA is to simplify complex data by reducing its dimensionality while retaining most of the variation in the data. Varimax rotation is a technique used to simplify the interpretation of the components obtained through PCA by maximizing the variance of the squared loadings within each component.

Component loadings represent the correlation coefficients between the original variables and the components extracted through PCA. Higher loadings indicate stronger relationships between variables and components.In this analysis, the rotated component matrix displays loadings for five components (labeled 1 through 5) and various original variables (e.g., PEOU1, PU1, PE1, ATT2, etc.).The loadings for each variable across components indicate the extent to which they contribute to each component. For instance, higher loadings suggest stronger associations between variables and the corresponding components.Each component represents a set of variables that are highly correlated with each

other. The interpretation of these components requires examining the variables with the highest loadings within each component.

Component 1: It seems to be related to Perceived Ease of Use (PEOU) as most of the PEOU variables (PEOU1, PEOU2, PEOU3, PEOU4) have high loadings on this component.

Component 2: It appears to be related to Perceived Usefulness (PU) since most of the PU variables (PU1, PU2, PU3, PU4) have high loadings on this component.

Component 3: This component may represent Attitude (ATT) as ATT variables (ATT1, ATT2, ATT3) have high loadings here.

Component 4: It could be related to Behavioral Intention (BI) as BI variables (BI1, BI2, BI3) have high loadings on this component.

Component 5: This component appears to be related to Perceived Enjoyment (PE) as PE variables (PE1, PE2, PE3) have high loadings here.

The fact that the rotation converged in 6 iterations indicates that the Varimax rotation successfully optimized the loadings to maximize the variance of squared loadings within each component.

Convergence within a few iterations suggests that the rotated solution is stable and reliable.

The extraction method used was Principal Component Analysis, which is suitable for reducing data dimensionality and identifying underlying patterns.The Varimax rotation method with Kaiser normalization is commonly employed to simplify interpretation by maximizing the variance of loadings within components.While PCA helps in identifying patterns, it doesn't establish causation, and the interpretation should be supplemented with other analyses and domain knowledge.

In summary, the Rotated Component Matrix provides insights into the underlying structure of the data, indicating distinct components related to perceived ease of use, perceived usefulness, attitude, behavioural intention, and perceived enjoyment. The convergence of rotation suggests a stable solution, but interpretation should be done carefully considering theoretical and contextual relevance.

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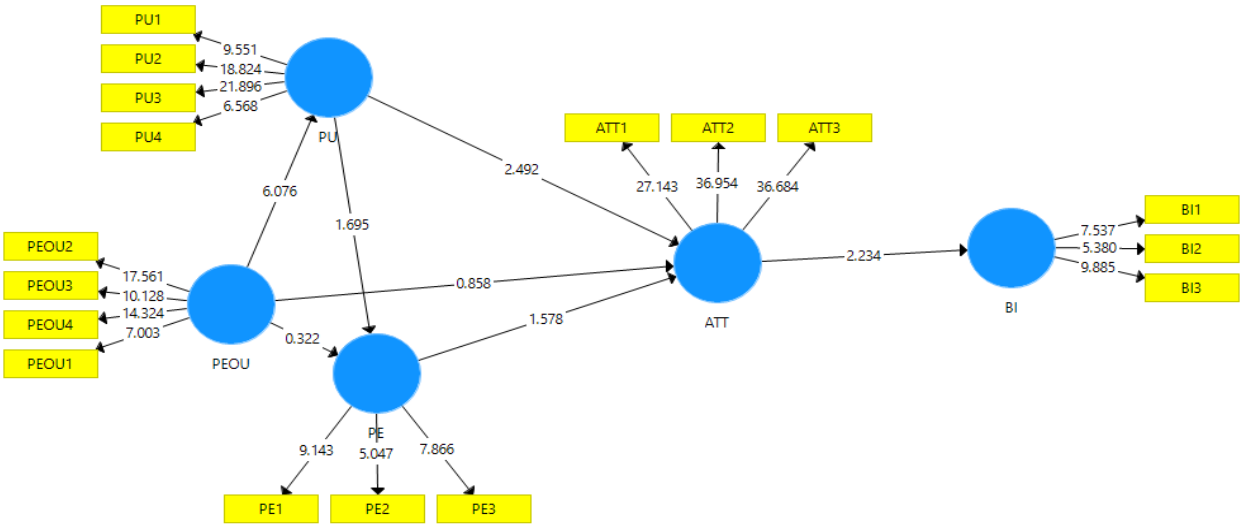

Figure 2: Smart PLS model

Source: Primary Data analysis

The measurement model for the analysis is shown in Figure 2. Table 5 showsthe effect size of various constructs. The Path coefficient wasanalyzed using the bootstrapping of the sample using Smart PLS.

Table 5: Path Coefficient

	Original Sample (O)	Sample Mean (M)	Standard Devia...	T Statistics (|O/STDEV|)	P Values
ATT -> BI	0.287	0.304	0.129	2.234	0.026
PE -> ATT	0.179	0.192	0.114	1.578	0.115
PEOU -> ATT	0.083	0.078	0.096	0.858	0.391
PEOU -> PE	0.043	0.075	0.132	0.322	0.748
PEOU -> PU	0.418	0.443	0.069	6.076	0.000
PU -> ATT	0.377	0.384	0.151	2.492	0.013
PU -> PE	0.261	0.249	0.154	1.695	0.091

Source: Primary data analysis

From Table 5, it is deduced that Perceived ease of use positively affects perceived usefulness. Perceived Usefulness also positively affects Attitude toward using Google Classroom for virtual courses, and Attitude positively affects Intention toward using Google Classroom for virtual classes

Perceived Ease of Use (PEOU) positively affects Perceived Usefulness (PU): This implies that when users perceive Google Classroom as easy to use, they are more likely to find it useful. This finding aligns with the Technology Acceptance Model (TAM), which suggests that ease of use influences perceived usefulness.

Perceived Usefulness (PU) positively affects Attitude (ATT): When users perceive Google Classroom as useful, they develop a positive attitude toward using it. This finding is consistent with the idea that perceived usefulness influences users' overall attitudes toward technology adoption.

Attitude (ATT) positively affects Intention (BI): Users with a positive attitude toward using Google Classroom are more likely to intend to use it for virtual classes. This aligns with the Theory of Reasoned Action (TRA), which posits that attitudes influence behavioral intentions.

Table 6: Model Fit

	Saturated Model	Estimated Model
SRMR	0.087	0.109
d_ULS	1.169	1.833
d_G	0.444	0.478
Chi-Square	258.594	271.441
NFI	0.719	0.705

Source: Primary data analysis

Table 6 shows Standardized Root Mean Square Residual (SRMR)values for both the estimated model and saturated model are within acceptable ranges,

indicating a reasonable fit between the proposed model and the observed data. SRMR values close to zero indicate a better fit, so the model could be improved, but the fit is generally acceptable.

d_ULS and d_G indices represent the discrepancy between the saturated model (the perfect fit) and the estimated model. Lower values indicate a better fit. While the estimated model has slightly higher values compared to the saturated model, the differences are relatively small, suggesting that the estimated model is still reasonably close to the perfect fit.

The chi-square values for both models are provided, but chi-square is sensitive to sample size, and its interpretation can be limited, especially in large samples. Therefore, it's not the most reliable indicator of model fit, especially when used alone.

Normed Fit Index (NFI)values for both models are below 0.9, indicating relatively poor fit. However, NFI has limitations and should be interpreted alongside other fit indices.

The findings suggest that interventions aimed at enhancing the perceived ease of use of Google Classroom could positively influence its perceived usefulness, attitudes toward its use, and intentions to use it for virtual courses.While the model fit indices generally indicate an acceptable fit, there is room for improvement. Future researchers could explore additional variables or refine the

measurement model to better capture the underlying relationships between constructs.

The analysis provides valuable insights, but it's essential to acknowledge potential limitations. For instance, the study's sample size, data quality, and measurement instrument validity could affect the robustness of the findings.Future research could employ longitudinal designs to assess the stability of relationships over time and investigate potential moderators or mediators that may influence the proposed relationships.

Additionally, qualitative methods could complement quantitative analyses by providing deeper insights into users' perceptions and experiences with Google Classroom.

In conclusion, the analysis highlights the importance of perceived ease of use and perceived usefulness in shaping attitudes and intentions toward using Google Classroom for virtual courses. While the model fit is generally acceptable, there is room for improvement, and future research could further refine the model and explore additional factors influencing technology adoption in educational settings.

Findings and Discussions:

The research conducted on virtual learning amidst the COVID-19 pandemic encapsulates the transformative potential and challenges inherent in online education. Through meticulous examination, it highlights the multifaceted dynamics shaping students' acceptance and engagement with virtual learning platforms, particularly Google Classroom, within higher education settings in India.

The study underscores the unprecedented shift towards virtual education prompted by the pandemic, revealing both opportunities and limitations. It elucidates the critical role of user experience, perceived utility, and technical proficiency in shaping students' attitudes towards online learning environments. Moreover, the findings underscore the imperative of user-friendly interfaces and effective instructional design in fostering positive perceptions and engagement among students.

The research methodology, characterized by a comprehensive literature review, robust data collection, and rigorous analysis, exemplifies the importance of methodological rigor in educational research. Through quantitative techniques such as confirmatory factor analysis and structural equation modeling, the study validates the measurement model and elucidates the intricate relationships between key constructs.

Key insights gleaned from the study highlight the need for a hybrid approach to education that integrates both virtual and in-person instruction to optimize learning outcomes. Furthermore, the findings underscore the importance of pedagogical innovation and continuous improvement in online course design to enhance student engagement and efficacy.

In essence, the research contributes to the ongoing discourse on educational adaptation and pedagogical innovation in the digital age. It offers valuable insights for educational practitioners, policymakers, and stakeholders seeking to navigate the complexities of virtual learning and harness its transformative potential for sustainable educational practices.

Moving forward, the study advocates for a holistic approach to virtual learning that prioritizes user experience, pedagogical efficacy, and technological infrastructure. By embracing these principles, educational institutions can foster resilience, inclusivity, and sustainability in the face of evolving global challenges, thereby ensuring equitable access to quality education for all learners.

The study found that Perceived ease of use of technology, the Perceived usefulness of technology, and Attitude towards the use of technology play an

essential role in students' acceptance of Virtual learning platforms like Google Classroom.

Recommendations and Suggestions:

To ensure effective online instruction, educators must receive comprehensive training and professional development in online teaching methodologies. Institutions should prioritize the implementation of robust teachers' training programs aimed at enhancing teachers' proficiency in virtual instruction. By equipping educators with the necessary skills and competencies, institutions can optimize the quality and delivery of online courses.

Google Classroom has emerged as a highly effective platform for conducting virtual classes, particularly when educators are proficient in its utilization. Therefore, we strongly recommend that institutions invest in training programs specifically tailored to the use of Google Classroom and other virtual learning platforms. Enhanced familiarity with these tools will empower educators to create engaging and interactive online learning environments conducive to student success.

Access to reliable internet connectivity remains a significant challenge in the effective delivery of virtual classes, particularly in regions with limited infrastructure. Policymakers must prioritize the development of robust Internet

infrastructure to ensure equitable access to online education for students across diverse geographical locations. By addressing internet accessibility barriers, policymakers can facilitate broader participation in virtual learning initiatives, thereby promoting inclusivity and equal educational opportunities.

As we navigate the transition to the "new normal" of teaching and learning in higher education post-COVID-19, it is essential to prioritize the advancement of resources and skills necessary for successful online instruction. Institutions should invest in the development of scalable online learning platforms and resources to accommodate the evolving needs of students and educators. By embracing technological advancements and fostering innovation in online education, institutions can enhance the scalability and reach of education, effectively catering to the diverse needs of learners.

In conclusion, the adoption of proactive measures such as comprehensive teacher training, investment in virtual learning platforms, and infrastructure development is essential for ensuring the sustainability and efficacy of virtual education in higher education settings. By embracing these recommendations, institutions can position themselves at the forefront of educational innovation, effectively leveraging technology to facilitate transformative learning experiences for students worldwide.

Conclusion:

The emergence of virtual learning in higher education witnessed unprecedented growth during the COVID-19 lockdown, driven by the urgent need to adapt to changing circumstances. This study illuminates key insights into the dynamics shaping students' engagement with virtual classes, emphasizing the pivotal role of user-friendly technology in facilitating effective online learning experiences.

A critical finding of this study is the heightened student involvement observed in virtual classes characterized by intuitive and valuable tools and technology. Online learning platforms that prioritize ease of use and productivity in content delivery are poised to garner greater acceptance among students engaged in virtual learning environments.

The implications of these findings extend beyond the confines of individual classrooms, offering transformative possibilities for educational institutions and faculty members alike. By leveraging digital innovation and adopting user-centric design principles, institutions can cultivate sustainable practices that enhance student engagement and promote meaningful learning outcomes.

Furthermore, the findings of this study catalyze institutional introspection, prompting educators to deliberate on various pedagogies and assessment methods conducive to effective online instruction. By embracing innovative teaching methodologies and leveraging technology as an enabler of learning,

faculty members can create dynamic and interactive virtual learning environments that foster student engagement and promote academic excellence.

As we navigate the evolving landscape of higher education, institutions must remain agile and responsive to the changing needs of learners in the digital age. By harnessing the power of digital innovation and prioritizing user experience, educational stakeholders can lay the foundation for sustainable practices that empower students to thrive in virtual learning environments.

In conclusion, the findings of this study underscore the transformative potential of digital innovation in higher education. By embracing user-friendly technology and fostering a culture of innovation, institutions can pave the way for sustainable growth and excellence in online education, ensuring equitable access to quality learning experiences for all students.

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Technostress Impacting Job Performance in Higher Education Institutions: A Review of Literature

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Abstract

Using a variety of information and communication technologies is necessary for higher education to become more digital (ICTs). Studies have demonstrated that ICTs do, nevertheless, cause technostress. This study aims to investigate how technological features affect faculty members' perceived job performance and, consequently, their level of technostress. In this study, we evaluate the current state of technostress producers and how it affects higher education institution faculty members' job performance. We further classified the studies into two different sub-sections, 1) Studies on Technostress Creators 2) Technostress and Job Performance. Not only Technostress research is multi-disciplinary in nature, but also with the expeditious growth of ICTs it is widely prevalent across organizations. Hence, we expect that our review of the extent of literature will

provide meaningful insights to both researchers and practitioners. Our result indicates that in the context of Higher Education Institutions, Technostress creators have impacted job performance of faculty members. However, due to the mandatory use of ICTs, faculty members find it difficult to cope with the new and evolving technologies. Finally, we also highlight the research gaps that are theoretically significant and practically valuable to both scholars and faculty members and need further attention.

Introduction

Emerging technologies and their ubiquity have accelerated the integration of technology into different aspects of our lives, and its increasing affordability will allow this to continue in the future. In educational systems, the use of emerging technology to enhance the learning process has increased exponentially due to incentives from government and non-governmental organizations to meet learners' education needs (Dunn & Kennedy, 2019). Many education systems worldwide use a variety of technology applications for student self-service and academic administration (Wang et al., 2018), massive open online courses (attendance, enrollment (Ofelia et al., 2017), and learning management systems (Barana et al., 2016). In addition, emerging technology assists in reducing distance challenges and paperwork (Agarwal & Mittal, 2018;

Vahedi et al., 2019) and improves learning processes (Mirzajani et al., 2016). The expeditious growth of Information and Communication Technologies (ICTs) over the past two decades have dramatically influenced organizations and individuals. Adoption of ICTs catalyze business processes by redefining old organizational structures and creating new employment. Even traditional non-IT sectors like agriculture and construction are now embracing ICTs to become competitive (Akinci et al., 2006; Rao, 2007; Mwakaje, 2010).

Organizations are implementing ICTs to increase their productivity, effectiveness and efficiency (Bharadwaj, 2000; Melville et al., 2004). For employees across the globe, pervasive ICTs have made it feasible to connect anytime to support and improve business processes and organizational decision making (Hunton et al. 2003; Chandra et al. 2012). Not only in organizational settings, but ICTs have also improved the quality of individuals' private life. Frequent use of social media, e-commerce websites, online banking facilities and instant messaging are making life easier and hassle free (Molla & Heeks, 2007; Khan & Jarvenpaa, 2010).

In the context of private use, studies showed that users of social media, mobile devices etc. faced fatigue, exhaustion, and stress due to the technologies (Gartner, 2011; Mazmanian et al., 2013; Samaha & Hawi, 2016). However, technology usage is optional here and users always have the option to stop using

a technology when they feel stressed (Maier, 2012). In contrast to this, ICTs use is mandatory for work purpose in organizations. So, employees have to deal with the rapidly evolving and ever-changing ICTs regularly. Thus, Technostress is a more serious issue in organizations which negatively influences the physical and mental peace of the employees. Hence, this literature review aims to provide a comprehensive analysis of the current research on Technostress.

The results of our literature review have several contributions. Firstly, the research on Technostress and its related consequences is multi-disciplinary in nature, widely studied across disciplines like psychology (Testa et al., 2017), medicine (Stein et al., 2007), education (Robotham & Julian, 2006) etc. In such context, it is important for researchers to understand and to establish Technostress as a new facet of stress literature. Thus, this review gives a road map to observe where the phenomenon of Technostress stands now. Secondly, it provides the future research gaps in Technostress domain that need further attention. Thirdly, TS has an impact on job performance that gradually hampers the productivities and efficiencies of the faculty members. This literature review will help the faculty members to understand the various measures that reduce such negative impacts, provided by the extant literature.

The rest of the paper is organized as follows. Firstly, the paper aims to define Technostress and its creators and Technostress impact on Job Performance

derived from existing scholarly work in the domain, followed by the research method section. Next in the "results "section "section the paper is extensively focused on the detailed review of Technostress literature based on the proposed classifications. We then propose some suggestions for future research direction followed by a conclusion.

Objectives of the Study

1. To identify the Creators of Technostress in Higher Education Institutions.
2. To review the impact of Technostress on Job Performance of Faculty Members of Higher Education Institutions.
3. To suggest measures to reduce Technostress among Faculty Members of Higher Education Institutions.

Research Methodology

The research methodology adopted is presented in two different parts. The first part deals with the search of relevant literature whereas the second part consists of analysis and synthesis of the identified literature. For the literature review, we followed the below two steps (Webster and Watson, 2002).

Searching the literature:

Step 1

Select the relevant studies from the top IS journals (i.e., journals in the Senior Scholars' basket) and top IS conferences like ICIS, ECIS etc. We used keywords like Technostress creators, Job Performance and Higher Education Institutions etc. to identify related literature in IS domain. Also, we restricted our search from the year 2005 to 2023 (since the seminal article containing the scale to measure TS creators in IS domain was published in the year 2007 (Tarafdar et al.). However, we also found a country specific study (China) by Tu et al. (2005) that discussed about the five TS creators, thus included in this literature review.

