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Investigating the Influence of Artificial Intelligence Engagement on Cognitive Flexibility and Interpersonal Relations: A Study of Cognitive and Interpersonal Parameters

Dr. Sunayna Iqbal

Senior faculty, Department of Business and Management, Claud Littner Business School, University of West London, RAK Academic Zone, UAE, sunaynaiqbal@gmail.com

This study explores the potential impact of artificial intelligence (AI) engagement on human cognition and social interaction. Though the benefits which artificial intelligence offers is invaluable, blind revelry and engagement should not cost us a depletion of valuable skills which have been painstakingly honed over the years. The multifaceted influence of artificial intelligence usage on two key human skills; cognitive flexibility and social skills is examined. A questionnaire adapted from established measures was administered among 165 participants from varied professions and age groups with varying levels of artificial intelligence usage in their daily lives. The critical role played by cognitive flexibility and social skills are examined along with the need to develop them. Unlike the popular arguments against AI usage, the findings indicate a positive correlation between AI use and cognitive flexibility as well as interpersonal relations in the sample. AI usage is found to have predictive significance on cognitive flexibility as well. The paper discusses these observations and offers suggestions for balanced human- AI interaction to ensure optimum AI usage with respect to these parameters. A responsible integration of AI into human lives by harnessing the most out of the numerous artificial intelligence applications while safeguarding cognitive development and social relationships is advocated.

Keywords: Artificial Intelligence, Cognitive Flexibility, Interpersonal Parameter, Responsible Integration.

1. Introduction

Artificial Intelligence (AI) has undoubtedly taken our lives by storm, becoming a ubiquitous presence, transforming the way we work, interact, learn and even think. The benefits which it brings to the table are undeniable. However, while we revel at the benefits, a critical examination of the potential impact it has on our cognitive and social abilities is warranted. This paper examines the topic through a critical lens, investigating the influence of AI

engagement on cognitive and social parameters. It is important to distinguish between passive consumption of information through traditional search engines and active engagement with AI. The latter simulates human interaction leading to implications on the cognitive development and skills of users. AI systems can process vast amounts of data at speeds unmanageable by human brain, thereby aiding in decision- making. The question is if this dependence on AI would have repercussions on autonomy in human cognitive actions such as critical thinking and problem solving. AI chatbots, for instance, are not static information sources, but simulate human conversations and offers personalized interactions. This would result in cognitive reliance which is different from a person's reliance on static information sources (Dergaa et al., 2023). AI generated content/ solutions are not free from bias. Blind acceptance of such content is found to deprive humans of skeptical analysis and cognitive resilience. Exploration and in- depth learning is impacted by easily accessible curated content made available by AI, thereby hampering cognitive development. AI algorithms could trap humans in their echo chambers restricting exposure to diverse perspectives and ideas, thereby hindering cognitive flexibility. If AI systems based on deterministic models which operate on binary logic are used for decision making, users would find themselves being deprived of ability to think in shades of gray- leading to a fall in ability to handle ambiguity and complexity. Humans borrow from experience and stored information while making intuitive judgements. Over- reliance on AI solutions would reduce this sense of intuition (Dillu, 2023). Studies have shed light on how overreliance on AI chatbots leads to cognitive atrophy (Ismail Dergaa et al., 2024). Ongoing research aims to optimise AI usage while ensuring that it does not result in cognitive atrophy.

Another area of exploration is how AI usage impacts interpersonal relations and communication. The ability to smoothly navigate through complicated social situations and encounters is highly relevant for humans as this decides our ability to forge good relationships and collaborate effectively. Effective interpersonal relations warrant skills such as communication, empathy, conflict resolution and emotional intelligence. On one hand, AI based social robots and virtual assistants are increasingly used to enhance social skills such as language learning apps helping in improving conversational skills and robots used in therapeutic sessions to improve social behaviours. On the other hand, over reliance on AI could result in decline in face to face communication, interdependence, empathy and emotional bonding.

A report from McKinsey Global identifies the most important skills required by 2030. These include higher cognitive skills and social and emotional skills along with technological skills. Organisations surveyed at the World Economic Forum identified the top 10 skills for future employees which includes "people management, coordination and collaboration, emotional intelligence and cognitive flexibility". Thus this list sheds light on the importance of developing higher cognitive and social& emotional skills (Arabekian, 2019). In a survey conducted by McKinsey, two- thirds of the surveyed companies reported plans to step- up their investments in AI in workplace in the next few years. Taking into account this important trend, the cognitive, moral, social and psychological consequences of working with AI should not be ignored (McKinsey, 2021). A comprehensive analysis of how AI influences these two important aspects of human functioning, cognitive flexibility and interpersonal relations, shall be offered in this study. This research aims to shed light on the balanced approach one should

take towards integrating AI into ones professional and personal lives.

Cognitive Flexibility is defined as the ability to adjust ones behaviour in response to changing environment. "Cognitive flexibility is the ability to adapt our behaviour to achieve goals in a new environment" (World Economic Forum, 2021). This crucial skill enables an individual to disengage from a task they are involved in, weigh other options and if necessary implement the new ideas with least cognitive resistance. Sarkhedi, B. (2023) identifies the key elements of cognitive flexibility as "transition and attention, updating beliefs and cognition, multifaceted observation, deconstructing thoughts and expanded recognition". Thus CF encompasses several valuable abilities. It enables an individual to switch effectively between different ideas, update beliefs based on new information gathered, take into account multiple aspects of a situation, deconstructing complex concepts and thoughts into smaller manageable chunks and identifying diverse options to arrive at a solution.

CF forms the basis for the successful exercise of critical thinking, creative thinking and problem solving skills. This concept is often linked to 'openness' in the Big Five Personality Traits which involves actively looking for alternatives, questioning the established systems, beliefs, goals and plans, thinking out of one's echo- chamber and putting on a critical hat when needed. The importance is further emphasized in the Cognitive Flexibility Theory proposed by Spiro and Jehng (1990) which posits that it is essential to be cognitively flexible to move away from rigid knowledge structures and ideas.

As per the survey report from World Economic Forum which examined the future of jobs across nine industries in fifteen economies around the world, increasing emphasis will be placed on cognitive skills such as adaptability and creativity in the coming years (World Economic Forum, 2021). Hence developing cognitive flexibility should be a priority for any forward looking professional who aims to keep pace with the rapidly changing work environment.

