

Exploring the Foundations of AI Literacy among Middle-Stage Students

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Abstract

Technology has now become an indispensable need for people across all sectors and every age group. Its ubiquitous presence adds great significance, and ignoring it would impede our progress. Recognising its importance, the National Educational Policy (NEP) 2020 also emphasises technology integration at all educational levels. Among the myriads of fast-evolving technologies, AI stands out as an incredible and advanced technology that is immensely contributing to reshaping education. It is more than just a tool for mere teaching and learning or assessment; it is also becoming popular among students. The Government of India is also taking initiatives to make students AI-ready at all levels. Underlining its importance AI literacy; CBSE also introduced fundamental concepts and applications of AI at the middle-stage level. Considering the same, the researcher conducted a study with 142 students in the 8th grade of three CBSE schools to assess how effectively the objective of introducing AI literacy has been achieved. To do so, the conceptual understanding of students was assessed through an achievement test. Additionally, a Likert Scale questionnaire was used to determine students' enthusiasm and inclination towards AI. The findings of the achievement test revealed a moderate level of understanding of the AI concept. However, regarding the level of awareness, enthusiasm, and further engagement with AI in everyday life, the inclination was more towards informal use than formal academic purpose. Thus, there is a need to channel this enthusiasm firmly towards academic application to enhance learning impact.

Keywords: Artificial Intelligence, AI literacy, CBSE, Middle-Stage

Introduction

Technology now is becoming more prevalent than ever. People of all ages now rely heavily on technological devices. It has significantly impacted modern society in terms of communication, production, human development, and even human nature. In addition to transforming different fields, technology has also revolutionised the field of education. From the invention of the printing press in the 15th century which contributed to the democratisation of knowledge (Koscielniak, 2003), to the introduction of smartphones that made education more accessible

(Zawacki-Richter et al., 2006); trends in education technology are continuously evolving. Modern students also prefer technology-integrated learning over traditional methods. Therefore Prensky (2001), called the present generation of students 'digital natives' or 'Net generation' since they grew up surrounded by a variety of digital tools such as computers, mobile phones, videogames, and other digital age technologies. Raja and Nagasubramani (2018), states that assisting modern technology makes transfer of knowledge easier and more convenient, increasing the interactivity and learning among students.

Artificial Intelligence (AI)

Technology promotes the growth of various industries (Zhao et al., 2022). One such modern and advanced technology is Artificial Intelligence. AI refers to the intelligence displayed by machines rather than humans. John McCarthy, a developer of Artificial Intelligence defined it as “the science and engineering of making intelligent machines” and stated that its goals are to understand how machines use language, form abstractions and concepts, and solve problems (Rajaraman, 2014). UNESCO defines AI as machines that mimic certain aspects of human intelligence, including perception, learning, reasoning, problem-solving, language interaction, and creative activity. The recent definition given by Nikitas et al. (2020) define AI as, “a machine’s ability to simulate the human mind by interpreting data it receives from its environment, learning from them, and using that learning to successfully complete the tasks, even in the most unexpected and novel scenarios”. Margaret Boden gives two aims of AI. One is technological, i.e., computers are used to get useful things done. Next is the scientific, where AI concepts and models are used to answer questions about humans and other living things

AI has already become a part of our everyday lives (eg. Smartphones, Google, Siri, intelligent household appliances, AI-based mobile and computer games etc.) (Burgsteiner, 2016). Since AI is transforming all spheres of society, education is no exception. While, in computer science, artificial Intelligence has been a subject of research for decades, its application in educational settings has witnessed a significant increase in the recent years (Stople and Hallstrom, 2024). Presently, AI holds a magnificent potential to enhance learning experiences in education (Kanvaria and Suraj, 2023).

AI in education plays many roles such as accessibility, personalization, timely response, repetitiveness, tutoring, real-world experiences, and most importantly its universality (Ahmad et al., 2021). This spike reflects a shift in how we perceive and use AI technologies to enhance teaching and learning experiences. Also, now the focus from theoretical development has shifted and expanded towards practical implications in an educational context (Humble and Mozelius, 2022).