Step 2

Used databases and search engines like EBSCO journal articles index, Brill, ABI/INFORM and Google Scholar to identify relevant articles (written in English only) citing the key articles identified in Step 1.

After downloading the relevant articles from all the above sources, we deleted the duplicate articles in the list. This review includes all the academic articles on

Technostress irrespective of the research methodologies used, rating of the journals and sample/region of the studies. This list do not contain any nonacademic articles, books, and studies that focus on stress due to the adoption of some other technologies except ICTs. Finally, we will discuss the approximately 30 articles (except Neuro-IS studies) that focused on Technostress creators and their impact on Job Performance in a workplace setting and categorized under our classification.

Analyzing the literature:

The studies on Technostress in an educational context highlight the impact of Technostress on job performance. Here the use of technology is mandatory for work purposes and deals with utilitarian IT (Van der Heijden, 2004). So, Faculty Members have to adapt to technology usage in a stressful situation. With these common features, the articles were categorized under two different sub-sections as shown in Table 1.

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Sub Sections	Description	Number of Studies
Technostress Creators	Studies that focus on technostress and its creators	15
Technostress and Job Performance	Studies that focus on impact of technostress on job performance	15

Table 1. Subdivision of Technostress Literature

Analysis of the Results

General studies on Technostress and its Creators:

The definition of "technostress" as "a modern disease of adaptation caused by an inability to cope with the new computer technologies in a healthy manner" was originally published by Craig Brod in 1984. The term "any negative impact on attitudes, thoughts, behaviors, or psychology caused directly or indirectly by technology" was added to the concept of technostress by Weil and Rosen (1997). Researchers have also used other terminology, such as technophobia, cyberphobia, computer anxiety, computer stress, negative computer attitudes, and others that are comparable, to describe technostress. To summarize, technostress is characterized by a person's unease, tension, worry, and anxiety when using computer technology.

The existing literature identifies several aspects of technostress, including work overload, individual life invasion, high complexity of technology, and occupational crisis (Brod, 1984; Weil & Rosen, 1997). A technostress assessment scale based on US data was further developed and confirmed by Tarafdar et al. (2007). The five components of technostress identified by the scale characterize common scenarios in which using computers might lead to the development of technostress. The five elements consist of: Techno-overload: ICTs force workers to work more quickly; (2) Techno-invasion: ICTs are pervasive and invade personal lives; (3) Techno-complexity: Employees feel

incompetent due to the complexity of new ICTs; (4) Techno-insecurity: Employees' job security is threatened by ICTs' rapid changes; and (5) Techno-uncertainty: End users are stressed out by the constant updates, modifications, and bug fixes in ICT hardware and software.

Our literature review research found five technostress creating conditions. “Techno-overload” describes situations where use of IS forces professionals to work more and work faster. The ability to process simultaneous streams of Realtime information through mobile computing devices, social networking, and collaborative apps leads to interruptions, information overload, and multitasking. Information overload causes consumers to be exposed to more information than they can successfully process or utilize, which results in "Information Fatigue."20 Interruptions (such as workflow-related notifications via text and email) force users to pay attention to information as soon as it is received, which leads to tension, anxiety, and disconnects processes. It also makes it difficult to focus for extended periods of time. Professionals who multitask tend to work on several apps and activities at once, try to accomplish more in less time, and become tense. The term "techno-invasion" refers to circumstances in which professionals feel compelled to stay constantly linked and may be contacted at any time or place. The typical workday stretches into holidays and family time; "not connecting" becomes unsettling. People feel bound to these technologies and see interruptions to their time and space

because of this constant connectedness. As a result, they feel stressed and frustrated. "Techno-complexity" refers to circumstances in which IS complexity compels professionals to invest time and energy in mastering new application usage. Technical capabilities and terminology related to information systems (IS) have grown increasingly sophisticated, despite increased demand from vendors and competitors to maintain use of the newest hardware, software, and applications. Manuals can be complicated and difficult to understand, and learning new programmes might take months. As a result, users may feel overwhelmed and find the diversity of programmes, features, and lingo confusing, leading to stress. "Techno-insecurity" is the term for circumstances in where users fear losing their jobs to someone with superior knowledge of new IS. As professionals become more aware of technology overall, it is typical to see fresh, frequently younger hires who are more at ease with, and enthusiastic about using, new information systems. Tension and stress may result from current professionals feeling insecure or jaded about IS. The term "techno-uncertainty" describes situations in which professionals do not have an opportunity to gain a foundation of expertise with a specific application or system due to ongoing changes and upgrades to IS.

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Table 2 highlights the publications (except Neuro-IS studies) that come under this sub-section.

Study	Independent Variable	Dependent Variable	Additional Variable	Sample	Theory/ Framework
Zuheir	Techno	Techno	NA	70 Pal	Open ende

N. Khlaif 2022, Palestinia	stress	logy, Learning		estinian teachers	d Questionnaire
Kanlian g Wang a , Qin Shua , Qiang Tub,	Gender, Age, Centralization, Innova	Technostress	NA	86 Chinese Organizations	Factor Analysis

2008, China New york	tion				
Prof.Dr. Yusuf Levent, 2017, Turkey	Technostress Level	TTLDS	NA	395 teachers	Scale Development Study
Wang X and Li B	Technostress	Job Perfor	PEM	343 tea	Multidimensional

(2019), China		mance	isfit	chers	Person Environment Misfit Theory
Tarafdar, Qiang Tu, T.S. Ragu-Nathan, and	Gender, Age, Education, Comp	Technostress Creators	Technostress Inhibitors	233 IS Users	NA

Bhanu S. Ragu-Nathan, 2011,	ute r Co nfi den ce, Ex per ien ce in usi ng Co mp ute rs				
Marc T. P.	Tec hno stre	Be hav ior	N A	10 2 Art	Hunt er and

Adam & Monideepa Tarafdar (2023)	ss Creators	al and Psychological Outcomes		icles	Schimdt Theory
R. K. Jena and P. K. Mahanti, 2014,	Gender, Age, Technology and	Technostress	NA	116 Academicians in India	NA

India, Canada	Tenure				
Steponas Jonušauskas, Agota Giedrė Raišienė, 2016 Lithuania	Leadership, Job Management, Commitment, Satisfa	Technostress	NA	1013 ICT Users	Factor Analysis

	ctio n				
Gali t Nim rod (201 7), Israe l	Sex , Ag e, Ed uca tio n, Inc om e, Em plo ym ent Sta tus, Sel	Tec hno stre ss Fac tors	N A	53 7 Int ern et Us ers Ab ov e 60 Ye ars	NA

	f Care He alth				
And rea Ben csik, Tim ea Juha sz, 202 3, Hun gary	Wo rk Lif e Bal anc e, Kn owl edg e Re ne w, Ha	Or gan izat ion al Per for ma nce	G en de r, A ge , Te ch no str es s Cr ea	23 7 Hu ng ari an Hi gh er Ed uca tio n Sta ff	Path Goal Theo ry

	ppiness at Work		tors		
Salmiah Mohamad Amina & Wan Khairuzzaman Wan	Technostress Creators	Organizational Commitment	NA	282 Librarians	Self-Administered Survey Method

Ismailb, 2012, Malaysia					
Cahapay, M. B. & Bangoc II, N. F. (2021), Phili	Technostress Overall	Work Performance, Job Satisfaction, Car	Skeptic ism, Anxiety, Fatigue,	2272 teachers	Correlational Method

ppines		eer Commitment	In efficacy		
Alessandro Gabbiadini, Giulia Paganinb,Silvia Simbula	Remote Teaching Technologies	Technostress, Organizational Support	NA	463 Italian University Faculty	Technology Acceptance Model(1989)

2023, Italy					
Bo Shen, Yuanhang Kuang*, 2022 China	Technostress Creators	Knowledge Hiding	Work Exhaustion, Job Autonomy	287 ICT Users	Structural Equation Modelling

Abasiama G. Akpan, Victoria N. Ezeano, Udeme Offiong 2022, Nigeria	Technostress Creators	Age, Organizational Content, Gender	Computer Hassles	2011 Nigerian Open University	NA

Table 2: Technostress and its Creators

General Studies on Technostress and Job Performance:

Technostress, according to Dr. Yetunde Olubusayo Tagurum (2017), is a generalized anxiety that has a detrimental effect on a person's ideas, behaviors, attitudes, and physique when they are expected to cope with technology. encouragement of staff members to interact, converse, and impart their computer-related knowledge; pushing individuals to "experiment" and come up with new ideas when using computers, among other things. The purpose of this study was to evaluate the impact on academic staff at the University of Jos in Nigeria in terms of both coping mechanisms and job performance. Technostress, according to Farida Saleem, Muhammad Imran Malik, Saiqa Saddiqa Qureshi, Muhammad Faisal Farid, and Sabeen Qamar (2021), had a positive effect on employee performance rather than having negative effects. The relationship was significantly moderated by training and one's creative self-efficacy. As the main finding, it was revealed that the employees continued to perform well despite the prevalence of technostress. The training and one’s creative self-efficacy were useful to control the technostress and maintain the performance of instructors during COVID-19. The university administrators and employees must take technology as a positive tool for performance. The training, along with creative self-efficacy, adds to the working capacity of employees and enhances their performance.

Results of the research by Penado Abilleira, M., et.al. (2021),1,12–15, suggest that female teachers from colleges who are older were the ones who suffered the most from the negative effects of technology. Saim et al (2021)15, did an extensive study of literature to identify and confirm the relation of technostress creators and work life balance. Weems-Landingham, V. (2021)16 in their article "Embracing Technostress to Overcome Online Teaching Challenges" declared that it is inevitable to experience technostress, but the positive mindset and persistence shown can help counter technostress. Brennan F. (2021)17 noticed in his research that 60 percent of the teachers reported feeling stressed by technology. The most significant contributor was techno-overload, which resulted from the shift in teaching format from face-to-face to online. Isolation and disconnect caused by students' reluctance to use webcams during synchronous classes was also a frequently reported cause of synchronous class failure. In terms of personal characteristics, Coklar & Akçay (2016) found that general teacher technostress levels were average; general teacher technostress levels did not vary with gender or length of service but did exhibit a modest variance with Internet use time.

According to nen et al., (2016), there was no significant difference between male and female teachers or school types, however, younger teachers were less stressed by technology than older teachers. Rebman and Kitchens (2014) looked at gender, age, education level, and computer confidence among online teachers

and found that female instructors and senior employees have higher levels of technostress; additionally, education level and computer confidence have an impact on technostress. Gender, age, technology awareness, and tenure of academicians all have an impact on technostress, according to Jena & Mahanti (2014).7 Zainub N. F. H in 201319 studying IT professionals published a paper to assess Technostress on Job Satisfaction and Organizational Commitment and found that technostress is inversely proportional to job satisfaction and organizational commitment. Agba & Simeon (2011)20 discovered that older distance education instructors have greater levels of technostress, while there was no significant gender difference.

Accordingly, research has found a significant association between job stressors, anxiety, and CWB (Penney and Spector 2005; Rodell and Judge 2009). Similarly, conservation of resource theory (COT), demand-control model, and cognitive resource theory (CRT) have affirmed that stressors can alter an individual's behavior. According to these theories, individuals strive to retain and protect resources under stressful situations (Coleman Gallagher, Harris, and Valle 2008). Job characteristics have been empirically shown to significantly moderate the relationship between several variables that impact job performance (Fried and Ferris 1987), including ones with a cognitive independent variable such as job satisfaction (Judge et al. 2000). In the context of stress and

technology, the significant moderating effect of job characteristics holds true as well (Dvash and Mannheim 2001).

Table 3 highlights the publications (except Neuro-IS studies) that come under this sub-section.

Study	Independent Variable	Dependent Variable	Additional Variable	Sample	Theory/ Framework
Tagurum YO,Okonoda KM,Miner CA1,Bello and Tagurum	Technostress	Job Performance	Coping Mechanism	144 Academe	Multistage Sem

2017, Nigeria			s m	ic St af f	a m pl in g T ec h ni q u e
Osman Aktan, Çetin Toraman 2022,	Technostress Level	Job Satisfaction	NA	525 Teach	NA

				ers	
Muhammad FaisalFarid and Sabeen Qamar, 2021,Pakistan	Technostress	Employee Performance	Training, Creative Self Efficacy	22 2 Universitystructors	Social Exchange Theory a

					nd Transactional Model of Stress
Salomanak	Techno	Em	Con	24	NA

Emang,Gladys Sebi Entigar 2014, Malaysia	stress Creators	pl oy ee Jo b Pe rf or m an ce	te xt ua l Pe rf or m an ce , Ta sk Pe rf or m an ce	2 A ca d e m ic St af f	

Asad Khan, Hamid Rehman, Dr. Shafiq-ur-Rehman, 2013, Pakistan	Technostress	Job Satisfaction	Techno-Overload, Techno-Invasion, Techn	148 Librarians	NA

			no - Uncertainty		
Almaas Sultana, Lovely Professional University, India, 2020	Task Performance, Contextual Performance	Job Performance	NA	423 Participants	Factor Analysis

	, Counterproductive Work Behavior				
Bhatti, M., A., Alyahya, M., Alshiha, A., A. (2022). Saudi Arabia	Research Culture	Job Performance	Research infrastructure	249 Faculty Members	Structural Equat

			e, knowledge generation, and organizational	members	ion Modeling

			instrumentality		
Bekir Gerekan,Utku Şendu ru 2023, Turkey	Technostress	Organizational stress, Individ	Professional Commitment	120 Independent	Job Demands – Resour

		dual work performance Independent audit quality		audi tors	ces Mod el

		ali ty.			
Gómez L F., & Valdés, M. G. (2019), Mexico	Tea cher Eva luati on	Pe rf or m an ce	N A	5 0 L R St u di es	C o ns tr u ct iv is t M o d el
Pardeep Kumar, Vivek Bhuchar	Tec hno stre ss	Jo b Pe rf or	G en de r	2 0 0 I T	St at is ti ca

2017, India		management and Job Satisfaction		Professional	lAnalysis
Veerendrakumar M Narasalagi, 2021, India	Technostress	Job Satisfaction	Personal Variable	84 Faculty Me	Statistical An

		d Or ga ni za tio na l C o m mi tm en t		m b er s	al ys is
Deborah Okolo, Suzilawa ti Kamarud	Tec hno stre ss Cre	C ou nt er Pr	N A	2 2 7 b a	C ro ss - se

in,2020, Nigeria	ators	oductive Work Behaviour		nkEmployees	ctionalstudy
Stoney Brooks , Christopher Califf 2016, Kozikode	Social media Induced Tec	Job Performance	Job Characteri	415 IT Profes	Personal Environ

	hnostress		stics	sionals	nmentFitTheory
Hafeez Ullah Amin, Abdur Rashid Khan 2009, Pakistan	Technology Usage	Teacher Perform	NA	15 Groups of Qu	Questionnaire

		ance		estionnaire	Analysis
Veerendrakumar M Narasalagi, 2021, India	Technostress	Job Satisfaction	Gender, Tenure, Status	84 Technical and No	NA

				n-Technical Faculty Members	
Michael Bourlakis a, Tahir	Techno	Empl	NA	480	Statis

M. Nisar b , Guru Prabhakar c, 2023, UK	stress	oyee Perf orman ce			tical Analysis

Table 3: Technostress and Job Performance

Integrating all these studies, we further represent them in a pictorial format which captures the antecedents and consequences of technostress creators (Figure 1). It also captures the additional moderators and mediators to provide a holistic overview on Technostress, its Creators, and Impact on Job Performance of Faculty Members of Higher Education Institutions.

Socio-Demographic Characteristics
Gender
Age
Stress Management
Technology Training
Education etc.

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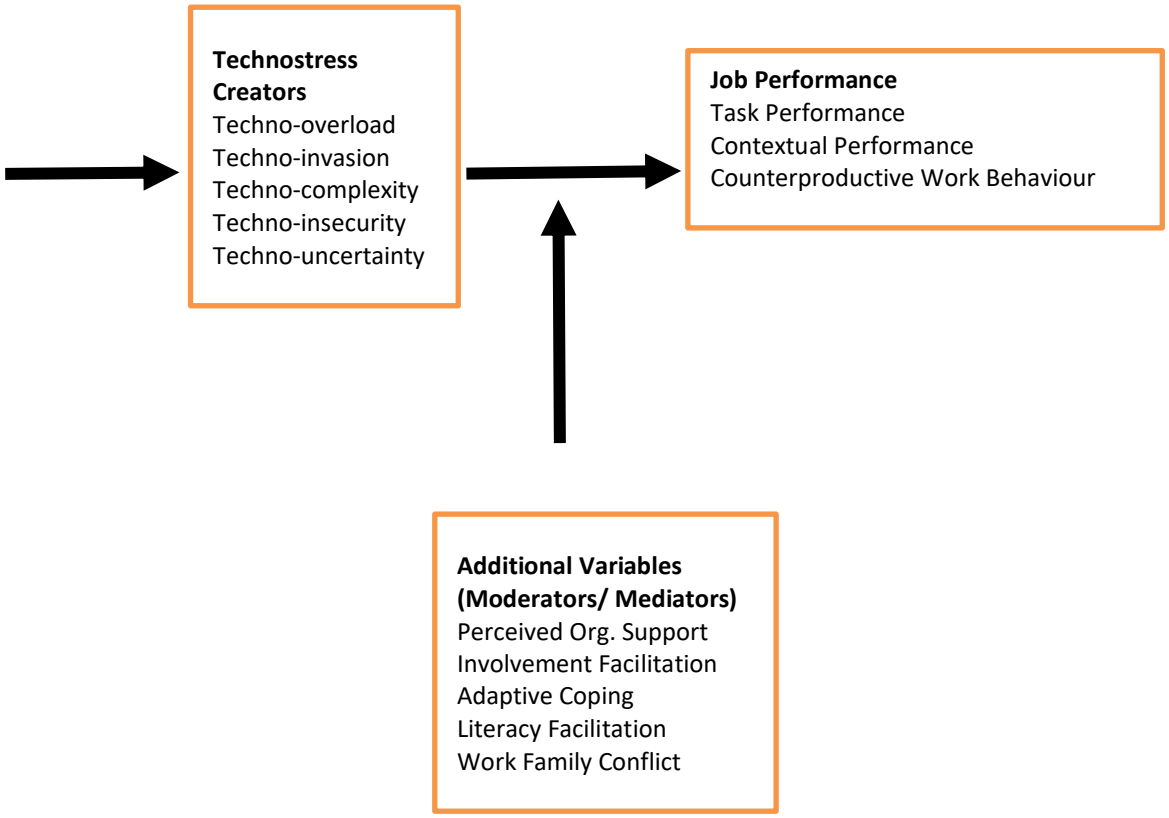

Figure1: Conceptual Model of Literature Review

Future Research Scope and Limitations of the Study

Despite the abundance of studies on the relationship between technostress and job performance, a number of noteworthy gaps in the literature were found.