By honing cognitive flexibility, an individual is trained to approach problems from different angles, weighing varied available options. Shifting between perspectives and thinking creatively is facilitated. Once different options or approaches are clear, the skill to adjust and pivot is necessary. Maintaining an open mindset to new approaches facilitates enhanced learning and creative thinking. Without CF, an individual would find it hard to shift between situations/ concepts/ tasks effectively. Thus CF is important both at macro and micro scale (Miller, 2021). An integrative review of literature by Martins, J.T. and Gonçalves, J. (2022) observed that CF has been linked to ability to adapt and plan and interpersonal relationships. Ruminating about the uncertainties thrown at the human race during the pandemic in 2019, Roxana Samaniego, (2021) emphasizes on the need to develop the powerful tool of psychological flexibility which encompasses cognitive, behavioural and emotional flexibility. This is considered to include adapting to ever changing situational demands, reconfiguring mental resources and shifting perspectives among others. High CF is found to be associated with psychological well-being and effective coping. This skill is stated as an essential for survival as well as success in long- term goal oriented tasks.

Study by (Gabrys et al., 2018) found that CF plays an important role in effectively managing stress. People with higher CF are observed to adapt to stressful situations better, use coping mechanisms more effectively and thereby experience lower levels of cortisol stress hormone.

Generation of original ideas (creativity) is also found to be a function of CF and cognitive persistence (Nijstad et al., 2010). Good performers are found to be more flexible cognitively with better adaptability to changing environment in complex problem solving tasks (Cañas et al., 2003). Studies have highlighted the association between CF and resilience. Flexibility in shifting between processing different sets of information is found to avoid rigidity in emotional functioning and thereby promotes resilience (Schwager & Rothermund., 2014). CF is found to be crucial in decision- making, inter- personal interactions and general well-being. Those with higher CF levels are found to have better coping strategies when faced with challenges. Lower level of CF is often considered insightful in predicting neurological disorders such as autism and schizophrenia (Quenten, Highgate., Susan, Schenk. ,2021). Individuals with higher CF scores are observed to have better entrepreneurial capabilities as they believe in their ability to start new ventures and are driven by stronger intentions (Dheer and Lenartowicz, 2017). This is supported by the finding that better CF is found to enable a person to manage dynamic work settings, come up with creative ideas and keep up with fast paced environments (Subramaniam, 2022). Enhancing CF levels in students is found to contribute to better and deeper understanding of complex concepts, thereby leading to better academic performance (Rhodes and Rozell, 2017). Similarly, CF is found to be crucial for students as a higher order thinking skill, enabling them to solve complex problems by generating multiple ideas and deploying different problem solving strategies in mathematics education (Sugilar and Nuraida, 2022). This thought is echoed by Clément.E, (2022) who stresses on the importance of CF in problem solving, development of creativity and improvement in academic scores. Adolescents who attended 15 CF trainings recorded improvement in motor functioning, language comprehension and processing, memory and general knowledge, thereby highlighting the importance of integrating CF trainings into the curriculum (Parisa Rostambegyi et al., 2021). At the same time, study by Erarslan et al, (2021) emphasized the importance of CF among educators to ensure effective teaching and learning, with specific focus on unexpected disruptions like the COVID 19 pandemic.

Those with high CF scores are found to be associated with increased brain functioning. They are found to have 'exceptional comprehension and fluency associated with higher levels of fluid intelligence, reading and an expanded sense of awareness' (Psychology for ALL, 2019). On the other hand, those with lower CF scores are found to face difficulty in adapting to behavioural, psychological, environmental or technological changes. They are often referred to as people with 'tunnel vision'. Such individuals would struggle to shift between approaches or perspectives, thereby locking themselves into a single way of looking at the problem/ task. They tend to ignore data to the contrary, subjecting themselves to cognitive biases. The repercussions of such inflexibility and selective perceptions can be dangerous in certain situations.

Interpersonal Relations

Interpersonal relations refer to the interactions, exchanges and relations between individuals and is a broad term which is constituted by multiple elements such as communication, trust and empathy. Interpersonal relations are "reciprocal social and emotional interactions between persons" (Griffin, 1990). In the work front, it helps to build rapport with customers and colleagues and enables facing complex work dynamics smoothly. According to Pearson and Google's Global Research Report, the solution to future proof one's job is developing

interpersonal skills such as leadership, team working and problem solving (Pearson plc, 2023). Strong interpersonal relationships are forged with the efficient use of these skills. Such relations have a direct bearing on our psychological and physiological well-being (Alwi, 2020) and professional success. Interpersonal relations were found to foster mutual assistance, knowledge sharing between colleagues, a sense of acceptance and easy communication leading to conducive work environment and thereby better productivity (Quarmyne, Henry. ,2018). Furthermore, effective collaboration and performance within a team is found to be dependent on not just contributory expertise but interactional expertise (Love et al., 2021).

Positive interpersonal relationships increase self-esteem, self- efficacy beliefs and autonomy (Riggio et al, 1990). Incapacity to forge such relations result in social isolation, anxiety and depression. The role of interpersonal relations in ensuring psychological and physiological well- being is adequately evidenced in existing literature. Such relations are bound to resolve marital and familial discords better (Lewis, 1998). The role of social skills in improving the performance and career advancement opportunities were observed by An-Ping Lin (SMU, 2023). Furthermore, study conducted by Begum, B., (2024) highlights the positive correlation between interpersonal relations and quality of work life.

In the absence of effective interpersonal relations between teachers and students, cognitive and emotional development of the student cannot be achieved (Weber, 2007). Interpersonal relations are found to enhance the overall well-being of university students by predicting emotional stress and is found to have a direct bearing on their academic performance (J. Parameswari, 2015). A failed application of AI in education was the much publicized 'Summit Learning'- a customized teaching system supported by Chan Zuckerberg Initiative. This system replaced human contact hours with interactive screens which faced severe backlash from students and parents alike. It was reported to lead to depression, anxiety and fatigue in students, resulting in 80% of parents voting against it and students staging walkouts complaining it "kept them busy at computers rather than working with teachers and classmates" (Andrejevic, M., 2019). This highlights the relevance of developing interpersonal relations and interactions in the learning environment.

Research Questions

1. To what extent does Artificial Intelligence (AI) engagement influence the cognitive flexibility of users?

2. Does Artificial Intelligence (AI) engagement in daily life lead to a decline in interpersonal relations of users?

3. How can AI usage be optimized to enhance cognitive flexibility and social skills?

Statement of the Problem: Like any other skill, practicing CF is essential to create and retain the neural pathways in the brain which leads to further development of cognitive flexibility. With AI offering ready answers, there are concerns that individuals would exercise this skill at a reducing pace and frequency and thereby would be devoid of it which equips them to objectively analyse information available, weigh the pros and cons, make reasoned judgements to resolve the problem. Undoubtedly, with readymade answers offered by AI, users save valuable time and effort but this should not be at the cost of diminishing critical thinking and analytical skills. While AI can be a valuable tool, concerns arise about it overshadowing our

cognitive processes and leading to erosion of interpersonal relations instead of complimenting them. Though AI is increasingly being used to offer emotional support and personalized responses, it cannot replace human interactions and the benefits it brings to the table. Amidst rapidly increasing use of AI and growing concerns about its impact on these variables, it is imperative to carry out detailed research in the field. We should be able to optimize the use of AI. Prior to that, its impact on critical thinking skills, ability to generate new ideas and forge meaningful relations should be examined carefully, so that it does not result in stifling our intellectual and cognitive autonomy and interpersonal interactions.