AI Literacy

While many people might be aware of AI services and devices, they are hardly conscious of the technology behind them. Ng et al. stated that all citizens must learn about AI. Two main arguments have been given by Chiu. (2021) and Touretzky et al. (2022). Firstly, it is important for students to know what AI is, how it works and for which purpose AI in education is needed. Secondly, knowledge about AI concepts, which would further inspire young people to pursue education in AI-related fields. This would result in the advancement of AI researchers and developers of AI software’. Thus, it becomes crucial to familiarise the young generation in school with its technical background. To develop the conceptual basis of AI and build an effective generation for their future; researchers and educators drew their attention to developing the concept of ‘AI literacy’ (Bawden, 2008). AI literacy, like digital literacy and information literacy, is the combination of “Artificial intelligence” (AI technology) and “literacy” (Long and Magreko, 2020). Ng et al. (2021a), in the study, suggest that AI literacy can be divided into four dimensions (1) the comprehension of fundamental concepts of AI to support basic AI training; (2) the application of concepts of AI in real world context to facilitate AI education; (3) the critical and

reasonable engagement and evaluation with AI technologies within the context; (4) the capacity to comprehend the ethical implications resulting from AI applications. Ng et al. (2021a) expanded the concept of AI literacy to include K-12 and higher education settings, defining it as an essential skill for the twenty-first century. Their framework is based on Bloom's Taxonomy and the Technological Pedagogical Content Knowledge (TPACK) model, which emphasises systematic and structured cognitive development and pedagogical integration. Kong et al. (2024) further broadened the discourse by presenting a multidimensional AI literacy framework that includes cognitive, metacognitive, affective, and social dimensions. This approach expands on technical understanding and usage by including ethical awareness and societal factors, resulting in a deeper understanding of AI literacy. Similarly, Pinski and Benlian (2024) suggested a comprehensive AI literacy framework comprising two main components: proficiency dimensions and subject areas. The Proficiency Dimensions include knowledge, awareness, skills, competencies, and experience and represent the diverse human capabilities required for effective engagement with AI. Therefore, it demands a constant demand of dialogue among researchers, educators, and policymakers about AI literacy and it becomes essential to be taught from school level itself, so that one can have adequate knowledge about AI and its tools, which would further benefit one to live, learn, and work effectively in this digital world.

While the term AI literacy and competency are used interchangeably, they are two different concepts. AI literacy refers to the basic conceptual understanding of AI focusing on knowledge, critical thinking and awareness about ethics (Chiu et al., 2024; Zhou et al., 2025).

Individuals who are AI-literate are able to explain what AI systems are, such as neural networks and machine learning; identify real-world applications (e.g., recommendation engines or facial recognition), and address broader societal implications, such as biases, privacy concerns, and financial disruption. Furthermore, AI literacy enables people to design, manage, interact with, and create AI systems at an acceptable level (OECD, 2025). This type of literacy enables individuals to engage with AI responsibly by interrogating outputs, understanding system constraints, and making educated decisions as consumers, citizens, experts, or professionals (Chiu, 2025). Importantly, AI literacy is meant for all members of society, be it students, educators, politicians, and the general public, and does not necessitate significant programming knowledge. Instead, it promotes curiosity, critical involvement, and the capacity to comprehend and apply AI concepts effectively.

In contrast, AI competency is referred to as practical skill in utilising, interacting with, building, or managing AI systems in real-world scenarios (Chiu et al., 2024, 2025; Zhou et al., 2025). It encompasses more than just abstract knowledge and understanding; it additionally incorporates the ability to take successful action. AI-competent persons have the confidence and abilities needed to use AI technology to complete certain activities in an ethical, responsible, healthy, and productive manner (Zhou et al., 2025). In general terms, AI literacy prioritises knowledge and conceptual understanding, whereas AI competency focuses on the skilled application, adaptation, and optimisation of AI tools. To put it another way, AI literacy asks, "What does this AI do?" but AI competency asks, "How can this AI be used or improved to achieve the desired outcomes?" The present study seeks to

examine AI literacy and its influences on student's perception regarding academic and future usefulness.