These include Longitudinal Studies: It is difficult to determine causal linkages because most of the research that have been done so far are cross-sectional. To get a deeper understanding of the temporal dynamics of work performance and technostress, further longitudinal study is required. Diverse Samples: A lot of research concentrate on certain sectors or populations, which may restrict how broadly the results may be applied. To capture a wider range of experiences, future research should strive for more varied samples. Solutions and treatments: Although some study has looked at treatments, more is still needed to determine the best ways to lower technostress and enhance work performance in various organizational situations. Impact of Emerging Technologies: Research on the effects of emerging technologies (such as artificial intelligence and virtual reality) on work performance and technostress is necessary since technology continues to advance quickly.

Even though Kitchenhand's (2004) technique is closely adhered to in this study, there are certain limitations. Specifically, restrictions pertain to the choice of keywords and the formulation of inclusion and exclusion standards, which both depend on the researcher's judgment. Many suggestions may be made to improve the chances for more study in this field in the future. First and foremost, it would be beneficial to broaden the study's purview to include all relevant online databases and publications that practitioners utilize to disseminate information about technostress and work-life balance. Additionally, the selection

criteria, which are now restricted to finished research articles, may be expanded to encompass a larger range of literature sources. Furthermore, it is essential to recognize that the assessment of chosen articles is dependent on the researcher's proficiency and compliance with predetermined protocols. Even if a consensus conference was held to reduce the possibility of bias, it is important to understand that researcher prejudice is still a possibility and should be kept to a minimum when evaluating each paper's contribution to the review.

Conclusion

The intricate association between technostress and job performance has been further illuminated by the comprehensive literature review, to sum up. The study's combined research highlights the importance of technostress factors—such as technology overload, incompetence, difficulties juggling work and personal obligations, and privacy concerns—in influencing workers' productivity in contemporary work environments. Even though the results continuously show negative effects on work performance, the area is changing quickly due to the way technology is always improving. Subsequent research must focus on investigating inventive approaches and remedies, accommodating novel technology, and considering the varied encounters of workers in different sectors and cultural settings in order to adequately tackle these difficulties. We may also better understand this important topic by emphasizing longitudinal

studies and including qualitative research more broadly. This will help firms create work cultures that are healthier and more productive in the digital era.

It is imperative that future research in this field aim for even more inclusion and scientific rigor considering the constraints outlined, including potential publication bias and the dependence on the researcher's opinion. Researcher comprehension of technostress and its effect on job performance can be improved by combining a larger variety of literature sources and reducing the inherent risks of bias. In the ever-changing world of digital work settings, this will thus help to lead to the creation of more potent treatments and techniques to reduce technostress and foster worker productivity.

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The Power Duo: Unveiling the Impact of Branding and Communications on Company performance

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Abstract

This article delves into the intricate relationship between branding and communications, exploring their combined influence on company performance. In an era characterized by intense competition and a rapidly evolving business landscape, understanding the synergistic effects of effective branding and strategic communication is paramount. This study employs a comprehensive literature review and analysis to unravel the mechanisms through which these two elements contribute to organizational success. The findings highlight the significance of a

cohesive and integrated approach to branding and communications in optimizing company performance across various industries.

Introduction

In the contemporary business environment, companies are grappling with the challenges of differentiation, consumer engagement, and maintaining a competitive edge.

As per the marketing guru Philip Kotler, “The art of marketing is the art of brand building. If you are not a brand, you are a commodity. Then price is everything and the low-cost producer is the only winner". So in that sense, a brand is not a commodity, but a whole package of meanings. The brands that successfully manage and communicate these meanings create value for consumers, and find a distinct marketplace advantage.

Branding and communications play a crucial role in shaping a company's overall performance. The two elements are interconnected and have the ability to influence customer perception, employee engagement, and stakeholder relationships.

Branding

"The way a company brands itself is everything–it will ultimately decide whether a business survives."

Sir Richard Branson (2016)

Philip Kotler and Gary Amstrong in their book "Principles of Marketing", define brand as: a "name, term, sign, symbol (or combination of these) that identifies the maker or seller of the product. So the very identification of the seller / producer of the product is dependent on the brand visibility and its presence in market and in the mind of the consumers / customers.

"Broadly, a product is anything that can be offered to a market to satisfy a want or need, including physical goods, services, experiences, events, persons, places, properties, organizations, information, and ideas" (Kotler & Keller, 2015)

How much is a brand worth? Brand equity refers to the value of a brand. Brand equity does not develop instantaneously. A brand needs to be carefully nurtured and marketed so consumers feel real value and trust towards that brand. Products which are international in nature such as Apple, Adidas, Rolls Royce, have high brand equity. These brands command high awareness and consumer loyalty. The

fact that the products made by them command a very high premium over similar products made by not so known companies indicates the way these branded products are identified by the public and given so much importance and valuation.

A brand is not a commodity, but a whole package of meanings. The brands who successfully manage and communicate these meanings create value for consumers and a distinct brand identity for themselves.

Brand identity creates distinctive recognition using its elements such as logo, imagery, colour and typography (Foroudi et al. 2014). Can such a recognition facilitate reflection of value a brand offers to its Business-to-Business (B2B) customers? A brand with an appealing identity is also preferred by its customers who buy to sell (Beverland et al. 2007; Coleman et al. 2011). The use of visual identity not only makes product of the brand look attractive and welcoming to consumers, but also communicates brand value and brand reputation that saves extra efforts required from its business customers who face the consumer and try to convince them, when they are ready to buy a product at a retail counter (Baker and Balmer, 1997).

Appreciation of brand identity by different stakeholder communities in both digital and non-digital aids success of a penetration strategy adopted by the brand into a competitive market involving distributors, wholesalers, dealers, retailers and

service providers. Previous B2B literature and market penetration studies have explained how brands expand their selling territories by remotely engaging with a large network of sellers who see value for their firm in offering the brand to the consumer (Gupta, 2022). Remotely communicating the value a brand offers without consistently using any cues would be a challenge for any brand manager, even if they apply a combination of theories of standardisation and adaptation (Mason and Leek, 2012; Melewar and Saunders, 1999). Brand architecture that allows standardisation of brand image, reputation and identity encourages adaptation using knowledge of the local market received as information and feedback from B2B relationships and makes their brand journey enjoyable (Gupta, 2022).

Strategic Communication

Robert Kent, former dean of Harvard Business School said it so very succinctly, “In business, communication is everything”. Good communication matters because business organizations are made up of people (Blalock, 2005).

As per Kotler (2006), communication is the means by which firms attempt to inform, persuade and remind consumers – directly or indirectly – about the products and brands that they sell. It can be said that communication represents the

"voice" of the brand and is a means by which it can establish a dialogue and build relationships with consumers.

Argenti, P. A., Howell, R. A., & Beck, K. A. (2005) define strategic communication as communication aligned with the company's overall strategy, to enhance its strategic positioning

Strategic communication is significant in conveying the brand message of an organisation effectively. As part of the communication efforts, one thing to keep in mind is the very important aspect of the role of consistent messaging across various platforms and touchpoints. It is extremely essential to see that there is total congruence and consistency in all messaging and branding emanating from a company. Also the need for and impact of transparent and authentic communication in building trust with both customers and employees is a sine-qua-non.

Alessandra De Santis in an blog article in Caburn Hope (February 11, 2023) says an engaged workforce is key to company success. Increased productivity, lower turnover and greater customer satisfaction levels are all proven outcomes, but according to Gallup, only 21% of employees are currently 'engaged' at work. It's easy to understand why boosting employee engagement is a top priority for CEOs, HR teams and leaders across the globe.

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The Interconnectedness of Branding and Communications

Branding as a Communication Tool :

Branding serves as a powerful means of communication, encapsulating the essence of a company and conveying its values, personality, and promises to consumers. It acts as a communication tool and influences consumer perceptions.

A well-defined brand and effective communication contributes to better employee engagement. It is extremely important and essential to align internal communication with the company's brand values . Internal branding / communication need to be in sync with the Corporate branding.

For any organisation , whether it be government or private, the employees are its brand ambassadors, actively promoting the brand both within and outside the organization.

Integrated Marketing Communication (IMC): A cohesive and integrated approach to communication strategies, as encapsulated in the IMC model, is vital for ensuring consistency across various channels. IMC plays an important role in aligning branding and communication efforts to enhance overall effectiveness. All communication activities can be in form of proper storytelling leading to the creation of an emotional connection with various publics both internal i.e.

employees and external eg. customers, leading to better connect and contribute to brand loyalty.

A well thought out and planned communication plays a major role in managing and mitigating crises. There are many examples of companies that have successfully navigated challenging situations through transparent and well-managed communication. The importance of having a crisis communication plan in place and how it ties back to the overall brand reputation cannot be stressed enough.

Role of Branding and Communications

Keller, K. L., & Kotler, P. (2015) say that Holistic marketing recognizes that "everything matters" with marketing-customers, employees, other companies, competition, as well as society as a whole-and that a broad, integrated perspective is necessary. Marketers must attend to a host of different issues and be sure that decisions in any one area are consistent with decisions in other areas. Four components of holistic marketing are internal marketing, integrated marketing, relationship marketing, and performance marketing.

In today's competitive marketplace, branding and communications are no longer just afterthoughts; they are fundamental strategic levers for driving a company's

overall performance by influencing how the company is perceived by its target audience, stakeholders, and the public at large.

Some aspects of their impact are:

1. Creating favourable first impressions and boosting reputation

   Customer perception : A strong brand communicates the company's values, mission, and identity, influencing how customers perceive the business. Positive perceptions can lead to increased trust and loyalty

   Reputation Management : Effective communication helps manage the company's reputation. A positive brand image can act as a buffer during crises, while poor communication can exacerbate problems.

   An et al (2019) in their study say that their findings show that the credibility of a brand is of paramount importance for the customer in developing a sense of oneness with the brand as well as a sense of affinity with other users of the brand. Their study also offers the new insight that brands serve as symbolic devices that customers use in their evolving thought processes that create a link between personal identity and social identity. In addition, brand–social connection is essential in spreading positive Word of Mouth (WOM).

   Hawabhay et al (2009) in their paper explore how large companies in Mauritius use corporate communications to develop their corporate brand

image and reputation. Results are reported on why and how organizations leverage on the corporate brand, the role of corporate communications in the corporate branding process, and the role of corporate communications in image formation and reputation building.

Forman & Argenti, (2005) report the findings of a qualitative field study of five firms from diverse industries on best practices in corporate communication, especially as they concern the links between a company's corporate communication function, on the one hand, and its implementation of strategy, its reputation and its corporate branding, on the other. The overarching question addressed in thie study was: How can the corporate communication function operate successfully at the heart of an organization, that is, where companies are orchestrating buy-in for strategy and building the corporate brand and reputation? Results show the importance of the following elements: alignment between the function and strategy implementation, CEO as best reporting structure, focus on brand and reputation, importance of internal communications, innovative uses of information technology and the function as an art and science.

Kim, H. B., & Kim, W. G. (2005) examined the underlying dimensions of brand equity and how they affect firms' performance in the hospitality industry—in particular, luxury hotels and chain restaurants. The results of

study indicate that brand loyalty, perceived quality, and brand image are important components of customer-based brand equity. A positive relationship was found to exist between the components of customer-based brand equity and the firms' performance in luxury hotels and chain restaurants.

2. Market positioning and differentiation

Competitive Edge : Strong branding helps a company stand out in a crowded market. Effective communication highlights unique selling propositions and differentiates the brand from competitors

Value Proposition : Clear communication of a company's value proposition helps customers understand why they should choose its products or services over alternatives

Sarkar, S., & Chakravarty, S. (2013) state that the performance of corporate brands is a very significant and key metric in gauging the degree of success of the respective firms. In a business-to-business (B2B) setting, corporate

brands are of even larger importance and greater relevance. From a strategic marketing perspective, this study looks at market orientation as a major antecedent to enhanced corporate brand performance. The presence of relationship orientation and innovativeness as two strategic marketing mediators affect the association that the study tries to establish between market orientation and corporate brand performance. In the backdrop of Indian B2B firms, a dyadic analysis is carried out to eke out the relationships between the two main and the two mediatory concepts. The analysis, done with a Bayesian paradigmatic approach, comes up with a linkage between corporate brand performance and market orientation under positive mediatory influences of innovativeness and relationship orientation.

3. Employee Engagement and Productivity

Internal Branding : Employees are crucial brand ambassadors. Clear communication of the company's mission and values fosters a sense of purpose and pride among employees, leading to increased engagement and productivity

Cultural Alignment : Effective communication ensures that employees understand and align with the company's culture, fostering a cohesive and unified workforce.

Harris and de Chernatony, (2001) say that Corporate branding requires greater emphasis on factors internal to the organisation, paying greater attention to the role of employees in the brand building process. In their research they explored the implications of corporate branding for the management of internal brand resources and they describe a model for managing brands through narrowing the gap between a brand's identity and its reputation.

Foster, Punjaisri, and Cheng (2010), have explored the relationship between corporate, internal and employer branding, and they highlight the importance of employer branding and internal branding, and their potential to support the corporate brand-building initiatives, whilst maintaining their distinctiveness. According to them the corporate branding concept places an emphasis on employees' attitudes and behaviours. This has given rise to internal branding and employer branding, which leads to a closer alignment between the employees' values and those of the corporate brand.

4. Customer loyalty and trust

Consistent messaging : Consistency in branding and communication builds trust with customers. When messages align with the brand promise, customers are more likely to develop a sense of loyalty

Brand Experience : Communication extends beyond marketing messages to encompass the entire customer experience. Positive experiences, when communicated effectively, contribute to long-term customer loyalty

Zehir et al. (2011) in their study investigated the effects of brand communication and service quality in building brand loyalty through brand trust. Their findings indicate that perceptions of brand communications and service/product quality can be viewed as antecedents to brand trust, in turn affects brand loyalty.

As per Ball, Coelho, and Machás (2004) loyalty has, over the past decade, become a crucial construct in marketing, and particularly in the burgeoning field of customer relationship management. In their paper they show that customer loyalty can be explained to a substantial degree by customer satisfaction, trust, and communication, and shows the direct and indirect effects among those constructs and other constructs in an extension of the European Customer Satisfaction Index (ECSI) model.

5. Investor relations and financial performance

Perceived value : Clear communication of a company's vision and financial performance influences investor confidence and perceptions of the company's value

Stock Market performance: Strong branding can positively impact stock market performance as investors often respond to a positive brand image and effective communication

Hoffmann and Fieseler (2012) argue that equity analysts consider the following eight categories of non-financial information when forming an impression of a company: the stakeholder relations of an organization, its corporate governance, its corporate social responsibility, its reputation and brand, the quality of its management, and its strategic consistency. One of the most important factors, however, is the quality of a company's communication, which underscores the strategic role that the investor relations function should play in fostering positive capital market relations.

6. Adaptability and Innovation

Market Signals : Effective communication helps a company convey its ability to adapt to changing market conditions and showcase its innovation.

This is particularly important in industries where staying ahead of trends is critical

Adapting to a digital landscape : With the advent of the new age technologies there is the evolving role of branding and communication in the digital age. The digital media, be it the social media, online presence, and or the digital marketing, all have a role in shaping a company's brand image. With technology in place, and the omnipresent world wide web and various digital platforms, the whole world can be talked to and communicated with instantly. There is a pressing need for knowing about these technologies and developing strategies to leverage various digital platforms for enhancing brand visibility and engage with a very wide set of audience , even with differentiated communication channels and messages if so required.

Yadav and Bansal (2021) say that the use of brand identity in a digital era has become even more important for companies using e-commerce wherein consumers who consume or business customers who buy to sell do not have any personal encounter with a person who represents a brand.

In a digital scenario, visual identity offers such a blueprint of the brand that customers can use to relate to the brand by looking at its image and identity (Vlahvei et al. 2013).

7. Social and Environmental Responsibility

Ethical Branding : Companies that communicate their commitment to social and environmental responsibility can build a positive brand image, attracting socially conscious consumers and investors.

Berry and Rondinelli (1998) state that Corporations in North America, Europe, Japan, and in most newly industrializing nations are embracing environmental protection as part of their international competitive strategies. For many firms, the shift to proactive environmental management is driven by pressures from governments, customers, employees, and competitors. Both consumers and investors are beginning to see more clearly the relationship between business performance and environmental quality. The trend toward proactive environmental management is being accelerated by public pressures on governments almost everywhere to assure a cleaner environment. Government regulations have become more stringent, legal liabilities for environmental damage have become more burdensome, and customers have become more demanding. But more importantly, there is growing evidence that firms that adopt proactive environmental management strategies become more efficient and competitive. In many countries, the public has become more

vocal in demanding responsible environmental performance as incomes rise and education spreads. Calls for responsible corporate behaviour are coming from investors, insurers, environmental interest groups, financial institutions, and international trading partners.

A sustainability approach requires a company to adopt green initiatives and become an eco-friendly green business (Szekely & Knirsch, 2005). Business regulations anticipate that companies will adopt sustainable and socially responsible practices for making profits (Minoli, 2010).

Measuring the impact

Nutsugah et al. (2021), in their study answered the question: "does the communication of environmental performance transmit positive overall firm performance?" The authors examined the influence of a company's environmental performance (EP) on its overall firm performance (FP) and the mediating role of integrated marketing communication (IMC) on the EP-FP relationship. The study found that EP negatively and significantly influences FP directly. However, the introduction of IMC into the direct relationship changes this effect. IMC was found to have a partial and complementary mediation effect on the relationship between EP and FP. As per their findings they say that if companies can utilize their

communication capacity well enough in creating the necessary awareness among their stakeholder audiences, a positive relationship is created between environmental performance (EP) and overall firm performance (FP)

Niyas & Kavida (2022) did a study of the Impact of financial brand values on firm profitability and firm value of Indian FMCG companies. They found that even after controlling some variables towards profitability, brand value showed a positive relationship towards all three profitability measures of ROA, ROE, and ROC. The study revealed that strong brands are highly profitable. The contemporaneous effect of brand value on firm value was also studied, and the result showed a positive effect on both the firm value measures of Tobin's Q and stock price. The stock price of FMCG companies increases when the brand value increases. This finding can be helpful for investors and investment analysts.

Gromark and Melin (2011) in their research respond to the need for an increased understanding of brand orientation and its impact on financial performance. Since brand orientation is often perceived as a somewhat elusive concept they present a theoretical framework for the purpose of identifying the underlying dimensions of brand orientation from a holistic perspective. Based on this framework they have performed a study on Sweden's 500 largest companies, aimed at analysing how brand oriented these companies are and how that degree of brand orientation influences their financial performance. In their analysis they identified eight

dimensions that can be seen as the anatomy of brand orientation. The analysis also provides empirical evidence of a significant positive relationship between brand orientation and profitability, showing that the most brand-oriented companies in the study have almost double the profitability of the least brand-oriented companies.