Research Gap: AI usage and its capacity to enhance efficiency in various domains are well explored and documented. However, the potential impact on human cognition, interpersonal relations, developmental capacity, competency development remains a topic of nascent research. Very few studies have explored the impact of AI usage on the selected two parameters. This was a road block faced by the researcher while searching for existing literature on the topic. Existing studies focus primarily on specific AI applications like chatbots and social media algorithms and their impact on social interactions. The broader influence of AI usage on adaptability to novel situations is not sufficiently explored. Similarly, the cumulative influence of AI engagement on the ability to build and navigate social relationships remains unexamined. This gap necessitates a comprehensive examination of the impact of AI usage on both cognitive and social domains.

In this study, though the responses are collected from those who have been using AI for at least one year, additional experimental controls and measures are required to establish causal relationship between the variables. The findings of this study offers exploratory insights which have to be followed up with longitudinal studies to get a clearer understanding of how AI usage over a period of time might influence cognitive flexibility and interpersonal skills. Furthermore, AI usage is measured in terms of number of hours of use of AI and the purpose for which it is used. More nuanced measures of AI engagement such as types of AI engagement could be incorporated in future studies.

2. Literature Review

An impact paper which explored the cognitive, emotional and moral implications of working with AI observed that cognitive flexibility is found lacking in AI, citing the example of AlphaGo. Humans are noted to sub- consciously assimilate into others for improving the effectiveness of interactions. So, when humans interact with AI, the absence of cognitive flexibility is bound to rub off on humans too. Hence it is argued by the authors that interactions with AI would result in depletion of cognitive flexibility in individuals (Hoang, Lee and Lup, 2023). 91.2% of the participants of a study by Doulani and Sugathan.M. (2023) reported to be using AI- based learning systems and the study found that dependency on AI led to loss of creativity, fall in creative thinking, critical thinking and cognitive redundancy. The more intelligent the AI algorithms used, the more would be cognitive rigidity in the users as observed by Zhang and Nauman, (2019). Extent use of intelligent algorithms are found to lead to decline in overall cognitive performance. Regular use of AI is found to have both positive and negative impacts on crucial cognitive functions such as ‘attention, memory, addiction, novelty- seeking and perception, decision making, critical thinking and learning abilities’ as

observed by Shanmugasundaram, M., & Tamilarasu, A. (2023). Out of these, 'novelty seeking and perception' is closely connected to cognitive flexibility. Amplification of certain personalized content by AI would push the users into echo chambers and perceptual filter bubbles. These information echo systems would continue alignment with existing beliefs, reinforce perception biases and shut doors to new perspectives. Heavy AI users get used to instant gratification through instant feedback offered by AI, thereby limiting the tendency to explore varied perspectives and if needed switch between these.

Study on children's reliance on AI tools for problem solving and decision making highlighted that while children need to be offered opportunities to exercise these skills independently, AI usage leads to circumventing these processes, thereby impacting these developmental processes adversely (Chiong and Shuler, 2010). There is a continuum which needs to be followed in cognitive development of humans and AI tends to disrupt this by circumventing critical phases. Dolan, (2024) observes that unlike earlier technologies, AI apps like ChatGPT has the ability to generate ideas, solutions and is capable of offering a complete plan from start to finish. This results in potential risk of "cognitive offloading", leading to a decline in humans' ability to perform cognitive tasks independently.

Study among university students observed that the impact of AI on loss in decision making and laziness is significant. AI accounted for 68.9% of laziness and 27.7% of loss of decision making among young adults (Ahmad et al., 2023). This would undoubtedly lead to a decline in cognitive skills such as CF, critical thinking, problem solving etc which would remain untapped due to laziness. Due to increased laziness, handling tasks such as decision making and problem solving would be further assigned to AI thereby students becoming less experienced in shifting between and considering varied perspectives. This results in a never-ending loop.

The social implications of using AI in communication was explored by Hohenstein et al., (2023) in the context of "algorithmic response suggestions (smart replies)". Experiments conducted by the researchers indicated that these algorithmic recommender systems change the way people form perceptions of each other and interact with one another. Though AI improves communication speed and facilitates communication in more emotionally positive language, overt use of AI would result in participants perceiving each other as less cooperative and more dominant. This could be attributed to the general negative perception about use of AI in social relationships. Though interpersonal relationships could be affected both positively and negatively, as per this study, the longitudinal implications are to be analysed further. AI interaction is also found to influence how we perceive and interact with others, which has a bearing on our social competence. Personalized algorithms are observed to result in polarization in opinions and social outlook. Amplified misunderstandings about others' intentions and emotions, skewed and biased perception about others' lives significantly influences a person's desire and confidence to interact socially.

Though communication is made faster and easier, AI's ability to replace human emotions and relations is debatable. AI companions are observed to offer emotional support. However, social isolation is also caused due to AI use resulting in a decline in sense of community and connection with others (Banafa.A, 2023). We are increasingly interacting with chatbots, virtual assistants and companion robots resulting in erosion of social and face-to-face

interactions. AI may enhance communication and relations by personalising responses and content, but it creates 'filter bubbles', thereby limiting our exposure to varied view points and perspectives (Code, A.L., 2023). Though AI can be designed to identify and respond to human emotions and thereby provide emotional support, its ability in this regard is limited and hence over reliance on AI for emotional support would result in dehumanizing (Gerges,R., 2023). Reliance on virtual assistants is found to deprive children of developing important nuances in human interaction such as tone, mood and emotions. Facial recognition facilitated by AI would interfere with development of human skills in understanding facial expressions which is deemed to be an important element of emotional intelligence required to maintain effective relationships (Dillu.D., 2023)

When it comes to the impact that AI usage has on interpersonal perception creation in a professional setting, it was observed by Weiss et al., (2022) that use of AI created negative interpersonal perceptions about job applicants in terms of their warmth, social attractiveness and competence. In the experiment conducted among 208 respondents, compared to the controlled group where no AI assistance was sought, the experimental group reported reduced interpersonal relationship satisfaction when AI assistance was used to carry out a relational task (Liu, Kang and Wei, 2023).