Government Initiatives to Promote AI Literacy and Competency

UNESCO (2022), states that AI literacy is becoming highly relevant in India because of economic reasons and the demand for AI-skilled workers in the labour market. The Government of India recognises the importance and potential of AI and therefore it is actively promoting the integration of AI in education through various policies and initiatives such as the launching of AI portal "indiaai.in" to bring together government, entrepreneurs, and academicians in order to synchronise their efforts together for the growth and expansion of AI in the country (Malik et al., 2020); other initiatives like *Responsible AI for Youth* and, *Centre of Excellence in AI and Robotics* by the Ministry of Electronics and Information Technology (MeitY); *India-Sweden Collaborative Industrial Research and Development Program* by Ministry of Science and Technology; *National Strategy for Artificial Intelligence* (NSAI) and, AIRAWAT by NITI Ayog; *Centres for AI in higher education* by Ministry of Human Resource Development and many more. According to Chahal et al. (2021), India has been the fourth greatest supplier of AI-relevant scholarly publications since 2010 and also ranks among the top ten AI patent-producing countries. Zhang et al., (2022) also states that India has highly progressed in terms of AI literacy, demonstrated by the fact that India has the world's greatest relative AI skill penetration rate. These researches raise the focus on the importance and urgency of AI literacy in education at the school level. Recognizing its importance, *National Education Policy (NEP) 2020* also places a strong emphasis on the value of incorporating technologies like AI into the educational

sector. CBSE also welcomed AI by introducing it in curriculum modules as well as by integration AI across the curriculum. To ensure systematic and smooth introduction of AI literacy, CBSE planned age-appropriate modules. 'Inspire module' for Class 8; 'Acquire module' for Class 9 and 'Experience module' for Class 10th and above. Each of these modules has specific learning outcomes. The class 8 'Inspire module' primarily focuses on introducing basic understanding, AI project cycle and ethics of AI. A transition in class 9 is observed towards incorporated more detailed discussion on real-life applications of AI, projects, use case walkthroughs, and practical tool moving beyond conceptual familiarity to practical engagement. Further, class 10 'Experience module' increases the level of application across multiple domains also adding concepts like AI-enabled solution for social challenges (CBSE, n.d.; 2024; 2025). CBSE has also designed facilitators handbooks for educators for smooth transmission of AI literacy at each level.

Need of the study

Education has been an important factor behind the propagation of any ideology or new technology. It is important to look at how these technologies are being taught through education to the upcoming generation who will be the prolific user of these new concepts. The current education domain is very much influenced by the technologies like AI and therefore there is a need for teaching AI concepts to students. National Education Policy (NEP) 2020 and CBSE both aims to advance learners' knowledge of AI, with a focus to assist students in comprehending the field of AI, and applying it in daily life. The CBSE has introduced AI literacy at the middle-stage level, with the goal of preparing students to understand, appreciate, and apply AI concepts in

everyday life. While AI is a specialised subject commencing in Class 9, there is limited empirical information on whether middle-stage students have the conceptual readiness, confidence, and willingness to shift smoothly to more advanced AI study. The present study addresses this gap by examining the current level and efficiency of AI literacy among middle-stage students, with a focus on their conceptual knowledge and perceptions of AI. By analysing students' understanding of AI concepts along with their willingness to acquire knowledge and interact with AI technologies, the study intends to offer insights into how AI literacy influences academic perceptions and learning outcomes. Such a study is critical for guiding curriculum design, instructional methods, and policy decisions aimed at using AI to improve learning experiences and academic achievement. It ensures that the middle-stage can help create a more consistent and inclusive progression to advanced AI literacy in higher levels.

Literature Review

Recently various researches have been conducted globally, taking AI literacy into account from kindergarten up to university level. Here are some of the diverse researches of AI literacy at different levels.