Luxton et al. (2015) investigated how an integrated marketing communication (IMC) capability drives a brand's financial performance through influencing the effectiveness of communication campaigns and the brand's market-based performance. The results generated by their study illustrate that an IMC capability has a significant direct effect on campaign effectiveness and significant indirect effect on a brand's market-based performance and financial performance. Their study highlights the role of IMC as a key firm-specific capability with significant impact on performance outcomes. According to them, competitively the more the firm is able to build its distinctive IMC capability, the greater its campaign effectiveness, which in turn leads to superior brand market-based and financial performance.

Practical Implications - Recommendations for Businesses :

Conceptualising and implementing Effective Branding and Communication Strategies:

From the above it can be inferred that in order to improve their visibility and performance, businesses need to take various steps in order to gain favourable image in mind of their publics, especially their consumers / customers which would in turn contribute in improving their bottom-line. There are long-term benefits of investing in branding and communication efforts as it contributes to sustained business success.

This includes creating a consistent brand image, leveraging various communication channels including digital ones, and adapting strategies to meet evolving consumer expectations. This would include, among others :

- Developing a clear brand identity and positioning: Defining the company's core values, mission, and unique selling proposition.
- Creating consistent and compelling messaging: Crafting messaging that resonates with target audiences across all communication channels.
- Leveraging a multi-channel approach: Utilizing a mix of traditional and digital channels to reach target audiences effectively.

- Building and nurturing relationships: Engaging with stakeholders, including customers, employees, and investors, through meaningful interactions.
- Measuring and analyzing results: Regularly evaluating the impact of branding and communication efforts to ensure effectiveness and adapt strategies as needed.

By investing in effective branding and communication strategies, companies can position themselves for long-term success and achieve their strategic objectives. In a world where information is readily available and competition is fierce, a strong brand and clear communication are essential for differentiating themselves and establishing a lasting competitive advantage.

Conclusion

In summary, effective branding and communication are integral to a company's success. They influence external perceptions, internal culture, customer loyalty, investor relations, and overall market positioning, all of which contribute to the company's long-term performance and sustainability.

Thus there is a need for a holistic and integrated approach to maximize the synergistic effects of these critical elements in the contemporary business landscape. As companies strive for sustainable success, understanding and harnessing the power duo of branding and communications emerges as a strategic imperative.

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Mitigating Cognitive Biases in Organizational Decision-Making for Enhanced Effectiveness

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Abstract

This paper delves into effective mitigation strategies to counteract cognitive biases. It examines both individual and organizational approaches, encompassing awareness building, training programs, decision making frameworks, structural frameworks & adjustments and cognitive debiasing techniques. (Jonathan S. Spivey, Patricia L. Prelock, and Michael T. Fulford, 2018) By employing behavioural economics, psychology and management studies, this paper provides a comprehensive framework for identifying,

understanding, and mitigating cognitive biases. The study undertakes a comprehensive literature review approach and aims to highlight successful interventions implemented in diverse organizational contexts. It emphasizes the importance of fostering a culture that encourages critical thinking, diversity of perspectives, and systematic decision-making processes. Furthermore, it evaluates the long-term effectiveness and challenges associated with implementing these mitigation strategies.

Conclusion

This paper offers practical insights for organizational leaders, managers, and practitioners to navigate cognitive biases and to forestall them thereby enhancing decision making quality and foster a more rational and effective decision-making environment within the organization.

INTRODUCTION

Organizations rely heavily on decision-making processes to navigate complex environments, allocate resources, and achieve strategic objectives. However, these processes are often susceptible to cognitive biases, which arise from inherent flaws in human reasoning and perception. Cognitive biases are systematic patterns of deviation from rationality in decision making, stemming

from our cognitive processes and mental shortcuts. These biases can lead to suboptimal decisions, impacting organizational effectiveness and performance (Kahneman, 2011).

In the dynamic landscape of organizational decision-making, cognitive biases pose significant challenges leading to suboptimal outcomes and reduced effectiveness. Cognitive biases can distort judgment, impair critical thinking, and undermine the quality of decisions made within organizations. Recognizing the pervasive influence of cognitive biases, organizations are increasingly focused on developing strategies to mitigate their impact.

Unchecked biases can lead to flawed strategic choices, flawed resource allocation, misinterpretation of market trends, and ineffective problem-solving. Furthermore, biases can undermine organizational culture, erode trust, and impede innovation and adaptability. Mitigating cognitive biases is thus essential for fostering a decision-making environment that promotes rationality, objectivity, and accountability.

Organizations employ a variety of strategies to mitigate cognitive biases in decision-making processes. These strategies encompass individual-level interventions, organizational practices, and technological solutions. Individual-level interventions include awareness training, cognitive debiasing techniques, and decision support tools aimed at enhancing decision-makers' metacognitive

skills and promoting critical thinking. Organizational practices such as diversity initiatives, inclusive decision-making processes, and structured decision protocols can counteract biases by fostering diverse perspectives, challenging groupthink, and promoting collective intelligence. Additionally, technological solutions such as decision support systems, algorithms, and artificial intelligence offer opportunities to augment human decision-making by providing data-driven insights, reducing cognitive load, and minimizing bias-inducing heuristic.

By understanding the common biases that influence decision-making and implementing strategies to counteract their impact, organizations can foster a culture of rationality, critical thinking, and innovation and enhance organizational performance, through effective decision making.

Importance of Accountability, Source Expertise, Critical Thinking and Dissent in mitigating cognitive biases within corporate culture to enhance organizational decision-making effectiveness.

Individuals are motivated to actively seek out and consider contradictory information, leading to more balanced and rational judgements. When individuals are held accountable for their decisions, they are more likely to critically evaluate information and consider alternative perspectives, thus reducing the influence of biases like confirmation bias & group think. Accountability significantly reduces the confirmation bias in group decision-

making. It helps in promoting transparency and encourages to justify a decision based on objective rather than personal biases. This fosters a culture of accountability within the organization and helps to minimize the negative effects of cognitive biases on decision quality.

With Source Expertise and credibility, it is more likely to consider diverse viewpoints and make more informed judgements thereby mitigating the influence of confirmation bias and availability bias.

Expressing dissent viewpoints or challenge prevailing opinions can help cover blind spots, stimulate critical thinking, and promote more thorough consideration of alternatives.

Holding individuals accountable for their decisions, seeking input from diverse sources with relevant expertise, Critical thinking by actively and skilfully conceptualizing, analysing, synthesizing, and evaluating information and encouraging constructive dissent can help counteract biases and improve the quality of judgements. (Leigh Thompson, Katherine L.Milkman & JohnW. Payne, 1999).

PURPOSE

- To identify prevalent cognitive biases that impact decision-making in organizational contexts, such as confirmation bias, Sunk cost Fallacy, Over confidence bias, and others.
- To investigate and analyse various strategies aimed at reducing cognitive biases in the decision-making processes within organizations.
- To offer recommendations for organizations seeking to improve their decision-making.

APPROACH /METHODOLOGY

The purpose of this paper is to review academic and scholarly literature, research publications, journals, and documents to organise and summarise the findings of prior research on mitigating cognitive biases in organisational decision-making.

It will be easier to synthesise current knowledge, contextualise the findings, and identify research gaps where additional study can be done if prior research is reviewed.

LITERATURE REVIEW

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Organizational decision-making is a complex process influenced by various factors, including cognitive biases, which can lead to suboptimal outcomes and reduced effectiveness. (Croskerry, P. 2003). This literature review aims to explore existing research on cognitive biases in the corporates and the organizations in decision-making and strategies for mitigating their impact to enhance effectiveness. (Arkes, H. R. 1991)

Cognitive Biases in Corporates

Cognitive bias can be defined as a set of predictable mental errors that arise from our limited ability to process information objectively. It can result in illogical and irrational decisions, and it can cause you to misjudge risks and threats. (Bazerman, M. H., & Moore, D. A. 2009, 2019) Cognitive biases in organizational decision making refer to systematic errors in thinking and judgment that can influence how individuals and groups within organizations perceive, interpret, and act upon information when making decisions. These biases are often unconscious and can lead decision makers to deviate from rational decision-making processes, resulting in suboptimal outcomes for the organization. They affect various aspects of organizational decision making, including strategic planning, resource allocation, and risk assessment. They can

lead to errors in judgment, flawed decision making, and missed opportunities for the organization.

Confirmation Bias:

Kahneman and Tversky (1974) introduced the concept of confirmation bias, highlighting the tendency to seek information that confirms pre-existing beliefs or hypotheses while disregarding contradictory evidence.

It is a cognitive bias that refers to the tendency of individuals to search for, interpret, favour, and recall information in a way that confirms their preexisting beliefs or hypotheses, while disregarding or downplaying contradictory evidence. This brings in by being inclined to seek out information that aligns with their existing opinions or expectations, leading to a reinforcement of their initial beliefs. Individuals or groups in organizations often affected by confirmation bias may selectively gather evidence that supports their viewpoints, ignore information that contradicts them, and interpret ambiguous evidence in a manner that reinforces their existing beliefs.

Confirmation bias can lead to flawed reasoning, poor decision making, and a lack of objectivity in evaluating information. It can also contribute to the perpetuation of misinformation and the polarization of opinions, as people become more entrenched in their own perspectives and less open to considering alternative viewpoints. This bias can lead decision-makers to overlook alternative viewpoints, skewed towards preset notions irrespective of its relevance and make flawed judgments. (Nickerson, R. S.,1998)

Recognizing confirmation bias and actively seeking out diverse perspectives, challenging one's own assumptions, and critically evaluating evidence are essential strategies for mitigating its effects and promoting more balanced and informed decision making.

Sunk Cost Fallacy:

The sunk cost fallacy is a cognitive bias where individuals continue to invest resources (time, money, effort) into a project or decision solely because they have already invested resources in it, even when the additional investment is unlikely to yield favourable returns. In other words, individuals irrationally consider past costs that cannot be recovered when making decisions about future actions. (Staw, B. M. ,1976) The term "sunk cost" refers to costs that have already been incurred and cannot be recovered, regardless of the decision made.

However, individuals often struggle to disregard sunk costs when evaluating whether to continue investing in a project or endeavour. (Thaler, R. H. 1980)

The sunk cost fallacy can lead to suboptimal decision making in various domains, including business, personal finance, and even relationships. It can prevent individuals and organizations from cutting their losses and reallocating resources to more promising opportunities. Understanding and recognizing the sunk cost fallacy is crucial for making rational decisions. Instead of focusing on past investments, decision makers should evaluate options based on their potential future outcomes and costs. (Zeelenberg, M., Van Dijk, W. W., Manstead, A. S., & Van der Pligt, J., 2000) By acknowledging sunk costs as irrelevant to future decisions, individuals and organizations can avoid falling victim to this cognitive bias and make more informed choices. (Arkes, H. R., & Blumer, C. 1985).

Over Confidence Bias:

Lichtenstein and Fischhoff (1982) studied overconfidence bias, wherein it is a tendency to have excessive confidence in their own judgments, abilities, or beliefs, even when evidence suggests that such confidence is unwarranted or unjustified. It involves an overestimation of one's own knowledge, skills, or the accuracy of one's judgments, leading to an inflated sense of self-assurance. This

bias can lead to excessive risk-taking, underestimating the likelihood of negative outcomes, resisting feedback or criticism leading to poor decision-making outcomes. (Russo, J. E., & Schoemaker, P. J. H. 1992).

Moore and Healy delve into the various manifestations of overconfidence and its consequences in decision making. They explore how individuals tend to overestimate their own abilities, knowledge, and the accuracy of their judgments, often leading to suboptimal decisions. (Moore, D. A., & Healy, P. J. 2008).

Framing Effect:

The framing effect is a cognitive bias where people react differently to a particular choice depending on whether it is presented as a loss or as a gain. Tversky and Kahneman, 1981 demonstrated that individuals tend to be risk-averse when options are presented in terms of gains that means they prefer a sure gain but tend to be risk-seeking when options are presented in terms of losses that means they prefer a gamble with a potential for avoiding losses. This suggests that the way choices are framed, influences decision making beyond what would be expected based solely on the outcomes themselves. (Levin, I. P., Schneider, S. L., & Gaeth, G. J. 1998) The framing effect has significant implications for various domains, including marketing, finance, policymaking,

and healthcare. By understanding how framing influences decision making, organizations can strategically frame options to elicit desired responses from individuals. However, it's essential to recognize that manipulating framing can also raise ethical concerns, as it may involve nudging people towards certain choices without their full awareness or consent. (Kahneman, D., & Tversky, A. 2000).

Groupthink:

Groupthink is a psychological phenomenon that occurs within a group of people when the desire for harmony or conformity in the group results in an irrational or dysfunctional decision-making outcome. In groupthink, group members in organizations prioritize unanimity and consensus over critical evaluation of alternative viewpoints, often leading to flawed or suboptimal decisions.

Janis (1972) coined the term "groupthink" to describe the phenomenon wherein group members prioritize consensus and harmony over critical evaluation of ideas. Irving Janis provided in-depth analysis of its manifestations and consequences in the context of foreign policy decision-making. Characteristics of Groupthink includes

- Illusion of invulnerability: Group members develop an exaggerated sense of confidence and invincibility, leading them to overlook potential risks or flaws in their decisions.
- Collective rationalization: Members dismiss or rationalize away any contradictory evidence or dissenting opinions that challenge the group's consensus view.
- Belief in inherent morality: The group believes that its decisions are morally superior, leading members to ignore ethical considerations or potential negative consequences.
- Stereotyping of out-group members: Those who oppose the group's consensus are often stereotyped as enemies or outsiders, making it easier to dismiss their viewpoints.
- Self-censorship: Group members withhold their dissenting opinions or concerns to avoid conflict or maintain group harmony.
- Illusion of unanimity: The absence of dissenting voices or the perception of unanimous agreement within the group reinforces the belief that the chosen course of action is correct.
- Direct pressure on dissenters: Members who express dissenting opinions may face pressure to conform or be ostracized by the group.

- Mind guards: Certain members of the group may act as "mind guards" shielding the group from dissenting viewpoints or information that could challenge the consensus.

Groupthink can suppress dissenting viewpoints and hinder effective decision-making within organizations. It can have serious consequences, leading to poor decision making, missed opportunities and organizational failures. To mitigate the effects of groupthink, organizations can promote a culture of open communication, encourage diverse perspectives, assign a devil's advocate role to challenge assumptions, and use decision-making processes that allow for dissent and critical evaluation of alternatives. (Janis, I. L. ,1982).

Strategies for Mitigating Cognitive biases.

Out of various strategies like Diversity and Inclusion, Devil's Advocate Role, Red Team approach, Decision Review Processes, Training and Education, Decision Support Tools, Time for Reflection, and many others adopted in Corporates, this paper focuses on mainly four strategies.

- Diversity & Inclusion

Research consistently demonstrates that diversity and inclusion initiatives contribute to more effective decision-making by reducing the impact of cognitive biases. Studies have shown that diverse teams are better at identifying and challenging biases, leading to more innovative solutions and better outcomes (Milliken & Martins, 1996; Cox, 1994) Diversity & inclusion initiatives play a vital role in mitigating cognitive biases within organizational decision-making processes. By promoting diverse perspectives and inclusive environments, organizations can counteract biases and enhance the effectiveness of decision-making. (Jehn, K. A., Northcraft, G. B., & Neale, M. A. 1999)

Diversity refers to the presence of differences among individuals, including but not limited to race, ethnicity, gender, age, sexual orientation, and cognitive styles. Inclusion involves creating an environment where all individuals feel valued, respected, and empowered to contribute their unique perspectives and talents.

Impact of Diversity & Inclusion on Bias Mitigation by

- Challenging Group Think

  Diverse teams are less susceptible to groupthink, as individuals from different backgrounds bring unique viewpoints and challenge

consensus thinking, thereby reducing the risk of confirmation bias and group polarization.

- Reducing Group Rethink

  Group Rethink occurs when members of a cohesive group prioritize harmony and conformity over critical evaluation of ideas. By promoting diversity of thought and perspective, organizations can minimize the risk of groupthink and encourage constructive debate and dissent.

- Broadening Perspectives

  Inclusive environments encourage individuals to consider alternative viewpoints and perspectives, reducing the influence of biases such as anchoring bias and availability bias by promoting open-mindedness and critical thinking.

- Enhancing creativity & Innovation

  Diversity fosters creativity and innovation by bringing together individuals with different experiences and ideas, leading to more innovative solutions and mitigating biases related to status quo bias and functional fixedness.

Research has shown that diverse teams are more effective at problem-solving, and decision-making compared to homogeneous groups. When individuals from diverse backgrounds collaborate, they bring a wide range of perspectives and approaches to the table, leading to more thorough discussions, greater creativity, and better decision outcomes. (Page, S. E. 2007).

Key components of Effective Diversity and Inclusion Initiatives

- Leadership commitment

  Organizational leaders must demonstrate a commitment to diversity and inclusion by setting clear goals, allocating resources, and holding themselves and others accountable for progress. Senior Leaders must demonstrate a commitment to diversity & inclusion by fostering a culture of respect, openness, and inclusivity.

- Diverse Representations

  Ensure Diverse representation at all levels of the organization, including decision-making teams and leadership positions, to reflect the perspectives and experiences of all employees from various backgrounds.

- Inclusive Decision-making Process

  Incorporate diversity and inclusion into decision-making processes by

actively soliciting input from diverse stakeholders, encouraging dissenting opinions, open dialogue and debate, and creating opportunities for all voices to be heard.

- Training & Education

  Provide training on diversity, unconscious bias, and inclusive leadership to increase awareness and equip employees with skills for recognizing and mitigating biases in themselves and others and to raise awareness and promote behaviours that support Diversity & Inclusion.

- Enhancing Decision Quality: Inclusion decision-making processes consider a broader range of factors and viewpoints, leading to more comprehensive analyses and better-informed decisions. By harnessing the collective intelligence of diverse teams, organizations can improve the quality and effectiveness of their decision-making.
- Feedback Mechanisms: Establish feedback mechanisms to allow employees to raise concerns, share perspectives, and contribute to the ongoing improvement of diversity and inclusion initiatives.

Best Practices

- Employee Resource Groups: Establish employee resource groups (ERGs) or affinity groups to provide support, networking opportunities, and

advocacy for underrepresented employees, fostering a sense of belonging and inclusion.