AI mediated communication (AI-MC) can definitely enhance the efficiency of interpersonal communication by generating appropriate responses, recommending and modifying messages to facilitate achievement of the objectives of communication. However, it is noted that increased use of AI in communication would give rise to practical and ethical concerns (Naaman, M., 2022). Mixed findings were reported by Mieczkowski et al., (2021) too in this context. AI generated language is found to have a positivity bias which has a positive impact on communication tone and message. At the same time, AI generated communication is found to undermine certain aspects of interpersonal perception like social attraction. Similarly, when it comes to AI mediated communication technologies (AICTs), it was found that people have a tendency to overestimate others' use of AICT in communication and this results in decline in trust and rising misperceptions in their interpersonal relations (Purcell et al., 2023).

Study by Lai et al., (2023) examined the influence of AI on social adaptability of students from different age groups in China. Responses gathered from 1332 students indicated that AI was found to negatively predict social adaptability, relationship between parent and children and communication between parents and children. Among neuro- diverse individuals, the impact of chatbots are observed to worsen social isolation and dependency. As chatbots offer judgement free interactions, it attracts vulnerable persons and they would to an extent relieve social anxiety in them. However, it is found to soon develop into dependency and withdrawal from actual human interactions and relationships. The inability of chatbots to display empathy and emotional skills would further reinforce dysfunctional behaviours in such individuals (Franze, Galanis and King, 2023). These concerns are echoed by (Emily Brosky, 2023) who observes that AI reliance would result in fall in in-person communication and result in social isolation, specifically among young adults in the age group of 18-26 years whose AI engagement is notably high. Nurturing social relationships and social bonds would become more difficult with extent use of AI. Maintaining eye- contact, nurturing relationships through conversation and physical touch are found to be challenging for young adults due to immersive use of AI.

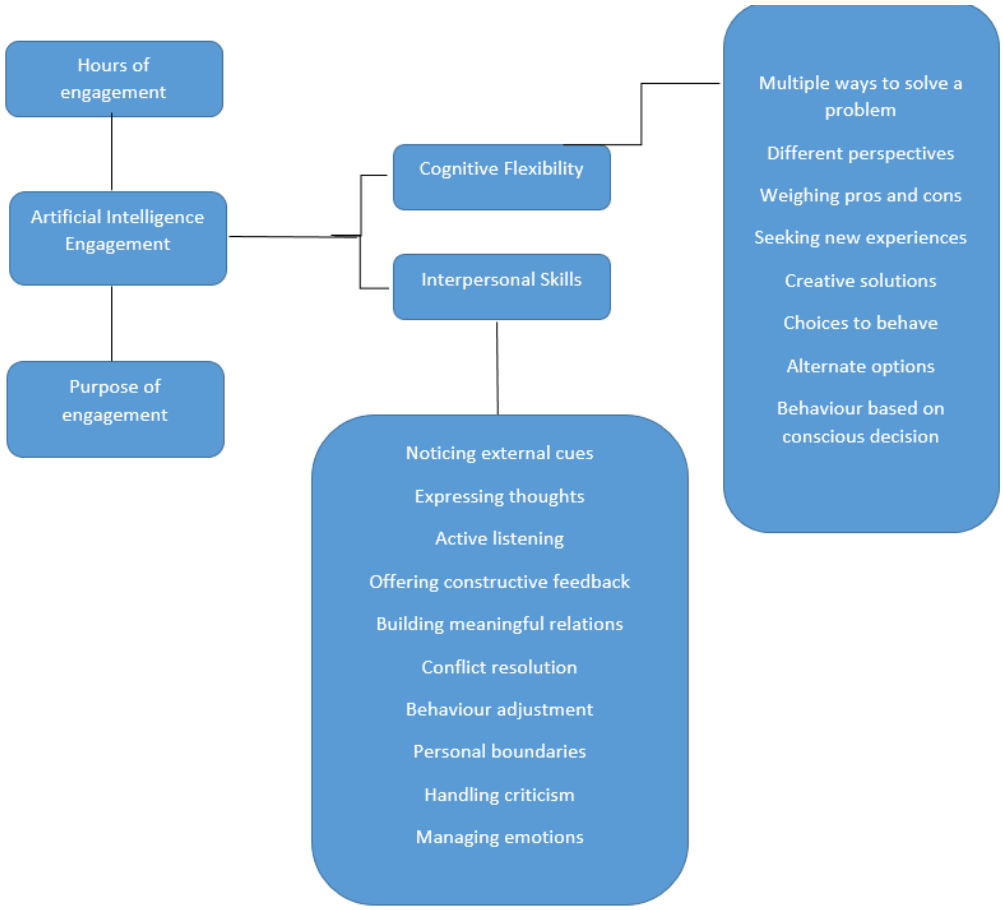
Use of AI filters in interactions is found to depersonalize individuals thereby leading to moral disengagement. This is found to, in turn, negatively affect ethical behaviour in social interactions. Using blur filters to manipulate appearance is observed to have a significant negative impact towards those who use such filters. The study concludes that though AI offers creative ways to manage perceptions, the negative impacts on interpersonal dynamics necessitates development and implementation of ethical guidelines in AI use (Köbis et al., 2023).

3. Methodology

This study is exploratory in nature in which potential relationships and patterns between the chosen variables are investigated. These findings made in the early- stage of AI use shall offer insights for future research in this area. The study employs a cross- sectional design as data is collected at a single point. To establish causal directionality, a criterion mentioned in the data collection instrument is that responses should be submitted only if AI apps/ tools have been used for at least on year. This would serve as a baseline to assess the causal relation between AI use and the variables. Quantitative data collection was carried out by administering a 24-item questionnaire with specific components to assess cognitive flexibility, interpersonal skills and AI use. A 5-part structured questionnaire was developed with sections eliciting demographic information of the respondents and assessing the variables under study. Convenience sampling was adopted as the online survey link was shared via LinkedIn and other professional networking circles. Care has been taken to exclude responses from persons below 18 years of age to avoid ethical concerns. Data was analysed and reliability checked using SPSS software. Descriptive statistical analysis was carried out with mean and standard deviation. Inferential analysis was carried out with correlation and regression.

The Cognitive Flexibility Inventory (CFI) was developed by Dennis and Vander Wal (2010) consisting of 20 question statements. This instrument covers two sub scales; namely; control subscale and alternatives subscale. A more concise scale consisting of 12 questions was initially developed by Martin and Rubin (1995). An adaptation of the above two has been used for assessing cognitive flexibility in this research. Each item is rated on Likert scale with 5 for strongly agree and 1 for strongly disagree. Questions have been reworded to avoid reversing item scores subsequently. Interpersonal skills are measured using a set of 10 items which covers communication, empathy, social skills, adaptability and self-regulation.

After careful review of literature, the following conceptual model was developed:



Conceptual model developed by author

Data Analysis and Interpretations

Reliability of the Data

Cronbach Alpha test carried out to test the reliability of the data set revealed a reliability score of 0.885. As the score is within acceptable range, data is considered reliable to carry out further tests and analysis.

Table 1.