International Context

International researches on AI literacy have mostly stressed its importance of developing conceptual knowledge, contextual relevance, and learner involvement across a range of educational settings. A considerable strand of research emphasises the need for contextualised and culturally responsive AI education. Eguchi et al. (2021) highlighted that AI literacy initiatives must be consistent with learners' societal and cultural contexts,

specifically in terms of ethical considerations. Their research on a K-12 AI curriculum in Japan shows that incorporating culturally sensitive ideas from the outset enhances the significance and sustainability of AI literacy programs. Druga et al. (2022) stressed the importance of family-centred approaches, demonstrating that parental participation and guided scaffolding can effectively help young learners understand AI. According to their findings, learning in informal and home-based contexts promotes improvement in AI literacy. Kong et al. (2022) explored that AI literacy courses that focus on foundational concepts rather than intensive programming approaches are effective in improving the knowledge and understanding of AI among students from different academic disciplines. Samngamjan et. al. (2024) investigated level of AI literacy among teacher education students, demonstrating correlations between AI knowledge, self-efficacy, and self-competence. It stresses on the multidimensional aspect of AI literacy, which includes not only knowledge and application, but also confidence and perceived ability. Across these studies, a common theme emerges include more than just fundamental awareness of AI. Understanding AI concepts (Su and Yang, 2024), application of AI knowledge to understand real-world phenomena (Kong et al., 2021), and employing AI for problem solving and higher-order thinking (Lee et al., 2021; Ng et al., 2021). Foreign research focuses on the significance of structured, context-sensitive, and conceptually oriented AI literacy education in strengthening learners' trust and willingness to engage meaningfully with AI.

Indian Context

Research on AI literacy in India has primarily focused on awareness, policy discourse, curriculum

integration and teacher preparedness. Mukhopadhyay (2024), investigated the impact of Generative Pre-trained Transformers (GPTs) on awareness of AI in India, pointing to a significant rise in public interest and involvement with AI following the release of ChatGPT. Shetty et al. (2020) explored the application of AI literacy through teacher training programs in Indian secondary schools, identifying problems in policy communication, pedagogy, infrastructure, and cultural environment. Their findings reveal that teachers have little confidence in AI adoption, despite an interest in peer learning and interactive pedagogies. Similarly, Singh and Absar (2024) studied multiple aspects of AI literacy among educators, concluding that the ability to use AI has a substantial impact on teachers' comprehension, ethical awareness, and evaluative skills. These studies emphasise the importance of instructors in AI literacy projects, but they also highlight the fact that current research is mostly focused on educators. Kumar and Sangwan (2024) highlighted the importance of a multifaceted approach to AI literacy, including workforce development, education, public awareness, and ethical governance. Their work contributes to the larger discourse on AI's societal integration, although it is primarily conceptual. Pal and Singh (2025) addressed the significance of AI-integrated curriculum in accordance with the National Education Policy (NEP) 2020, especially among future learner cohorts. The research recommended integrating AI literacy into larger technological and multiliteracy frameworks, emphasising the importance of context-sensitive educational models.

Research Gap

The review of studies conducted indicates that the majority of research

on AI literacy is largely policy oriented and conceptual in nature. Most of the researches discussed the significance of AI, proposed curricular frameworks and implementation strategies emphasising 'what' and 'why' of AI literacy. The gap underlines the importance of conducting student-centred, school-based empirical research to investigate how learners comprehend, engage with, and experience AI in the Indian educational system. To address these gaps, the current study investigates middle-stage students' conceptual knowledge, engagement, and attitudes toward AI in the context of school education.

Research Question

What is the conceptual understanding of AI among middle-stage students and how it relates to their perceptions of its use and significance.

Research Objectives

1. To assess the conceptual knowledge and understanding of Artificial Intelligence among middle-stage students.
2. To explore the perceptions of middle-stage students towards Artificial Intelligence.

Methodology

The research adopted quantitative research design and involved two CBSE schools selected through purposive sampling, where the AI module is included in the Computer Science subject from grades 6th-8th. The targeted group was 8th grade students, as by this stage, they had formed the basic conceptual knowledge and understanding of AI, along with preliminary exposure and practical experience with AI tools, making them suitable for assessing AI literacy and associated perceptions. A total of 142