- Diversity Metrics and accountability: Set measurable diversity and inclusion goals and regularly track progress against these metrics. Hold leaders and managers accountable for promoting diversity and inclusion within their teams and departments.
- Diverse hiring practices: Implement inclusive hiring practices, such as blind resume reviews, diverse interview panels, and inclusive job descriptions, to attract and retain a diverse workforce.
- Challenging Confirmation Bias: Confirmation bias occurs when individuals seek out information that confirms their existing beliefs while disregarding contradictory evidence. In inclusive environments, diverse viewpoints challenge assumptions and provide alternative perspectives, helping to counteract confirmation bias.
- Feedback & Recognition: Solicit feedback from employees on diversity and inclusion initiatives and recognize and reward behaviours that contribute to a diverse and inclusive workplace culture.

Diversity encompasses differences in race, ethnicity, gender, age, sexual orientation, religion, socioeconomic background, and more. Inclusion, on the other hand, refers to creating an environment where all individuals feel valued,

respected, and empowered to contribute their unique perspectives and talents. By promoting diverse perspectives, challenging groupthink, and fostering inclusive environments, organizations can improve the quality and effectiveness of their decision-making processes, ultimately driving innovation, creativity, and organizational success. By fostering a diverse and inclusive environment, where all voices are heard and valued, organizations can leverage a variety of perspectives and experiences, thereby reducing the influence of biases such as groupthink and confirmation bias and promote critical evaluation of ideas and enhance their ability to make informed, effective decisions that drive success and innovation. (Milliken & Martins, 1996)

Decision Review Processes

Decision review processes are structured mechanisms designed to evaluate the rationale behind decisions, identify potential biases, and explore alternative perspectives. By implementing these processes, organizations can mitigate cognitive biases and enhance the effectiveness of decision-making.

Decision Review processes are effective in mitigating cognitive biases by providing structured frameworks for evaluating decisions. These involve a systematic examination of the decision-making process, including inputs, assumptions, analyses, and outcomes. These processes often include steps such

as post-mortem analyses, peer reviews, or independent evaluations. These processes facilitate critical evaluation, transparency, and accountability, helping to minimize biases such as confirmation bias and anchoring bias (Schwenk, 1984; Eden & Ackermann, 1998)

Impact of Decision review Processes on Bias Mitigation by

- Encouraging critical Evaluation

  By subjecting decisions to rigorous scrutiny, decision review processes promote critical evaluation of assumptions, data, and analyses, reducing the influence of biases such as confirmation bias and anchoring bias.

- Providing Diverse Perspective

  Decision review processes involve multiple stakeholders and perspectives, facilitating the identification of blind spots and challenging of groupthink, thereby mitigating biases related to homogeneity and conformity.

- Enhancing accountability

  Decision review processes promote accountability by requiring decision-makers to justify their decisions and address concerns raised by reviewers, reducing the likelihood of biases such as overconfidence and

escalation of commitment. (Moore, D. A., & Healy, P. J. 2008)

Key components of Effective Decision Review processes

- Structured Framework

  Decision review processes should follow a structured framework or methodology to ensure consistency and thoroughness in the evaluation process. This may involve defining clear criteria for decision evaluation and establishing standardized review procedures.

- Multi Stakeholder Involvement

  Decision review processes should involve multiple stakeholders representing diverse perspectives and expertise. By soliciting input from different viewpoints, organizations can uncover blind spots and challenge assumptions that may be influenced by cognitive biases.

- Objective Evaluation Criteria

  Decision review processes should use objective evaluation criteria to assess the quality and validity of decisions. This may include criteria such as alignment with organizational goals, consideration of risk factors, and adherence to ethical standards.

- Transparent & Open communication

  Decision review processes should foster transparent and open communication among stakeholders, allowing for constructive feedback

and dialogue. This encourages accountability and promotes a culture of continuous improvement in decision-making practices.

Best Practices

- Establish Clear Guidelines

  Clear guidelines and protocols for conducting decision reviews, including roles and responsibilities, timelines, and evaluation criteria.

- Provide Training & Resources

  Provide training on decision review processes to stakeholders involved in the evaluation, including guidance on recognizing and addressing to mitigate the cognitive biases.

- Encourage participation

  Encourage active participation and engagement from all stakeholders in decision review processes, creating a collaborative environment for evaluating decisions and identifying areas for improvement.

- Iterative movement

  Continuously evaluate and refine decision review processes based on feedback and lessons learned from previous reviews. This allows organizations to adapt and evolve their approach to bias mitigation over time.

Decision review processes are essential tools for mitigating cognitive biases in organizational decision-making. By providing a structured framework for evaluation, involving diverse stakeholders, and promoting transparency and accountability, these processes help ensure that decisions are made thoughtfully and objectively, ultimately leading to better outcomes for the organization.

- Training & Education

  Training & education initiatives play a crucial role in equipping individuals with the knowledge and skills to recognize and counteract cognitive biases. It aims to equip individuals with knowledge about cognitive biases, their impact on decision-making, and strategies for overcoming them. These programs may include workshops, seminars, online courses, or ongoing learning initiatives tailored to the specific needs of the organization. By raising awareness and providing practical strategies, these initiatives empower decision-makers to make more informed and objective decisions, thereby mitigating biases such as framing effects and overconfidence bias (Bazerman & Moore, 2009; Kahneman, 2011) Providing training on cognitive biases and decision-making heuristics, increases awareness among organizational members and equips them with strategies for mitigating bias (Larrick, 2004).

Impact of Training & Education on Bias Mitigation by

- Raising awareness

  By educating individuals about the existence and implications of cognitive biases, training programs raise awareness and help individuals recognize when biases may be influencing their decision-making.

- Providing Strategies

  Training programs provide individuals with strategies and techniques for mitigating biases, such as mindfulness techniques, decision-making frameworks, and structured approaches to problem-solving.

- Encouraging critical thinking

  Education initiatives promote critical thinking skills, enabling individuals to evaluate information objectively, challenge assumptions, and consider alternative perspectives, thereby reducing the impact of biases on decision-making.

Key components of Effective Education & Training Programs

- Comprehensive Content

  Training programs should cover a wide range of cognitive biases relevant

to the organization's context, including confirmation bias, anchoring bias, availability bias, and others. The content should be presented in a clear and accessible manner, with real-world examples and case studies to illustrate key concepts.

- Interactive Learning Methods

  Incorporate interactive learning methods, such as group discussions, case studies, role-playing exercises, and practical simulations, to engage participants and reinforce learning. Interactive activities encourage active participation and facilitate deeper understanding of the material.

- Application to Real world scenarios

  Real world applications through Educating and creating awareness shall be helpful. Connect training content to real-world scenarios and decision-making contexts within the organization. Encourage participants to apply the concepts and techniques learned in training to their everyday work situations, fostering practical skills development.

- Ongoing Reinforcement

  Provide ongoing reinforcement and support for learning beyond the initial training sessions. This may include follow-up workshops, refresher courses, coaching sessions, and access to resources such as reading materials, online forums, or expert consultations.

- Examples of Training & Education Initiatives
  - Bias awareness workshop: Conduct workshops to raise awareness of common cognitive biases and their impact on decision-making. Use interactive exercises and case studies to illustrate how biases manifest in different contexts and explore strategies for mitigating them.
  - Decision making Training: Offer training programs focused on decision-making skills, including techniques for recognizing and overcoming biases. Provide participants with tools and frameworks for making more objective and evidence-based decisions.
  - Unconscious Bias Training: Implement training programs specifically addressing unconscious biases, such as implicit association tests and stereotype busting exercises. These programs help individuals identify and challenge biases related to social identity, reducing their influence on decision-making.

- Leadership Development Programs

  Integrate bias mitigation training into leadership development programs to equip managers and executives with skills for fostering inclusive decision-

making processes and promoting diversity within their teams.

Best Practices

- Tailored Content

  Customize training content to address the specific needs and challenges of the organization. Consider factors such as industry, organizational culture, and the level of expertise of participants when designing training programs.

- Engagement of leadership

  Gain support and participation from organizational leaders in promoting and endorsing training initiatives. Leadership buy-in reinforces the importance of bias mitigation efforts and sets a positive example for others to follow.

- Evaluation & Feedback

  Regularly evaluate the effectiveness of training programs through participant feedback, assessments, and performance metrics. Use this feedback to identify areas for improvement and refine training content and delivery methods accordingly.

- Integration with organizational Culture

Integrate bias mitigation training into the organization's culture and values, emphasizing the importance of critical thinking, open-mindedness, and continuous learning in decision-making processes.

Training & education initiatives are valuable tools for mitigating cognitive biases in organizational decision-making. By increasing awareness, providing practical skills, and fostering a culture of critical thinking, these initiatives empower individuals to recognize and counteract biases, ultimately improving the quality and effectiveness of decision-making processes ultimately driving success and innovation.

- Decision Support Tools

Decision support tools (DSTs) are valuable aids in mitigating cognitive biases by providing objective analysis and structured frameworks for decision-making. These tools enable decision-makers to make more informed, evidence-based decisions, reducing the influence of biases such as anchoring bias and representativeness bias (Sharda et al., 2014)

Decision support tools encompass a range of software applications, models, algorithms, and frameworks designed to assist decision-makers in evaluating alternatives, analysing data, and assessing risks. These tools provide systematic approaches to decision-making, reducing reliance on

subjective judgment and mitigating biases. They are software-based systems that assist decision-makers in analysing complex data, evaluating alternatives, and making informed decisions. Decision support tools encompass a variety of software applications, algorithms, and models designed to facilitate decision-making. These tools range from simple spreadsheets and databases to sophisticated software platforms with advanced analytics and visualization capabilities. Utilizing decision support tools, such as decision trees or scenario analysis, provides a structured approach to decision-making and reduces the influence of subjective biases (Eden & Ackermann, 1998).

Impact of Decision support Tools on Bias Mitigation By

- Objective Analysis

  By utilizing data-driven analysis, DSTs provide decision-makers with objective insights into decision options, reducing reliance on subjective judgment and mitigating biases such as confirmation bias and anchoring bias.

- Structured Frameworks

  DSTs offer structured frameworks and methodologies for decision-making, guiding users through systematic evaluation processes and reducing the

influence of biases like availability bias and representativeness bias.

- Quantitative Evaluation

  DSTs enable quantitative evaluation of decision alternatives, allowing decision-makers to assess risks, benefits, and trade-offs in a more rigorous and evidence-based manner, thereby minimizing biases related to overconfidence and framing effects.

Key components of Effective Decision Support Tools

- Data Integration

  Effective DSTs integrate data from various sources, including internal databases, external sources, and real-time feeds, to provide comprehensive and up-to-date information for decision-making.

- Analytical capabilities

  DSTs offer advanced analytical capabilities, such as predictive modelling, optimization, simulation, and scenario analysis, to support decision-making under uncertainty and complexity.

- Visualization Tools

  Visualization tools enable decision-makers to explore data, trends, and relationships through interactive charts, graphs, and dashboards, enhancing comprehension and communication of decision insights.

- User Friendly Interface

User friendly interfaces make DSTs accessible to a wide range of users, including non-technical decision-makers, by providing intuitive navigation, customizable features, and interactive functionalities.

Best Practices

- Needs Assessment

  Conduct a thorough needs assessment to identify the specific requirements, goals, and constraints of decision-makers and stakeholders, ensuring that the DST aligns with organizational objectives.

- Training and Support

  Provide comprehensive training and ongoing support to users of the DST, including guidance on tool usage, data interpretation, and decision-making methodologies.

- Iterative development

  Adopt an iterative approach to DST development, incorporating feedback from users and stakeholders to refine features, enhance usability, and address emerging needs over time.

- Integration with Decision Processes

  Integrate DSTs seamlessly into existing decision-making processes and workflows, ensuring that they complement and enhance, rather than disrupt, organizational practices.

  Decision support tools are powerful instruments for mitigating cognitive biases in organizational decision-making. They play a crucial role in mitigating cognitive biases by providing structured frameworks and analytical support, thereby improving the quality and objectivity of decision-making processes by providing objective insights, to enable decision-makers to make more informed, rational, and effective decisions, ultimately driving organizational success and innovation. (Efraim Turban, Ramesh Sharda, Dursun Delen 2001).

Examples of Decision Support Tools

- Decision Trees

  Decision trees are graphical representations of decision-making processes that map out possible decision paths and outcomes based on decision criteria and probabilities. They help decision-makers visualize alternatives and assess their potential consequences.

- Scenario Analysis Tools

Scenario analysis tools allow decision-makers to explore various scenarios and their potential outcomes by manipulating key variables and assumptions. These tools help assess risks and uncertainties and inform decision-making under different conditions.

- Risk Management Software

  Risk management software provides tools for identifying, assessing, and mitigating risks associated with decision options. These tools help decision-makers quantify risks, prioritize mitigation strategies, and evaluate the impact of risk management decisions.

- Business Intelligence Platforms

  Business intelligence platforms integrate data from multiple sources and provide analytical tools for generating insights and making data-driven decisions. These platforms enable decision-makers to access relevant information and perform analysis in real-time, reducing the impact of cognitive biases on decision-making.

Importance of strategies for mitigating cognitive biases in Organizational decision making

- ✓ Enhanced Decision Quality

Mitigating cognitive biases is essential for improving the quality of organizational decisions. By reducing the influence of biases such as confirmation bias and overconfidence bias, organizations can make more rational, objective, and evidence-based decisions. (Arkes, H. R., & Hammond, K. R. 2006) Mitigating cognitive biases improves decision quality by promoting more rational and objective decision-making processes (Kahneman, 2011).

- ✓ Minimized Risk Exposure

  Cognitive biases can lead to flawed decision-making processes, increasing the likelihood of poor outcomes and risk exposure for organizations. Strategies for mitigating biases help minimize these risks by promoting more thorough, comprehensive, and critical evaluation of decision options. Strategies for mitigating cognitive biases help minimize the risk of making flawed decisions, thereby reducing the potential for negative outcomes and consequences (Tversky & Kahneman, 1974)

- ✓ Optimized Resource allocation

  Effective decision-making requires organizations to allocate resources wisely and efficiently. By mitigating biases such as sunk cost fallacy and framing effects, organizations can optimize resource allocation, ensuring

that investments align with strategic objectives and deliver maximum value. Effective mitigation of cognitive biases ensures that organizational resources are allocated more efficiently and effectively, aligning investments with strategic objectives (Bazerman & Moore, 2013)

- ✓ Fostering Innovation & Creativity

  Biases can stifle innovation and creativity within organizations by limiting the exploration of new ideas and alternatives. Strategies for mitigating biases, such as encouraging diverse perspectives and challenging conventional thinking, foster a culture of innovation, experimentation, and continuous improvement. By reducing the impact of biases, organizations can foster a culture that encourages innovation and creativity, leading to better problem-solving and decision-making (Milliken & Martins, 1996)

- ✓ Enhanced organizational performance.

  Sound decision-making processes are critical for achieving organizational goals and objectives. By mitigating cognitive biases, organizations can enhance their overall performance, competitiveness, and sustainability, driving long-term success and growth. (Janis, I. L., & Mann, L. ,1977) Sound decision-making processes, free from cognitive biases, contribute to overall organizational performance and competitiveness (Eden & Ackermann,1998)

- ✓ Strengthened Stakeholder Trust

  Effective decision-making processes are critical for achieving organizational goals and objectives. By mitigating cognitive biases, organizations can enhance their overall performance, competitiveness, and sustainability, driving long-term success and governance. Mitigating cognitive biases demonstrates integrity and transparency, enhancing trust and confidence among stakeholders in the organization's leadership and decision-making processes. (Cox, 1994)

- ✓ Adaptation to Dynamic environment

  In today's complex and dynamic business environment, organizations must be agile and adaptive in their decision-making processes. Strategies for mitigating biases help organizations navigate uncertainty, complexity, and change more effectively, enabling them to respond quickly and decisively to emerging challenges and opportunities. Organizations that effectively mitigate cognitive biases are better equipped to navigate dynamic and uncertain environments, responding more quickly and decisively to changing circumstances (Schwenk, 1984)

Few Real Case Studies in understanding mitigating cognitive biases in Corporates through mitigating strategies like

- Google's "Red Team" Approach: Google encourages teams to appoint a internal adversarial team i.e. a "Red Team" whose primary role is to challenge assumptions and poke holes in proposed strategies, helping to mitigate confirmation bias and improve decision quality.
- NASA's Challenger Disaster: It demonstrates the use of a devil's advocate in organizational decision-making The Challenger disaster serves as a cautionary tale of the dangers of groupthink and the suppression of dissenting viewpoints within organizational decision-making processes.

  Strategies for mitigating cognitive biases are essential for promoting rational, objective, and effective decision-making within organizations. (Simon, H. A. 1979). By minimizing the influence of biases and fostering a culture of critical thinking and evidence-based decision-making, accountability mechanisms within organizations, highlighting the importance of creating a culture that encourages critical reflection and feedback organizations can enhance their performance, minimize risks, and drive innovation and growth. (Lerner, J. S., & Tetlock, P. E. 1999).

Recommendations within corporate culture to improve their decision-making processes.

1. Promote Data-Driven Decision Making: Encourage the use of data and analytics to inform decision-making processes. Ensure that decision-makers have access to accurate, timely, and relevant data. (Davenport, T. H., & Harris, J. 2007)
2. Foster a Culture of collaboration: Create an environment where diverse perspectives are valued, and collaborative decision-making is encouraged. Establish cross-functional teams to tackle complex problems. (West, M. A. 2012)
3. Implement Decision Support Systems (DSS): Utilize technology-driven decision support systems to assist decision-makers in analysing information, evaluating alternatives, and making informed decisions. (Turban, E., & Aronson, J. E. 2001)
4. Train Decision Makers: Provide training and development opportunities for decision-makers to enhance their critical thinking, problem-solving, and decision-making skills. (Bazerman, M. H., & Moore, D. A. 2013)
5. Establish Clear Decision-Making Processes: Define clear decision-making processes and frameworks within the organization to ensure consistency, transparency, and accountability. (McKinsey & Company, 2020)

6. Encourage Experimentation and Learning: Embrace a culture of experimentation and learning from both successes and failures. Encourage employees to test new ideas and approaches. (Edmondson, A. C. 2019)
7. Balance Rationality & Intuition: Recognize the value of both rational analysis and intuitive insights in decision-making processes. Encourage a balanced approach that integrates analytical thinking with intuition. (Kahneman, D. 2011).
8. Seek Stakeholder Involvement: Involve relevant stakeholders in decision-making processes to ensure alignment with organizational goals, values, and priorities. (Bryson, J. M. 2018)

   By implementing these recommendations, organizations can enhance their decision-making processes, improve outcomes, and adapt more effectively to changing environments and challenges. Improving decision-making processes within organizations is crucial for enhancing performance, innovation, and overall success. (Stanovich, K. E., & West, R. F. 2008).