Case Processing Summary

		N	%
Cases	Valid	165	100.0
	Excluded[a]	0	.0
	Total	165	100.0

a. Listwise deletion based on all variables in the procedure.

Table 2.

Reliability Statistics

Cronbach's Alpha	N of Items
.885	24

Test of Normality

In order to pass assumptions of parametricity of data, the Kolmogorov-Smirnov Test for Normality and the Levene's Test for Homogeneity of Variance were carried out between the mean cognitive flexibility scores, the mean interpersonal skills and the independent variable (i.e.: AI Usage Hours). As per KSV, a high P value signified the prevalence of a normal distribution in cases 3 and 4. A high P value for Levene's test signified homogeneity of variance, thus accomplishing the assumptions needed to treat the data as parametric in nature.

Table 3.

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	AIusehours	Statistic	df	Sig.	Statistic	df	Sig.
cognitiveflexibilitymean	1	.184	106	.000	.824	106	.000
	2	.195	45	.000	.781	45	.000
	3	.282	5	.200*	.775	5	.050
	4	.208	9	.200*	.855	9	.084
interpersonalskillsmean	1	.131	106	.000	.902	106	.000
	2	.197	45	.000	.849	45	.000
	3	.185	5	.200*	.980	5	.937
	4	.176	9	.200*	.933	9	.510

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 4.

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
cognitiveflexibilitymean	Based on Mean	.183	3	161	.908
	Based on Median	.121	3	161	.947
	Based on Median and with adjusted df	.121	3	158.211	.947
	Based on trimmed mean	.126	3	161	.945
interpersonalskills	Based on Mean	.665	3	161	.575
	Based on Median	.554	3	161	.646
	Based on Median and with adjusted df	.554	3	149.393	.646
	Based on trimmed mean	.542	3	161	.654

Frequency Distribution

Among the respondents, 20-30 age group and 50 above age group constituted the highest numbers (42% each) and an almost equal distribution of male and female respondents (49.1% and 50.9%). Undergraduates made up the larger percentage, closely followed by post graduates. 42% who responded were students and 38% were corporate/ government employees. Maximum number of respondents reported AI usage of 0-2 hours, followed by 3-5 hours. 35% of the respondents mentioned that they use AI for research assistance (gathering information on specific topics or trends). The second most common usage was for content

generation (Developing and writing drafts for reports, emails, social media posts, articles, or presentations). Lowest usage was recorded for data analysis (9.1%).

Statistical Analysis: ANOVA

Age wise distribution of the dependent variable and independent variable means are tabulated and presented below. There exists statistically significant difference between different age groups with respect to AI use hours (P value for ANOVA 0.029. Significant at 5% level). No significant difference was observed between age groups in terms of cognitive flexibility or interpersonal skills. Among the age groups, higher means were noted for 30-40 and 40-50 age groups.

Table 5

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum
cognitiveflexibilitymean	1	70	3.99	.631	.075	3.84	4.15	1	5
	2	8	3.55	1.167	.413	2.57	4.52	1	5
	3	17	4.02	.772	.187	3.63	4.42	2	5
	4	70	3.94	.920	.110	3.72	4.16	1	5
	Total	165	3.95	.806	.063	3.83	4.08	1	5
AIusehours	1	70	1.33	.557	.067	1.20	1.46	1	3
	2	8	1.88	.641	.227	1.34	2.41	1	3
	3	17	1.88	.928	.225	1.41	2.36	1	4
	4	70	1.53	.944	.113	1.30	1.75	1	4
	Total	165	1.50	.801	.062	1.37	1.62	1	4
interpersonalskills	1	70	3.86	.540	.065	3.74	3.99	3	5
	2	8	3.61	1.249	.442	2.57	4.66	1	5
	3	17	3.67	.853	.207	3.23	4.11	2	5
	4	70	3.78	.714	.085	3.61	3.95	1	5
	Total	165	3.80	.693	.054	3.69	3.90	1	5

Table 6

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
nterpersonalskills	Between Groups	.888	3	.296	.612	.608
	Within Groups	77.908	161	.484		
	Total	78.796	164			
cognitiveflexibilitymean	Between Groups	1.535	3	.512	.784	.504
	Within Groups	105.011	161	.652		
	Total	106.546	164			
AIusehours	Between Groups	5.723	3	1.908	3.086	.029
	Within Groups	99.525	161	.618		
	Total	105.248	164			

Gender wise distribution of AI use, CF and interpersonal skills score is examined in the table below. It was found that there exists no statistically significant difference between AI usage, cognitive flexibility or interpersonal skills between males and females.

Table 6.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
interpersonalskills	Between Groups	.087	1	.087	.180	.672
	Within Groups	78.709	163	.483		
	Total	78.796	164			
cognitiveflexibilitymean	Between Groups	.202	1	.202	.309	.579
	Within Groups	106.344	163	.652		
	Total	106.546	164			
AIusehours	Between Groups	2.077	1	2.077	3.281	.072
	Within Groups	103.172	163	.633		
	Total	105.248	164			

Education wise distribution of means are tabulated and presented below. It is found that there exists statistically significant difference between people with different educational qualifications when it comes to AI use (P value for ANOVA 0.001. Significant at 5% level). No significant difference was noted between educational qualifications in terms of CF or interpersonal skills. Post graduates and those with professional qualifications are observed to maintain higher scores with respect to AI use hours.

Table 7

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum
cognitiveflexibilitymean	1	58	3.98	.637	.084	3.81	4.15	1	5
	2	38	3.94	.921	.149	3.64	4.24	1	5
	3	41	3.98	.774	.121	3.74	4.23	1	5
	4	20	3.91	.971	.217	3.46	4.37	1	5
	5	8	3.75	1.180	.417	2.76	4.74	1	5
	Total	165	3.95	.806	.063	3.83	4.08	1	5
AIusehours	1	58	1.28	.488	.064	1.15	1.40	1	3
	2	38	1.45	.724	.117	1.21	1.69	1	4
	3	41	1.66	.938	.147	1.36	1.95	1	4
	4	20	2.05	1.146	.256	1.51	2.59	1	4
	5	8	1.13	.354	.125	.83	1.42	1	2
	Total	165	1.50	.801	.062	1.37	1.62	1	4
interpersonalskills	1	58	3.83	.533	.070	3.69	3.97	3	5
	2	38	3.79	.769	.125	3.53	4.04	1	5
	3	41	3.81	.674	.105	3.60	4.03	1	5
	4	20	3.74	.821	.184	3.36	4.13	2	5
	5	8	3.63	1.155	.408	2.66	4.59	1	5
	Total	165	3.80	.693	.054	3.69	3.90	1	5

Table 8

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
interpersonalskills	Between Groups	.364	4	.091	.186	.946
	Within Groups	78.432	160	.490		
	Total	78.796	164			

cognitiveflexibilitymean	Between Groups	.447	4	.112	.169	.954
	Within Groups	106.099	160	.663		
	Total	106.546	164			
AIusehours	Between Groups	11.223	4	2.806	4.774	.001
	Within Groups	94.025	160	.588		
	Total	105.248	164			

Profession wise distribution of means are tabulated and presented below. It is found that there exists statistically significant difference between professions when it comes to AI use (P value for ANOVA 0.019. Significant at 5% level). Corporate/government employees have recorded higher usage followed by professional service providers. No significant difference was noted between professions in terms of CF or interpersonal skills.