Mitigating Cognitive Biases in in corporate culture

Mitigating cognitive biases in organizational decision-making is paramount for fostering an effective corporate culture that thrives on rationality and objective analysis. By recognizing and addressing these biases, organizations can significantly enhance their decision-making processes and achieve better

outcomes. One key strategy for mitigating biases is to integrate bias awareness into the fabric of corporate values and mission. This entails creating a culture where employees are encouraged to challenge their own assumptions and biases, fostering an environment of open-mindedness and critical thinking. Additionally, implementing training programs to develop bias recognition skills and promote cognitive debiasing techniques among employees can further contribute to mitigating biases within the organizational decision-making process. Furthermore, promoting diversity and inclusion within the workplace can help reduce biases by bringing diverse perspectives to the table and challenging groupthink. Ultimately, by actively mitigating cognitive biases within the organizational decision-making process, companies can cultivate a corporate culture that is characterized by sound judgment, innovation, and sustained success. (Gino, F., & Staats, B., 2015).

FINDINGS OF THE STUDY

Overall, the findings are of five cognitive biases commonly observed in decision-making contexts and proposes major four strategies to mitigate their impact, thereby promoting more effective organizational decision-making.

It suggests that a combination of approaches, including diversity and inclusion initiatives, decision review processes, training and education, and decision support tools, is essential for enhancing decision-making effectiveness and mitigating cognitive biases within corporates.

The findings provide valuable insights and recommendations for organizational decision making through collaboration, data driven decision making, learning & Training, decision making processes, DSTs, and stakeholders involvement to enhance decision-making effectiveness and minimize the impact of cognitive biases.

Drawing on a comprehensive review of existing literature, the study identifies five types of the cognitive biases namely confirmation bias, Sunk Cost Fallacy, Overconfidence Bias, Framing Effect and Groupthink prevalent in organizational decision making and offers a comprehensive analysis of the effectiveness of different strategies for mitigating cognitive biases in organizational decision-making, providing valuable guidance for practitioners and researchers in the field.

In examining the existing literature on strategies for mitigating cognitive biases in organizational decision-making, several key takeaways emerge, shedding light on effective approaches to enhancing decision-making effectiveness Firstly, diversity and inclusion initiatives stand out as fundamental strategies for

mitigating cognitive biases. Research has consistently shown that diverse teams are better equipped to challenge groupthink, consider alternative perspectives, and foster critical thinking, thereby reducing the impact of biases such as confirmation bias and availability bias (Milliken & Martins, 1996; Cox, 1994).

Secondly, decision review processes play a crucial role in bias mitigation by providing structured frameworks for evaluating decisions, identifying potential biases, and encouraging accountability. These processes facilitate transparency, thoroughness, and constructive feedback, helping decision-makers recognize and address biases such as anchoring bias and overconfidence bias (Schwenk, 1984; Eden & Ackermann, 1998).

Additionally, training and education initiatives are essential for equipping individuals with the knowledge and skills to recognize and counteract cognitive biases effectively. By raising awareness, providing practical strategies, and fostering critical thinking, these initiatives empower decision-makers to make more informed and objective decisions, thereby mitigating biases such as framing effects and escalation of commitment (Bazerman & Moore, 2008; Kahneman, 2011).

Strategy of Decision Support Tools (DSTs) offer valuable support in mitigating cognitive biases by providing structured frameworks, analytical capabilities, and objective analysis. These tools enable decision-makers to make more informed,

rational, and evidence-based decisions, reducing the influence of cognitive biases. (Sharda et al., 2014; Power, 2002).

RESEARCH GAP AND RECOMENDATIONS FOR THE FUTURE STUDY

There is a limited understanding on role of organizational culture and leadership in exacerbating or mitigating cognitive biases needs to be investigated.

Empirical studies are to be conducted to identify and analyse the most common cognitive biases influencing decision-making within different types of organizations (e.g., corporations, non-profits, government agencies).

Research on cognitive biases often lacks cross-cultural perspectives, leading to a limited understanding of how biases manifest in diverse organizational contexts. Future studies can explore and evaluate various mitigation techniques, such as decision support systems, training programs, nudges, and debiasing interventions, to determine their effectiveness in real-world organizational settings.

With the increasing use of technology in decision-making processes, there is a gap in understanding how technological tools and platforms can either exacerbate or mitigate cognitive biases. There is gap in exploring the role of

artificial intelligence, machine learning, and algorithms in decision-making and their potential to mitigate cognitive biases. Future studies can investigate how human-computer interaction influences biases and decision outcomes and develop guidelines for designing decision support systems that minimize biases.

By addressing these research gaps and implementing the recommended future studies, scholars can advance our understanding of cognitive biases in organizational decision-making and develop more effective strategies for mitigating biases to enhance decision-making effectiveness and organizational performance.

CONCLUSION

Recognizing and understanding cognitive biases is essential for organizations to mitigate their impact on decision making. Such biases can undermine organizational culture, erode trust, and impede innovation and adaptability. Mitigating cognitive biases is thus essential for fostering a decision-making environment that promotes rationality, objectivity, and accountability. By promoting awareness of biases, encouraging critical thinking, accountability, source expertise, DSTs and implementing decision-making processes that incorporate diverse perspectives and evidence-based analysis, organizations can improve the quality of their decisions and achieve better outcomes.

Mitigating cognitive biases in organizational decision-making is a multifaceted endeavour that requires a combination of individual, organizational, and technological interventions. By implementing effective mitigation strategies, organizations can mitigate the adverse effects of biases, enhance decision quality, and drive organizational success. As organizations continue to navigate complex challenges and uncertainties, a proactive approach to addressing cognitive biases will be essential for fostering a culture of evidence-based decision-making and ensuring sustained competitiveness and resilience.

Mitigating cognitive biases within corporate culture can be done by integrating bias awareness into corporate values and mission. Training programs should aim to develop bias integration and critical thinking. Promoting diversity and inclusion to reduce biases in corporates is effective in enhancing effectiveness. (Edmondson, A. C. 2019).

In conclusion, the literature highlights the importance of adopting a multifaceted approach in mitigating cognitive biases in organizational decision-making. The paper examines various strategies for mitigating cognitive biases in organizational decision-making processes in the corporate culture and compares their effectiveness.

By embracing diversity and inclusion, implementing robust decision review processes, providing training and education, and leveraging decision support

tools, organizations can minimize the risks associated with cognitive biases and make more informed and effective decisions thereby enhancing the effectiveness of decision-making, foster innovation, and achieve superior outcomes.

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A Study of Green Human Resource Management Practices in Allied Sectors

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ABSTRACT

Green Human Resource Management (GHRM) is a concept that is gaining more and more attention in the backdrop of environmentally sustainable initiatives and thrust towards corporate sustainability goals. This article analyses various dimensions of green human resource management and analyses the concept and presents a study of green human resource management practices and its awareness in select organizations. The article also focuses on the literature being generated globally and especially in Indian scenarios on the concept and highlights the importance of green human resource management in the present global changing scenario in the backdrop of global warming and climatic changes.

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1. INTRODUCTION

The concept of green human resource management has been prevalent in all the sectors, which canbe broadly classified as Manufacturing, Services and Power Sectors. There have been studies carried out which indicate that during the phases of industrialization manpower was moreemployed in manufacturing sectors than services or other sectors. With the growing rapid pace of industrialization and progress on the scale from developing to developed countries model, more focus on practices and number is towards developed countries, however, manufacturing sector hasalways been found to be the one playing major role towards development of any country. Manufacturing sector is considered as back bone of any economy and contributes towards social and economic development of any country.

As manufacturing sector employ maximum number of population and is the key contributor to any economy, literature review also reveals that studies carried out in the novel concept of application of Green Human Resources Management, research and literature is more prevalent inthe sector at present.

2. LITERATURE REVIEW

A systematic literature review carried out by Mahadi, Alqahtani and Binzafrah (2023) entitled “Imperatives, benefits, and initiatives of Green Human Resources Management” and has enlisted 131 research papers published in Google Scholar, out of 925 scientific papers in the field of business and management and found that “green human resource management practices is the best way to survive and preserve organizations and also proposed a theoretical model showed that consequences of all GHRM practices added values achieved by their application”. Fang et al (2022) in their study of 2022, carried out with 290 employees/subject with manufacturing sectors in Malaysia provide “a better understanding of how GHRM helps develop sustainable culture and green innovation and how the elements contribute to the improvement of environmental performance inside the organization.”

A study entitled “Green HRM practices followed by selected manufacturing industries in Coimbatore” by Vijaykarthigeyan (2019) concluded that “green HRM can beautify image and logo of an organization and HR is going to play important role in making the employees aware and worried for protection of natural assets and make contributions in pollutants manipulate, waste control and manufacture of green merchandise.”

“Relationship between Green Human Resource Management (GHRM) practices, such as Green Recruitment, Green Training on Turnover Intention mediated by the Work Environment” carried by Makarim and Muafi (2021) analysed with a

90 employee of Millennial generation found that “there is a negative effect on green training on turnover retention” ie better the green recruitment and lower the employee intention to leave.

Bombiak (2020) studied major barriers to the implementation of GHRM in Poland with sample of over 300 enterprises and found that “the concept of implementation of GHRM is relatively

developing and major factors which inhibit the application are limited financial means, lack of incentives to engage in environmentally friendly activities, low competencies of the management with respect to sustainable HRM, no or low effectiveness of GHRM tools and a culture based on economic values “. The article also detailed out the main functional areas of application of GHRM, it evolution as a concept and concluded that there is greater emphasis is required to “building green organizational culture through raised ecological awareness and development of environmentally friendly attitudes”.

Hameed et al (2022) examined relationship between “between green human resource management (GHRM) practices and green transformational leadership” and green behavioral outcome using survey questionnaire with 629 respondents from consumer industry in Pakistan. The study found that Green perceived organizational support (Green POS) plays vital role between Green Human Resource management practices and employees’ green creativity. The study also

postulated a conceptual model on green human resources practices, green innovation and the three sustainable performance measures such as environmental, social and entrepreneurial.

Khan et al (2022) examined the "underlying mechanism of the relationship between perceived green human resource management (GHRM) and perceived employee green behaviour (EGB) and green commitment (GC) as a mediator and green knowledge sharing (GKS) as a moderator of the GHRM–EGB relationship." Based on 329 responses the study stressed on "the effect of GHRM, GKS, GC, and green behavior on organizations' sustainability and environmental management". The study asserted that "employees who adopt organizations' GHRM initiatives and share green knowledge will also influence other members and can become a source of inspiration and can help the rest of the employees to adopt the same practices to become part of the members' follow green practices in the working relationship".

Al-Shammari et al (2022) investigated "the relationship between green human resource management bundle practices and green innovation and their impact on sustainability performance" and collected data from 335 small and medium enterprises SMES business in Saudi Arabia using convenient sampling approach. The study found that "that green innovation has a

significant impact on sustainable performance and green innovation partially mediates the relationship between green human resource practices and sustainable performance of SMEs."

Ramachandran and Kumar (2022) while studied employee work engagement model and practices at Neyveli Lignite Corporation. They found that the GHRM practices prevalent at NLC are creating major impact on the inside and outside of the organization development and involves technological, corporate social responsibilities and export system management and further suggested that this model could be adopted by the other leading organizations and could contribute towards global Green Human Resource management set up in the international scenario.

Herachwati et al (2023) identified valid and reliable attributes with GHRM's activities, which included five aspects with valid seventeen criteria such as compliance, commitment from top management and human resources as the most influential aspects. The study further emphasized that having a clear vision with leader change oriented as an important factor in achieving the strategic goals of the subject cement industry in Indonesia.

Hussain (2018) carried out a detailed literature survey on the concept and components of Green Human Resource Management such as Green and clean HR, green job design and analysis, planning, recruitment, green selection,

induction, performance appraisal, training and development and green reward management. The paper concludes that “GHR involves reducing carbon footprint and GHR has great role in saving planet earth and significant opportunity to the green movement”.

Sinha et al (2022) elaborated the prevalent GHRM practices in academic institutions in India. The authors elucidated that “GHRM practices create awareness, greater value and Imbibes a culture of responsibility towards environmental cause.” The work further mentioned that “GHRM practices in Academia have a significant impact on Organizational environment from the student’s perspective as it creates an environment of positivism and fosters creativity, also brings about calmness in the organizational environment.” Select recommendations like institutional green HRM policy, green innovation policy and suggestions from Center for Environmental Information System (ENVIS) in line with the Government of India, Forest Department Policy and other policy group are also recommended.

Gupte et al (2023) carried out a study of GHRM practices in Pharmaceutical industries in India and assessed its impact on sustainable environmental performance and concluded that “there is significant correlation amongst the various green organizational practices contributing to green working environment” and concluded similar studies focusing on other sectors may also be conducted for continuing the positive impact. Strategic Green HRM is one of

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the growing innovative approaches which promotes the sustainable use of resources of the business companies and thus integrates environmental management into HRM".

Sharma et al (2022) presented the recent trends in green human resource management using text mining, latent semantic analysis and network analysis approach and reviewed 317 articles from Scopus database from the year 2008-2021 and established relationship between quantitative and qualitative literature of GHRM. The study identified five recent research trends namely practices for organization and environment sustainability, eco-innovation responsibilities, behaviour management and performance factors, ethical and health benefits and global strategies for HRM to solve environmental issues, make the environment eco-friendly, and motivate firms to implement GHRM in their practices.

Green Human Resource Management mainly comprises of the components such as Green Recruitment and Selection, Green Training, Green Performance Management, Green Pay and Reward and Green Involvement as depicted in the figure below:

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3. METHODOLOGY

Objectives:

The study has been carried out with the following objectives:

a) To understand basics of green human resource management practices

b) To understand awareness about the current practices in green human resource management

c) To study literature available in the field of green human resource management

The data was collected from allied sectors including manufacturing, education, fintech etc working in Delhi NCR. A convenient sampling approach was deployed and online questionnaire was circulated. The sample size of the study was 108 and following Table1, provides demographic details of the respondents:

Table 1: Socio-demographic Profile of the respondents

Demographic	Frequency	Percentage
Gender		
Male	66	61
Female	42	39
Age		
18-25	25	23
26-35	36	33
36-50	33	31
51 and Above	14	13
Experience		

Upto 5 years	4	37
6-10 years	0 2 2	20
10-15 years	20	18
16-20 years	9	8
21-25 years	10	10
More than 25 years	7	6

ector

Banking/FinTech	8	7
Marketing	6	6
Education	8	7
IT	8	7
Hospital	2	2

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Telecommunicati ons	4	4
Manufacturing	72	67

4. ANALYSIS AND RESULTS

The data collected from the questionnaire has been analysed using SPSS Version26 and the same as been represented under the following categories and has been presented in the Table 2 below.

4.1 Green Recruitment and Selection: The data revealed that about 45 % of the respondents commented that green recruitment process and criteria were discussed during the recruitment and selection process, while majority of the institutions prefer employees who have green awareness. However, only 40 % of the respondents indicated that details on green employer branding were mentioned.

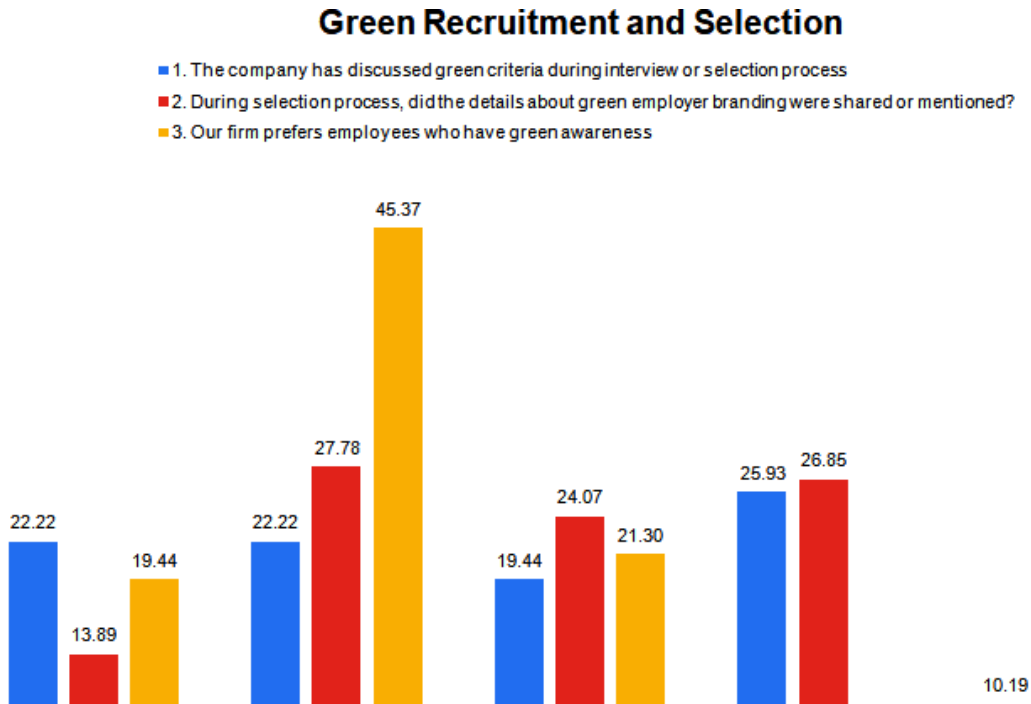

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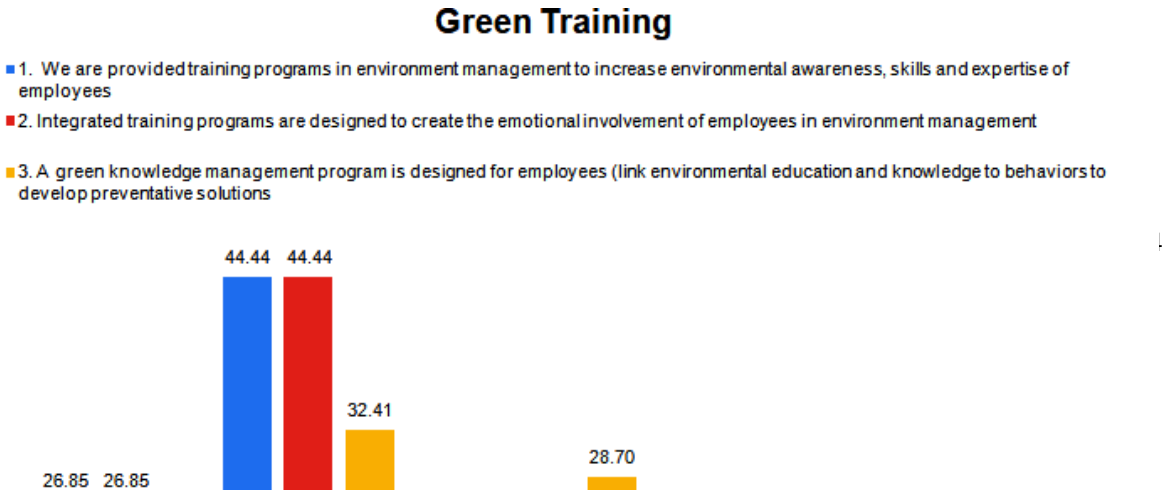
Figure 2: Green Recruitment and Selection

4.1 Green Training: The data shows that majority of the respondents (68 %) are aware of the environment management programs and training is being provided to the employees of green management practices, which indicate that organizations have adopted green management practices and training program and awareness is part of the institutional training programs. Morethan half (59 %) responded that green knowledge management program has been designed for employees.



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4.1 Green Performance Management: The date presents that as a part of performance management, incentives have been introduced for adopting the environmental sustainable initiatives (70%), while about half (52%) indicated that green targets and tasks have been set up by the institutions and 46 % responded that noncompliance with the practices has direct impact onperformance management.

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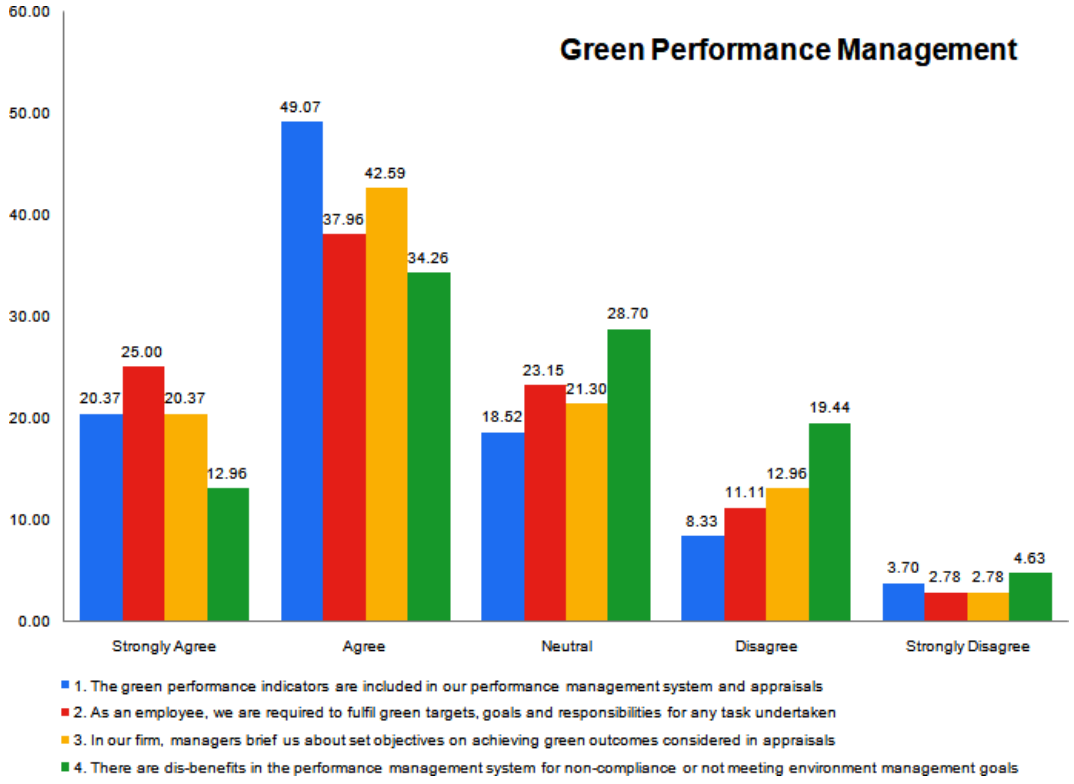
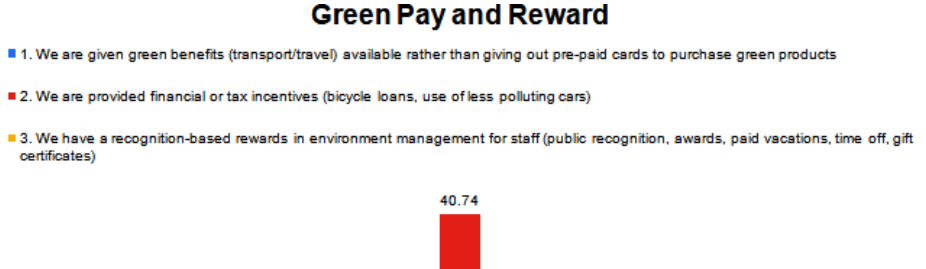


Figure 4: Green Performance Management

4.4 Green Pay and Reward: The data indicate that about 20 % of the employers have introducedgreen benefits in the form of transport/travel or financial or tax incentives for promoting green culture at their organizations, which indicate that though awareness on the aspect is there on these initiatives, however they need be popularized amongst the employees should be further strengthened towards green management



practices towards understanding of their responsibility towards nature and mother earth.

Figure 5: Green Pay and Reward

4.5 Green Involvement: Data with respect to green involvement as depicted in the figure below shows that organizations have understood the need to opt for sustainable green initiatives in all theaspect of its organization and majority have laid out green policy and there is a thrust towards making green human resource management as the central theme which essential forms part of green culture.

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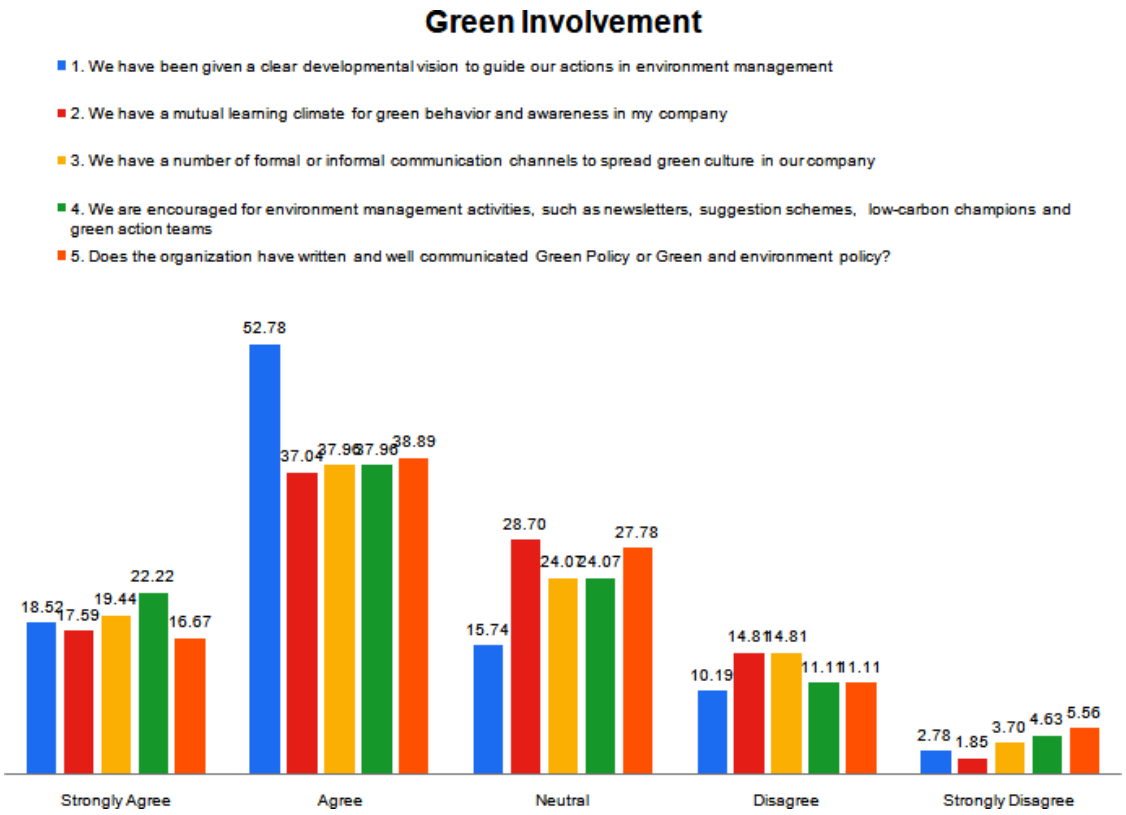

Figure 6: Green Involvement

4.6 Knowledge Management: Green human resource management and knowledge managementin an organization the two main components which provide directional approach towards growth and culture. The questionnaire also included collection of data with respect to knowledge management and its various aspects with respect to storage and processing of organizational knowledge. The data has been represented

below. The data reveals that organizations are continuously on the growth trajectory and knowledge and wisdom generated within the processes of it dimension of working are very helpful in organizational sustenance and growth.

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Table 2: Tabular Representation of data on knowledge management practices

1. My firm is able touse feedback from projects to improve subsequent projects	22.22	47.22	19.44	7.41	3.7
2. My firm is able togenerate new knowledge from existing knowledge	23.15	46.3	20.37	7.41	2.78
3. My firm is able to acquire knowledge	24.07	41.67	23.15	10.19	0.93

about its clients					
4. My firm is able to transfer organizational knowledge to individuals	21.3	43.52	27.78	7.41	0
5. My firm is able to absorb knowledge from individuals into the firm	19.44	45.37	25.93	9.26	0
6. My firm is able to integrate					

different sources and types of knowledge	21.32	47.22	23.15	7.41	0.93
7. My firm is able to apply knowledge and improvise from past learning	27.78	46.3	19.44	5.56	0.93
8. My firm is able to take advantage from new knowledge	23.15	48.15	19.44	9.26	0

FINDINGS

With the objectives of the study to find out prevalent green human resource management practices in the allied sector located in Delhi NCR and the understanding, the study revealed that green human resource management practices are being implemented in the Human Resource Management dimensions of the selected organizations. The study also provided an insight into the adoption of GHRM practices, knowledge management on the subject and their awareness level. The organizations have clear understanding and acceptance of the GHRM practices and have implemented key practices, such as Green Recruitment and Selection; Green Training; Green Performance Management; Green Pay and Rewards and Green Involvement, which indicate that they their contribution towards green environmentally sustainable initiatives in the present challenging global competitive environment is indeed one of the important initiatives towards sustainable survival initiatives. The results are in line with other study carried by Sinha et al (2022) and Hussain (2018).

CONCLUSION

Human resource management is a key component of any organization and adoption of green culture and practices is the need of the day. Indian organizations have adopted green culture and green practices are well evident from the study and organizations have imbibed the green culture in its

operations especially in the Human Resource Management. The literature generated on the subject is on a continuous growth and GHRM is an essential policy component for organizations of 21st century along with knowledge management. The study also infers that implementation of Green Human resource management practices in an organization is a key step towards environmentally sustainable initiatives and awareness on the subject further need to be strengthened towards becoming world class organization.

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Sustainability Reporting: A step towards progress - Case of HDFC Bank's Parivartan Scheme

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Abstract

Sustainability reporting involves organizations disclosing their environmental, social, and governance (ESG) performance and impacts. In recent years, sustainability has become increasingly popular across all sectors, including banking. The UN World Commission defines sustainable development as meeting present needs without compromising the ability of future generations to meet their own. The Brundtland Report, issued by the World Commission on Environment and Development in 1987, introduced the concept of sustainable development and outlined strategies to achieve it (Pal, 2023). Sustainability reports typically incorporate data, metrics, and narratives focusing on carbon footprints, resource usage, diversity and inclusion, community engagement, and ethical governance. The benefits derived from sustainability initiatives enhance a bank's operational, financial, and market performance (Amina Mohamed

Buallay, 2023). HDFC Bank's Parivartan initiative represents a significant step towards sustainable progress. The initiative primarily focuses on areas such as environment, rural development, education, skill development, livelihood enhancement, healthcare, hygiene, and financial literacy. This paper reviews HDFC Bank's Parivartan initiative to analyse its concept and the impact it has had on the environment, customers, employees, and the community.

Introduction

In recent years, there has been a noticeable rise in the emphasis on sustainability driven by a growing understanding among stakeholders of the negative social and environmental consequences of corporate activities. Many corporate sectors are now considering sustainable practices as of prime importance and incorporating it in their long-term strategies. Terms like, socially responsible investment, CSR, ESG and many others like this has gained much importance in recent years which further shifted the focus from finance and investment to sustainability and ethical finance (Salim, K., Disli, M., Ng, A., Dewandaru, G., & Nkoba, M. A. (2023). Banks are witnessing a trend where financial regulators are motivating them to pay more stress on sustainability practices (D'Apolito, E., Galletta, S., Iannuzzi, A. P., & Labini, S. S. (2024).

There are various aspects of sustainability reporting in banks-

Environmental impact – through sustainability reporting Banks have an opportunity to disclose their environmental impact through sustainable reporting which further entails revealing investments made in renewable energy ventures, adopting environment friendly practices etc.

Corporate Social Responsibility (CSR) with the help of sustainability reporting Banks now may report on their social initiatives and practices, such as community investment programs, financial inclusion efforts, support for affordable housing, and diversity and inclusion within their workforce.

Governance and ethics corporate governance is essential for promoting ethical business practices and professionalism. Its primary objective is to safeguard the interests of all stakeholders, including society at large. Effective corporate governance is crucial for the efficient management of any organization. Due to numerous scandals, there is a growing need for banks and financial institutions to operate with transparency.

Integration into financial reporting some banks use sustainability reporting in their financial reports to provide stakeholders a better view of their performances in both financial and non- financial areas.

However, some studies reveal that more environmentally engaged banks have greater stability (Chiaramonte, L., Dreassi, A., Goodell, J. W., Paltrinieri, A., & Piserà, S. (2024).

Literature review

Some of management and accounting literature reviews have provided useful orientation in the sustainability literature. Based on all those literature studies some useful revelations have been made.

Carnevale and Drago (2024) adds to the ongoing discussion regarding the potential for banks to significantly impact the shift towards environmentally friendly and sustainable economies, as well as to assist in achieving government sustainability objectives.

Building upon this foundation, lelasi et al. (2023) revealed in their study that there are relevant opportunities for banks to improve in the direction of genuine sustainability.

Chiaramonte et al. (2024) suggests that sustainability scores and policies, acting as proxies for environmental performance acts as risk hedging strategy against climate changes.

D'Apolito et al. (2024) have mentioned in their study that now banks are also being asked to rearrange all their main business processes to comply with ESG sustainability criteria.

Gehrig, Iannino, and Unger (2024) have clearly stated that ESG considerations are significant and have a stabilizing impact on measures of systematic risks

including exposure and contribution measures. They also suggest that adherence to UNEP principles for responsible banking enhances bank resiliency.

Objectives of the study

This paper aims to study-

1. the overall impact of Parivartan Scheme on society.
2. the level of achievement of SDGs by the bank under sustainability reporting.

Research Methodology

The research was conducted utilising secondary data obtained from HDFC Bank's website and SDG Reports by the UN. Analysis of data was performed through the creation of visual representations, including charts and graphs generated in excel.

Sustainable development goals (SDG)

The United Nations member states adopted in 2015 adopted the agenda of sustainable development which offers a collective roadmap for promoting peace and prosperity for the people and planet both. There are 17 SDGs, which are need of the hour for both- developed and developing nations. The SDG Progress

Report 2023 clearly stated the existing gaps and urging the world to double its efforts as there is lack of progress at universal level.

Source: https://sdgs.un.org/goals

HDFC Bank - Background

The Housing Development Finance Corporation Limited or HDFC Ltd was among the first financial institutions in India to receive an “in principle” approval from the Reserve Bank of India (RBI) to set up a bank in the private sector. This was done as part of RBI’s policy for liberalisation of the Indian banking industry in 1994. HDFC Bank was incorporated in August 1994 in the name of HDFC Bank Limited, with its registered office in Mumbai, India. The bank commenced operations as a Scheduled Commercial Bank in January 1995. On April 4, 2022, the merger of India’s largest Housing Finance Company, HDFC Limited and the largest private sector bank in India, HDFC Bank was announced. HDFC Ltd, over the last 45 years has developed one of the best product offerings making it a leader in the housing finance business. HDFC Bank enables seamless delivery of home loans as a part of its wide product suite catering to urban, semi urban, and rural India. AS of January 31, 2024, the Bank’s distribution network was at 8,143 branches and 20,688 ATMs / Cash Recycler Machine (Cash deposit & withdrawal) across 3,836 cities / towns. HDFC Ltd.’s distribution network comprising 737 outlets, which include 214 offices of HDFC Sales Private Limited stands amalgamated into the Bank’s network. The Bank’s international presence includes branches in 4 countries and 3 representative offices in Dubai, London and Singapore offering home loan products.

Parivartan Scheme – A step towards sustainable progress

HDFC Bank Parivartan's vision is to contribute to the social and economic development of the community by empowering them and driving a positive change in their lives, that in turn enables them to actively participate in the growth of our nation. HDFC Bank Parivartan encourages marginalised communities and businesses to include social and environmental consideration in their operations. The scheme has impacted 21 states, 8190 SHGs and over 2200 villages. It covers the areas of rural development, skill development and livelihood, promotion of education, healthcare and hygiene and financial literacy and inclusion. Under this they have initiated blood donation drives and payroll giving programmes for employees. Its CSR report, Dec 2023 PAN India has mentioned all achievements of this initiative in various dimensions. It also mentioned the various SDGs attained through its 5 pillars of Parivartan Scheme.

Pillar 1 - Rural Development

The Bank believes that development is possible only if our villages benefit from India's growing economic prosperity & it's this belief that drives its Holistic Rural Development Programme (HRDP). It includes creating access to water for drinking & irrigation, Promotion of alternative energy sources like solar/biogas/biomass energy, spread of financial literacy Job-oriented youth

training, Creation of alternate sources of livelihood such as livestock management, Promotion of entrepreneurship activities like embroidery, masala making, toy manufacturing etc.

categories	benefitted (in lakhs)
villages	0.859
kitchen garden created	0.5798
solar lights installed	0.5105
households impacted	10.22
water conservation constructions	0.1182
biomass stoves	0.1334
trees planted	38

Table 1 Benefits of Rural Development

Table 1. depicts the impact created by Parivartan scheme under rural development domain. Its Holistic Rural development programme (HRDP) has covered over 8,590 villages by identifying and addressing their critical needs and providing sustainable interventions. It has installed 51,050 solar lights which have impacted over 10.22 lakh households. Over 38 lakh trees have been planted and approx. 57000 kitchen gardens have been created under the HRDP project.

Pillar-2 - Promotion of Education

HDFC Bank's education programmes are structured to promote learning by creating a conducive & effective learning environment in schools. Under this pillar, Parivartan's interventions - in line with the Government of India's Sarva Shiksha Abhiyan - are focused on:

- Training teachers in alternate pedagogy & soft skills Promoting innovation through identification & replication of innovative practices.
- Improving education quality through remedial classes, learning camps & teacher learning material
- Providing special scholarships
- Improving school infrastructure through refurbishment

- Setting up libraries & science labs Providing sports material

  In addition, HDFC Bank has also introduced Smart Classes across different states to integrate technology with education.

categories	benefitted (in lakhs)
teachers benefitted	20.16
schools supported	2.83
students impacted	213
community libraries built	0.93

Table 2 Benefits of Promotion of Education

Table 2 depicts the progress this initiative has gained under Parivartan scheme. The initiative has benefitted over 20.16 lakh teachers by providing training for pedagogy and soft skills. Over 2.83 lakh schools get benefit in the form of infrastructure facilities, improved quality of education and much more.