Table 9

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum
cognitiveflexibilitymean	1	69	3.97	.632	.076	3.82	4.12	1	5
	2	12	3.57	.842	.243	3.04	4.11	1	4
	3	63	4.01	.852	.107	3.79	4.22	1	5
	4	19	4.04	.903	.207	3.60	4.47	1	5
	5	2	3.00	2.828	2.000	-22.41	28.41	1	5
	Total	165	3.95	.806	.063	3.83	4.08	1	5
AIusehours	1	69	1.32	.528	.064	1.19	1.45	1	3
	2	12	1.25	.452	.131	.96	1.54	1	2
	3	63	1.76	.979	.123	1.52	2.01	1	4
	4	19	1.42	.961	.221	.96	1.88	1	4
	5	2	1.50	.707	.500	-4.85	7.85	1	2
	Total	165	1.50	.801	.062	1.37	1.62	1	4
interpersonalskills	1	69	3.83	.528	.064	3.71	3.96	3	5
	2	12	3.41	1.060	.306	2.73	4.08	1	5
	3	63	3.83	.747	.094	3.65	4.02	1	5
	4	19	3.84	.423	.097	3.63	4.04	3	5
	5	2	3.15	2.616	1.850	-20.36	26.66	1	5
	Total	165	3.80	.693	.054	3.69	3.90	1	5

Table 10

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
interpersonalskills	Between Groups	2.861	4	.715	1.507	.203
	Within Groups	75.935	160	.475		
	Total	78.796	164			
cognitiveflexibilitymean	Between Groups	3.896	4	.974	1.518	.199
	Within Groups	102.650	160	.642		
	Total	106.546	164			
AIusehours	Between Groups	7.453	4	1.863	3.048	.019
	Within Groups	97.796	160	.611		
	Total	105.248	164			

In order to examine the distribution of CF mean between different purposes for which AI is used, the following analysis was carried out. However, it is observed that there exist no statistically significant difference CF scores between different purposes for which it is used.

Table 11

ANOVA
cognitiveflexibilitymean

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.565	5	.313	.474	.795
Within Groups	104.981	159	.660		
Total	106.546	164			

Similarly, interpersonal skills mean distribution between AI purposes was examined in the table below. It was noted that no statistically significant difference is recorded between the purposes of AI use and interpersonal skills score.

Table 12

ANOVA
interpersonalskills

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.622	5	.124	.253	.938
Within Groups	78.174	159	.492		
Total	78.796	164			

Correlation

Table 13

Correlations

			AIusehours	AIpurpose	cognitiveflexibilitymean	interpersonalskills
Spearman's rho	AIusehours	Correlation Coefficient	1.000	.075	.207**	.171*
		Sig. (2-tailed)	.	.336	.008	.028
		N	165	165	165	165
	AIpurpose	Correlation Coefficient	.075	1.000	.110	-.010
		Sig. (2-tailed)	.336	.	.161	.903
		N	165	165	165	165
	cognitiveflexibilitymean	Correlation Coefficient	.207**	.110	1.000	.547**
		Sig. (2-tailed)	.008	.161	.	.000
		N	165	165	165	165

	interpersonalskills	Correlation Coefficient	.171*	-.010	.547**	1.000
		Sig. (2-tailed)	.028	.903	.000	.
		N	165	165	165	165

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The correlation between AI usage hours and CF as well as Interpersonal skills were examined in the table above. Dependent variables were CF and interpersonal skills while the independent variable was AI usage hours. Spearmans' coefficient of correlation has been calculated for this purpose. Results indicate that there exists statistically significant positive correlation between both the dependent variables and independent variable. This shows that higher the AI engagement in terms of the number of hours' usage, higher would be the cognitive flexibility and interpersonal skills. The purpose for which AI is used is not found to have statistically significant relation with AI usage hours, cognitive flexibility or interpersonal skills.

Regression

Regression analysis was carried out to examine if the independent variable had predictive significance over the dependent variables. The results are presented in the tables below:

Regression: AI use and cognitive flexibility

Table 14

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.164[a]	.027	.021	.797

a. Predictors: (Constant), AIusehours

Table 15

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.881	1	2.881	4.530	.035[b]
	Residual	103.665	163	.636		
	Total	106.546	164			

a. Dependent Variable: cognitiveflexibilitymean
b. Predictors: (Constant), AIusehours

Table 16

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.705	.132		28.088	.000
	AIusehours	.165	.078	.164	2.128	.035

a. Dependent Variable: cognitiveflexibilitymean

Regression: AI use and interpersonal skills

Table 17

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.093[a]	.009	.003	.692

a. Predictors: (Constant), AIusehours

Table 18

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.686	1	.686	1.432	.233[b]
	Residual	78.110	163	.479		
	Total	78.796	164			

a. Dependent Variable: interpersonalskills

b. Predictors: (Constant), AIusehours

Table 19

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.674	.114		32.093	.000
	AIusehours	.081	.067	.093	1.197	.233

a. Dependent Variable: interpersonalskills

The above tables present the statistically significant predictive relation between cognitive flexibility and AI use at P less than 0.05. However, it is to be noted that there exists no predictive significance of AI use on interpersonal skills. Interestingly, AI usage is found to be a statistically significant positive predictor of cognitive flexibility.

Table 20

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.864	.117		33.126	.000
	AIpurpose	.033	.037	.070	.900	.370

a. Dependent Variable: cognitiveflexibilitymean

Table 21

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.750	.100		37.329	.000
	AIpurpose	.017	.032	.041	.529	.598

a. Dependent Variable: interpersonalskillsmean

The above tables present the examination of predictive significance of AI purpose of use on CF and interpersonal skills. It is observed that there exists no predictive significance in both these cases.

4. Discussion

Data was collected from 165 respondents via google forms for the purpose of this study. There was an almost equal representation of both genders. Students, academicians, corporate employees, professionals and entrepreneurs contributed inputs. Those from the age of 20 to above 50 were included in the survey and educational qualification wise, undergraduates to PhD holders were surveyed. AI engagement was measured in terms of number of hours' usage and the purpose for which AI was used. Maximum number of respondents reported using AI for 0-2 hours followed by 3-5 hours daily. Main purpose for which AI was used was reported as research assistance and content generation. Cognitive flexibility was measured via a set of 8 questions and interpersonal skills were measured via a set of 10 questions. Average of the responses to each set of questions were taken as the CF and Interpersonal skills measures.