HDFC Bank Parivartan in alliance with the Khan Academy India is making and distributing high-quality learning resources that are available in regional

languages to equip students with better foundational understanding of math and improve their learning outcomes.

Pillar -3 – Skill Training and Livelihood Enhancement

The Bank supports several projects focused on building skill & competency, thus empowering the disadvantaged to gain access to better opportunities. Its Sustainable Livelihood Initiative (SLI) has made a difference in the lives of lakhs of women by creating long-term sustainable solutions through Self-Help Groups (SHGs) & Joint Liability Groups (JLGs). Under Skill Training & Livelihood Enhancement, Parivartan supports multiple projects that are focused on:

- Competency-based skill-oriented training & placements
- Capacity-building Promoting financial literacy
- Promoting credit & entrepreneurial activities
- Upskilling for agricultural & allied practices

categories	benefitted (in lakhs)
women entrepreneurs trained	8.75
individuals trained	3.01
SHGs revived	0.1

Table 3 Benefits of Skill Training and Livelihood Enhancement

Today, the SLI is harnessing the collective power of women's groups to make an impact in village communities through health & sanitation programmes. Table 3 depicts the progress of SLI as over 8.75 lakh women entrepreneurs got competence-based training to improve skills. Over 3.01 lakh individuals got capacity building training and promotion of financial literacy. Over 10000 SHGs revived by providing credit facilities and promoting entrepreneurial activities.

Pillar-4- Healthcare & Hygiene

HDFC Bank has been actively championing the cause of Swachh Bharat through several sanitation projects. The focus is not only on providing sanitation infrastructure but also on fostering behavioural changes. Under Healthcare & Hygiene, the key interventions are focused on championing the Swachh Bharat

Abhiyan through: Awareness that brings about behavioural change Toilet construction Conducting various health camps Generating awareness about nutrition Providing access to clean drinking water Conducting blood donation drives.

categories	benefitted (in lakhs)
household toilets constructed	0.24235
units of blood donated	23
people benefitted through health camps	1.87
sanitation drives conducted	0.181
health camps conducted	0.701

Table-4 Benefits of Health & Hygiene

Table 4 depicts the work done under health & hygiene pillar. Approx. 24,235 household toilets constructed to provide better sanitation conditions. Around 18000 sanitation drives conducted under the scheme for creating awareness among people. The bank also conducts an annual blood donation drive which has been considered as the largest effort of its kind by Guinness World Records.

A record 18lakh plus units of blood were collected during its December 2019 drive.

Pillar-5 -Financial Literacy and Inclusion

HDFC Bank Parivartan conducts financial literacy workshops to enable communities to make smart financial decisions & sustain themselves. The Bank aims at imparting essential knowledge about investments & savings along with information on how to access organised finance sources. It includes disseminating information on general banking, carrying out credit counselling in schools & colleges, as well as among senior citizens & pensioners.

This is done by:

- Conducting financial literacy camps
- Nurturing Self Help Groups (SHGs)

categories	benefitted (in lakhs)
financial literacy camps conducted	23
individuals reached	171

Table -5 Benefits of Financial Literacy and Inclusion

Table 5 depicts that over 23 lakh financial literacy camps were conducted PAN India under the scheme and over 1.71 crore individuals were reached through this scheme to learn and gain some knowledge about investments and savings to make them financially literate.

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Analysis

Chart-1 SDGs achieved by Parivartan Scheme

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As chart -1 and table -6 indicates the various SDGs achieved by Parivartan so far through its 5 pillars. Parivartan's five pillars, namely Rural Development, Promotion of Education, Healthcare and Hygiene, Skill Development & Livelihood Enhancement and Financial Literacy & Inclusion contributes to 9 SDGs out of the 17 laid down by the UN. Almost 50% of the total.

	SDGs met													
Pillars	SDG 1	SDG 2	SDG 3	SDG 4	SDG 5	SDG 6	SDG 7	SDG 8	SDG 9	SDG 10	SDG 11	SDG 12	SDG 13	
Rural Development	0	1	0	0	0	1	1	0	0	0	0	1	0	
Skill Development and	0	1	0	1	1	0	0	1	0	0	0	0	0	

Livelihood Enhancement														
Promotion of Education	0	0	1	1	0	0	0	0	0	0	0	0	0	
Healthcare and Hygiene	0	0	1	0	0	1	0	0	0	0	0	0	1	
Financial Literacy and Inclusion	0	0	0	0	0	0	0	1	0	0	0	0	0	

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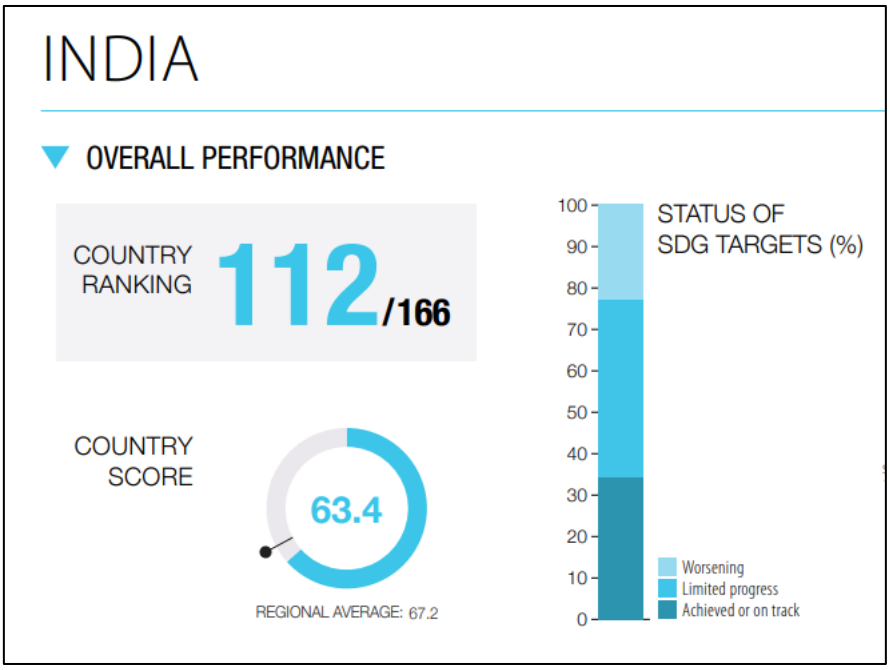
Table-6 Specific SDGs achieved by various pillars of Parivan

As per Sustainable Development Report 2023 India has a country ranking of 112/166 and a country score of 63.4. On statistical performance index India has reached a pretty good level of 78.2 score which indicates the efforts done in the direction of sustainable development. HDFC bank is doing its bit in this area by contributing in as much as 9 out of 17 SDGs.



Source: https://unstats.un.org/sdgs/report/2023/

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Conclusion

Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development				
SDG	Goals and targets (from the 2030 Agenda for Sustainable Develop	Indicators	UNSDIndicator Code	DESCRIPTION OF SDG MET BY HDFC BANK

	ment)		e s	
2	2.1 By 2030 , end hung er and ensu re acce ss by all peop le, the poor and peop	2.1 .1 Prev alenc e of unde rnour ishm ent	C 0 2 0 1 0 1	HDFC Bank Parivartan has created non-farm-based employee opportunities to double farmers' incomes. Using productive resources, farmers are trained on livestock management, thus, benefitting indigenous people, women, and villagers.

	le in vuln erabl e situa tions , inclu ding infan ts, to safe, nutri tious and suffi cient food all year			

	roun d			
2	2.4 By 2030 , ensu re susta inabl e food prod uctio n syste ms and impl eme	2.4 .1 Prop ortio n of agric ultur al area unde r prod uctiv e and susta inabl e agric	C 0 2 0 4 0 1	Promoting sustainable agriculture through better water management systems by construction of check dams, farm ponds, community ponds and irrigation systems

	nt resili ent agric ultur al pract ices that incre ase prod uctiv ity and prod uctio n, that help	ultur e		

	main tain ecos yste ms, that stren gthe n capa city for adap tatio n to clim ate chan ge, extre			

	me weather, drought, flooding and other disasters and that progressively improve land and			

	soil quality			
2	2.5 By 2020, maintain the genetic diversity of seeds, cultivated	2.5.1 Number of (a) plant and (b) animal genetic resources for food and agric	C 0 2 0 5 0 1	The bank introduced kitchen gardens in villages in several states to promote sustainable agriculture and ensured improved nutrition to the families while successfully ending hunger. It has facilitated creation of over 40,000 kitchen gardens Empowering farmers through capacity building. Creating Seed Bank, Grain

	plants and farmed and domesticated animals and their related wild species, including thro	ulture secured in either medium-or long-term conservation facilities		Bank, Village Nursery and supporting field research to achieve food security

	ugh soun dly man aged and diver sifie d seed and plant bank s at the natio nal, regio nal and			

	inter natio nal level s, and pro mote acce ss to and fair and equit able shari ng of bene fits arisi			

	ng from the utilization of genetic resources and associated traditional knowledge,			

	as inter natio nally agre ed			
3	Ensu re healt hy lives and pro mote well-bein g for all at	NO SPECIFIC GOAL MET AS PER GUIDELINES PROVIDED BUT SOMEHOW FALLS IN THIS CATEGORY		Parivartan has included sports as one of the fundamentals of education to ensure healthy lives of children while promoting their well-being. The bank has facilitated training of hockey, football and other sports while also ensuring access to the requisite sports equipment

	all ages			. Under Parivartan, the bank has helped villagers create Kitchen Gardens to improve access to nutritious food and ensure healthy lives
3	3.8 Achieve universal health coverage, including financial	3.8.1 Coverage of essential health services	C030801	By organising health camps and health infrastructures the bank has adopted precautionary approach while helping vulnerable communities prevent themselves from communicable and non-communicable diseases. The bank has also set a Guinness

	risk protection, access to quality essential health-care services and access to safe, effec			World Record in organising largest blood donation drive

	tive, quality and affordable essential medicines and vaccines for all			
4	4.3 By 2030,	4.3.1 Participati	C04 0	Under Parivartan, the bank is working to provide access to affordable, technical

	ensure equal access for all women and men to affordable and quality tech	on rate of youth and adults in formal and non-formal education and training in the previ	3 0 1	and vocational education. The bank has trained over 1.60 lakh individuals under its Skill Development programme keeping with principles of equity and inclusivity.

	nical, vocational and tertiary education, including university	ous 12 months, by sex		
4	4.c By 2030, subst	4.c.1 Proportion of	C04 0c	To further improve the access to inclusive and equitable quality education, the bank has undertaken several

	antia lly incre ase the supp ly of quali fied teac hers, inclu ding thro ugh inter natio nal coop erati	teach ers with the mini mum requi red quali ficati ons, by educ ation level	0 1	initiatives including remedial classes, learning camps, training the teachers and by offering scholarships. The bank has also created requisite infrastructure for students from underprivileged background to access education in a safe and lively environment

	on for teac her train ing in deve lopin g coun tries, espe ciall y least deve lope d coun			

	tries and small island developing States			
5	5.5 Ensure women's full and effective	5.5.2 Proportion of women in managerial	C0505002	Parivartan has formed/revived over 7,500 SHGs with an aim to empower women in rural India. The initiative has strengthened the cause of achieving gender equality by enabling

	participation and equal opportunities for leadership at all levels of decision-making in	l positions		the women to achieve better livelihood opportunities

	polit ical, econ omic and publi c life			
6	6.1 By 2030 , achi eve univ ersal and equit able acce ss to	6.1 .1 Prop ortio n of popu latio n using safel y mana ged	C 0 6 0 1 0 1	. Ensuring availability of clean drinking water and promoting sustainable management of water through construction of Rainwater Harvesting Structures, Community Tanks, Hand Pumps and Wells.

	safe and affordable drinking water for all	drinking water services		
6	6.2 By 2030, achieve access to adequate	6.2.1 Proportion of population using (a)	C0602001	. With creation of over 28,800 sanitation units across India, the bank has been steadfast in giving access to clean sanitation facilities for all despite terrain related changes. By making adequate and equitable sanitation

	and equitable sanitation and hygiene for all and end open defecation, paying special	safely managed sanitation services and (b) a hand-washing facility with soap and water		accessible, the bank has helped end Open Defecation and offered women their dignified access to sanitation

	attention to the needs of women and girls and those in vulnerable situations			

7	7.b By 2030, expand infrastructure and upgrade technology for supplying modern	7.b.1 Installed renewable energy-generating capacity in developing countries (in	C2002208	. Adopting renewable energy to provide affordable, reliable, sustainable and accessible modern energy through installation of Solar street lights, Biomass Stoves, Community Biogas Plants and Distribution of Solar Home Lights

	and sustainable energy services for all in developing countries, in particular least deve	watts per capita)		

	lope d coun tries, smal l islan d deve lopin g State s and landl ocke d deve lopin g coun			

	tries, in accordance with their respective programmes of support			
8	8.2 Achieve high	8.2.1 Annual	C08 0	The bank has trained over 1.04 lakh farmers through exposure visits and diverse

	er level s of econ omic prod uctiv ity thro ugh diver sific ation , tech nolo gical upgr adin g	grow th rate of real GDP per empl oyed perso n	2 0 1	agricultural training programmes for their sustained economic growth. Through varied capacity building initiatives, the farmers are able to seek full and productive employment

	and inno vatio n, inclu ding thro ugh a focu s on high - valu e adde d and labo ur-			

	intensive sectors			
8	8.3 Promote development-oriented policies that support productive	8.3.1 Proportion of informal employment in total employment, by secto	C0803002	Parivartan has empowered farmers through entrepreneurial programmes through financial as well as skill-based support. The bank has facilitated development of dairy cooperatives, poultry farms, integrated poultry-goat rearing-fishery units and other small business to ensure sustained and

	activities, decent job creation, entrepreneurship, creativity and innovation, and encourag	r and sex		inclusive growth of the people as well as the regio

	e the formalization and growth of micro-, small- and medium-sized enterprises, including			

	through access to financial services			
8	8.4 Improve progressively, through 2030, global	8.4.1 Material footprint, material footprint per capit	C2002	. Being financially literate opens up several avenues for an individual. Financial inclusion is a right. To ensure, further access to employment opportunities and sustainable economic growth of an individual, providing

	reso urce effic ienc y in cons umpt ion and prod uctio n and ende avou r to deco uple econ omic	a, and mate rial footp rint per GDP		financial literacy is fundamental

	growth from environmental degradation, in accordance with the 10-Year Framework			

	of Programmes on Sustainable Consumption and Production, with developed coun			

	tries taking the lead			
12	12.1 Implement the 10-Year Framework of Programmes on Sust	12.1.1 Number of countries developing, adopting or implementing	C120101	Through natural farming, formation of seed banks and FPOs, Parivartan has been able to help farmers in innovating their logistics and supply chain, thus enabling sustainable consumption and production patterns

	ainable Consumption and Production Patterns, all countries acting, with developed	policy instruments aimed at supporting the shift to sustainable consumption and prod		

	countries taking the lead, taking into account the development and capabilities of developin	uction		

	g coun tries			
1 3	13.3 Impr ove educ ation , awar enes s- raisi ng and hum an and instit	13. 3.1 Exte nt to whic h (i) globa l citize nship educ ation and (ii) educ ation	C 2 0 0 3 0 6	The bank has initiated a mass plantation drive and by far planted over 10 lakh trees as one of its urgent actions to combat climate change. The drive has also contributed in increasing the ground water levels and improved agriculture

	ution al capa city on clim ate chan ge miti gatio n, adap tatio n, impa ct redu ction and	for susta inabl e devel opme nt are main strea med in (a) natio nal educ ation polic ies; (b) curri cula;		

	early warning	(c) teacher education; and (d) student assessment		

Table-7 SDG report 2023 Source https://unstats.un.org/sdgs/report/2023/

Table-7 indicates the goals achieved by HDFC Bank's Parivartan initiative as per the guidelines provided by United Nations. As all mentioned pillars of Parivartan are covering the social aspect only from ESG, Bank's initiative has met the goals to maximum extent and impacted lives of many underprivileged and backward classes.

Following conclusions can be drawn by studying the table-7

1. SDG 2 has met by providing employment opportunities to increase income of farmers and also promotion of sustainable agriculture has been done through improved water management systems. The bank has also introduced 40,000 kitchen gardens to ensure improved nutrition. Creation of seed banks and grain banks empowered farmers by creating sense of food security.
2. SDG 3 has met only partially as it is including sports in education provides to some extent healthy lives of children but cannot be fully considered as the specific goals mentioned in the guidelines. However, by organising health camps has created awareness for health among people and setting a Guinness world Record in organising largest blood donation drive in Mumbai in December 2023 is a big achievement.
3. SDG 4 has met by providing access to affordable, technical and vocational education under skill development programmes and making teachers learn more skills to upgrade themselves for imparting knowledge.
4. SDG 5 has met by empowering women through formation/revival of approx. 7500 SHGs and providing them better livelihood opportunities.
5. SDG 6 has met by making available clean drinking water and promoting sustainable water management through construction of community tanks

and hand pumps etc. The aim of access to adequate and equitable sanitation and hygiene has been achieved by ending open defecation system and providing women dignified access to sanitation.

6. SDG 7 has met by providing affordable, reliable and sustainable energy services like installation of solar streetlights and community biogas plants.
7. SDG 8 has met by training over 1 lakh farmers through entrepreneurial programmes and providing financial as well as skill-based support.
8. SDG 12 has met by formation of seed banks and FPOs to enable sustainable consumption and production patterns for farmers.
9. SDG 13 has met by initiating mass plantation drive and already planted over 10 lakh trees to meet the climate change goal.

Recommendations

The concept of Sustainable Development Goals (SDGs) has been discussed since the early 1990s, but it wasn't until 2015 that they gained significant traction, with the United Nations adopting the 2030 Agenda for Sustainable Development comprising 17 SDGs. HDFC Bank has made progress towards 9 of these SDGs through the promotion of its 5 pillars, which address various aspects of environmental, social and governance (ESG) concerns. However, there is still room for further efforts to fully align with the SDGs.

Limitations

HDFC Bank has embarked on a sustainability journey through its Parivartan Scheme. However, this paper exclusively focuses on the Parivartan initiative and does not delve into other facets or sectors of the Bank's sustainability efforts. Furthermore, while Parivartan's five pillars primarily address the social aspect of ESG (Environmental, Social, and Governance), there is a notable absence of coverage on the economic and governance domains of ESG.

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