Analysis of the data revealed statistically significant differences between different age groups, educational qualifications and professions with respect to AI use. Higher engagement was recorded by 30-40 and 40-50 age groups, constituted mainly by corporate employees and other professionals. Between educational qualifications, highest AI usage was noted among post graduates followed by professional qualification holders. It is interesting to note that there is no difference in AI use between males and females in this sample. Furthermore, there is no significant difference noted between age, gender, education and professions with respect to CF scores. The same is the case with interpersonal skills. Between the different purposes for which AI is used, no significant difference was noted between CF scores and interpersonal skills scores.

Correlation analysis carried out revealed statistically significant positive correlation between AI use hours and CF as well as interpersonal skills. This indicates that higher the number of hours of use of AI, higher is the CF and interpersonal skills score. Furthermore, statistically significant positive predictive significance is also observed between AI use hours and CF scores. No predictive significance is established between AI use hours and interpersonal skills though. This goes on to prove that an increase in number of hours of AI use would result in an increase in CF score. It would have been interesting to observe if there is a predictive relation between the purposes for which AI is used and CF and interpersonal skills. However, AI purpose did not establish significant predictive relation with CF or interpersonal skills.

The 30-50 age group of post graduates and professionals are noted to have recorded higher usage. AI tools often put forward multiple solutions which the users would have to consider and evaluate. This process could enhance CF as the brain is being trained to switch between different perspectives and approaches. By bringing forth insights and suggestions which might not have been considered by the user, it would stimulate creative thinking as well as integration of the new perspectives into their thought process. An alternate argument could be that by freeing up human cognitive resources from mundane, repetitive tasks, AI enables users to concentrate more on complex problem solving and critical thinking tasks wherein they exercise CF. Furthermore, real time feedback offered by AI tools would help users pivot between different approaches and make the needed adjustments. This scope for iteration offered by AI can be beneficial to enhance CF.

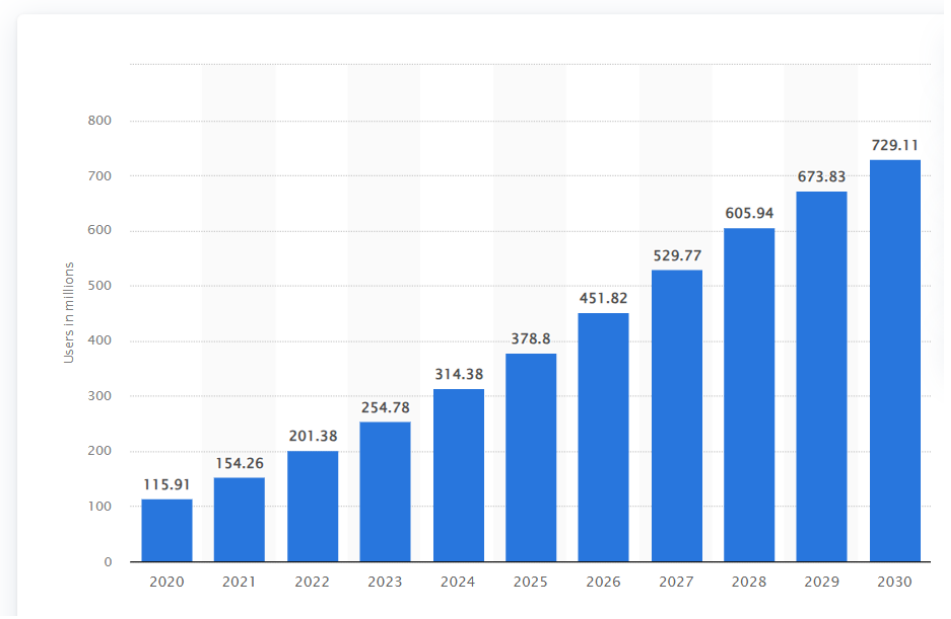
Similar observations were made by Essel et al., (2024) in their study where AI usage (ChatGPT) is reported to have led to an enhancement of 'critical thinking, reflective criticism

and critical openness' in the experimental group. Two dimensions of critical thinking were examined: critical openness which involves openness to consider different perspectiveness and willingness to be exposed to new ideas, which is closely related to CF. ChatGPT is also observed to help in developing creative thinking skills including dimensions such as innovative search, inquisitiveness and flexibility skills. Same thoughts are echoed in the study by Iqbal, Usama & Iqbal, Asif. (2024) where the impact of AI on learning outcomes where higher order thinking skills such as critical thinking was taken as moderators. Study explains that students think critically while using AI which in turn leads to better learning outcomes.

In this study, AI use is found to have a positive correlation with interpersonal skills. Similar observations were made by Mustofa et al., (2024). AI apps such as ChatGPT's impact on quality of interpersonal communication was examined. It was found to improve the quality of interpersonal communication. However, participants were reported to find AI interaction more convenient and easier when compared to human interaction in this study. Along the same lines, it was observed by Hohenstein et al., (2023) in the context of "algorithmic response suggestions (smart replies)" that interpersonal relationships could have positive relation with AI use. Experiments conducted by the researchers indicated that these algorithmic recommender systems change the way people form perceptions of each other and interact with one another. An examination of user's perception about the short term as well as long term impacts of AI-MC on interpersonal communication was carried out by Fu et al., (2023). Findings revealed that due to reasons such as improvement in communication confidence, use of precise language to express oneself and working through linguistic and cultural barriers, AI-MC is viewed positively by the respondents. However, it was found that users prefer these for formal communication and in those interpersonal interactions where the stakes are high. At the same time, users also recorded concerns about inauthenticity in their interactions and having to face the perils of overreliance on technology, in case of extended use. As AI responses and feedback are based on predefined algorithms, thereby lacking human sensitivity and nuances, communication expert, Jeff Hancock, states that one does not even have to use the smart replies to be affected by them. Mere presence of these would influence the way we think and draft responses, keeping it briefer and positive, as suggested by AI thereby positively influencing interpersonal interactions (De Witte.M, 2023). Findings of a literature review by (Rusmiyanto Rusmiyanto et al., 2023) suggests that AI enhances communication skills among English Language learners by offering interactive learning experiences, though the long term impacts of such interactions and ascertainment of what constitutes optimal integration of AI are to be analysed to arrive at a conclusive opinion. Similarly, a large scale experiment conducted by Argyle et al., (2023) found AI tools to improve the quality of online conversations on divisive topics, thereby preserving the social fabric of a diverse society. Use of AI was found to reduce divisiveness and improve the tone without significantly affecting the content of the discussion. Though the current study has not established a predictive significance between AI use and interpersonal skills, the positive correlation between the variables observed in these studies support the findings. The impact of AI use on these skills could be assessed further using longitudinal studies. The current study used one year as a base as responses were gathered from those who have used AI at least for 1 year. However, long term implications cannot be effectively assessed in such short duration and further research should be undertaken in this regard.

5. Conclusion

This study aimed at examining the impact of AI engagement on cognitive flexibility and interpersonal skills. People using AI tools globally doubled from 2020 to 2023 (250 million) and is expected to hit 700 million by 2030 Statista Research Department (2024). With AI engagement increasing at a rapidly increasing rate and concerns emerging about its impact on users, adequate research needs to be carried out in this domain so that AI could be utilized to our advantage.



Source: Statista Research Department (2024)

It was rightfully observed by Lahiri. G and Schwartz. J. (2018) in the Deloitte report that leading organisations have realized the importance of human skills. Technology would be most effective when they are complemented by humans with cognitive and social skills, as noted by the authors. The need to devise, implement and validate AI solutions makes human skills more important than ever before. The report also identifies the most important human skills needed to manage AI as problem solving, cognitive abilities and social skills. The development of these skills to manage AI is considered as an "urgent human capital challenge" (Lahiri. G and Schwartz. J., 2018). Furthermore, efficient use of AI powered tools are increasingly considered a technical skill in itself and therefore, developing the right skills to achieve optimum utilization of this technological advancement is imperative.

With studies highlighting both the positive and negative impacts of AI use on these crucial skills, treading with caution would be the best way forward till long term implications are assessed and reported. With rampant AI use in all domains, those with restricted AI use would find themselves in high- stakes workplaces which heavily operate on AI powered tools. The solution would be developing codes of use clearly defining what is acceptable and what is not,

what is use and what is misuse. AI should be properly embedded into the organisation's system with robust values framework and stringent ethical guidelines.

Any cognitive development process passes through four main phases, namely, unconscious competence, conscious incompetence, conscious competence and finally unconscious competence. If AI use interferes with the organic progression from one phase to the other by offering shortcuts, then it would impact the skill development process adversely. This would be like teaching a kid how to construct a sentence without teaching him words. Furthermore, AI tools used as such shortcut solutions would not give a clear picture about the user's current level of skill development. Users would use AI when they become aware of conscious incompetence, however, repeated practice, failure and finally mastery (moving towards conscious competence and unconscious competence) is hindered with AI use at this point. Thus in instances where repeated practice and firing the right neurons repeatedly to create new neural pathways are required, AI use could negatively affect these by creating shortcuts. At the same time, AI could be a powerful tool to identify skill gaps and in designing customized learning and development interventions for the person. AI can support in identifying skill gaps via item analysis and psychometric tests. Existing curriculum can be refined using AI powered softwares. Hence AI should be integrated into skill development and learning process without it interfering with the natural progression.

When it comes to interpersonal skills, we should explore ways to use AI effectively in developing the existing skills further. AI based applications, for instance, helps individuals to improve their public speaking and communication skills. Participants can deliver their performances on the platform and aspects such as voice modulation and expressions would be analysed and feedback offered (Jadhav et al., 2023). This helps those who wish to improve their performance in interviews as well as communication skills in multi-cultural, multi-linguistic environment. Similarly, AI tool used to analyse speeches in meetings are found to offer data driven insights to improve self-awareness, team dynamics and workplace effectiveness. Such tools have the potential to improve workplace dynamics and interpersonal relations (Scivicque, 2023). It is best to leverage these applications to one's advantage, at the same time being mindful that overdependence on these might lead to erosion of the human element which is the base of interpersonal relations.

Tools which offer real-time feedback on interactions/ responses, suggestions to make them more empathic, suggestions to build rapport etc would help train and hone one's interpersonal skills. Researchers reported 38.9% increase in conversational empathy by using AI tools for interpersonal skill development, thereby advocating the use of "feedback driven, AI-in-the-loop writing systems to empower humans in open-ended, social and high-stakes tasks such as empathic conversations" (Sharma, et. al., 2023). AI could be used effectively in personalised monitoring of different elements of interpersonal skills such as empathy, communication skills, emotional intelligence and maintain record of progress, offering timely feedback for enhancing the skills further. For instance, healthcare sector is increasingly adopting AI to improve empathy while offering patient care.

Generative AI is found to be more useful for senior executives as a co-pilot in creative thinking and decision making by acting as an aide rather than a replacement. Higher level decision making involves intuition, experience, instinct and knowledge, all of which cannot be offered

by AI. It is imperative to wade through AI generated content with a critical eye as 'AI hallucinations' could offer misleading solutions. AI should thus be an aide to take confident decisions. Objective should be to use AI to 'supplement rather than supplant' human cognition and skills.

Clear distinction between 'deep work' and 'shallow work' and assigning shallow work to AI would enable preserving and developing crucial skills such as problem solving, creative thinking and interpersonal skills. For instance, companies such as Google use AI to develop metrics for performance measurement and review (Sanders and Wood, 2023).

Raising awareness through informative educational programs and campaigns about the need for mindful use of AI by shedding light on the impact of AI on cognitive health would help to keep the negative impacts under check to a certain extent. For instance, people should be made aware of unresolved issues pertaining to AI use such as ineffective emotion detection, one-sided emotional engagement etc while engaging with AI as these would impact their interpersonal relations. Similarly, users should be mindful of the limitations of AI and potential biases while using the generated content for decision making and problem solving. This requires a moral commitment to use AI responsibly. These steps would enable users to take informed decisions about AI engagement.

In teaching- learning environment, cognitive skills should be consciously developed by designing activities which require students to use these skills while interacting with AI. For eg: critically evaluating and challenging the content generated by ChatGPT. Opportunities for collaborative learning, team working, peer exchanges and knowledge sharing should be incorporated into the curriculum design to ensure interpersonal skill development takes place unhindered. AI tools could be used to offer real time feedback on such interactions and projects.

Regular research and evidence based practices should be carried out to frequently assess the impact of AI tools on learning and skill development. Dissemination of the research findings and effective collaboration between researchers and policy makers would help in assuring informed use of AI.

In conclusion, disruptive innovations like generative AI requires well thought out governance, social integration and ethical deployment. Currently, human race is in a state of flux with respect to AI use and is reveling in the new found ease it offers. With AI getting deeply embedded into the fabric of our daily lives, frameworks based on principles and values which gives adequate weightage to human welfare and human skill development have to be developed for governing AI use. Soon there shall be systems, codes and guidelines established which shall help us maneuver the paths ahead successfully. Care has to be taken to cautiously unlock the benefits offered while preserving the marvel of human cognition and social connections. Care

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