students participated in the study. To achieve the objective of the study, two sets of tools were used. For objective 1, 30 objective questions, the Artificial Intelligence literacy achievement test was designed by the researchers in accordance with Bloom's Taxonomy. The items were framed to measure different cognitive levels. *'Remembering'* domain consisted questions that required students to recall basic AI concepts such as definitions, attributes, examples etc. to measure factual memory of previously learned content. *'Understanding'* domain assessed the attributes, characteristics and features of AI. The *'Applying'* domain comprised questions related to the identification and application of tools such as digital assistance, smart home devices, academics etc., that could be used by students in real-life settings. In *'Analysing'* domain included questions with higher order thinking such as judging and differentiating between AI and non-AI qualities, evaluating statements about smart technologies. Since AI literacy is a relatively new component in school education, evaluating and creating domains of Bloom's Taxonomy were not assessed. For objective 2, 5-point

Likert Scale questionnaire (1=strongly disagree, 5= strongly agree) were developed to explore the perception about AI and its application. It included 17 questions covering the aspects of curiosity, engagement, usefulness, attitude and prospects. Both the scales were designed to provide the holistic view with respect to student's AI-related knowledge and how they perceive AI.

Analysis and Result

The analysis and result of the study is divided into two sections based on our research objectives. Objective 1 administers the students' competencies about fundamental concepts of AI, and Objective 2 deals with students' perception of learning about AI.

Objective 1

To address if the students have developed basic AI competencies, the answers to the assessment questions were analysed. Descriptive analysis is done where mean, median, skewness and kurtosis, standard deviation is computed for the achievement test (Table 1).

Table 1: Descriptive statistics for Achievement Test

Achievement test	
Mean	23.36619718
Standard Error	0.458428528
Median	24
Mode	24
Standard Deviation	3.862787434
Sample Variance	14.92112676
Kurtosis	1.195141
Skewness	-1.177506282
Range	17
Minimum	11
Maximum	28
Sum	3318
Count	142

The data set provides a comprehensive picture of AI literacy among school students, shedding light on the characteristics and distribution of scores. The mean score of 23.37 denotes the average score achieved by the student, indicating that students possess a moderate level of AI literacy. The median and mode values both 24 further illustrate the fairness with the majority exhibiting satisfactory level of understanding. The standard deviation value 3.86 signifies that the scores are

not extensively scattered meaning that while many students perform well, some may struggle with the concepts. The negative skewness value states that few students might have scored less while majority perform relatively well. The kurtosis value reflects that data has a moderate peak. To gain deeper insights, the overall scores were further analysed into four cognitive domains (Table 2) to identify the strengths and weaknesses of students at different cognitive levels.

Table 2: Domain-wise Distribution of Achievement Score

Domain	Questions	Total Items	Max Score	Estimated Mean	Estimated %
Remembering	1, 2, 3, 5, 12, 13, 15, 16, 25	9	9	7.9	87.7%
Understanding	4, 6, 7, 8, 10, 14, 18, 20, 26	9	9	7.4	82.2%
Applying	9, 11, 17, 22, 23, 30	6	6	4.2	74.9%
Analysing	19, 21, 24, 27, 28, 29	6	6	3.8	64.8%
Total		30	30	23.3	77.4% (average)

This domain-wise analysis of the Achievement test provides a clear patten about student’s academic performance at cognitive level of Bloom’s Taxonomy. The Table depicts exceptionally high score in the ‘Remembering’ domain (87.7%) indicating that students have developed strong foundational AI concepts. Similarly, the ‘Understanding’ domain with 82.2% also indicate high attainment suggesting that students are capable of identifying key features and recognising how AI works in different situations. Further, a contrast decline in higher order domains was observed. In the context of ‘Applying’ domain with 74.9% it reflects that students encounter difficulties while transferring conceptual knowledge to real-world application suggesting a gap

between theory and practical scenario. This shows that students still lack experiential AI integrated applied task or engagement with AI tools. A substantial decline occurs in the ‘Analysing’ domain with 64.8% having lowest performance which consisted comparison and differentiation of AI-based situations. In particular with the progress cognitive domain more attention towards critically oriented learning experiences towards higher-order reasoning tasks.

Objective 2

To find out the perception of students about AI, the Likert scale data is divided into four sub-themes and is graphically represented along with its interpretation.

Students' curiosity about Learning AI

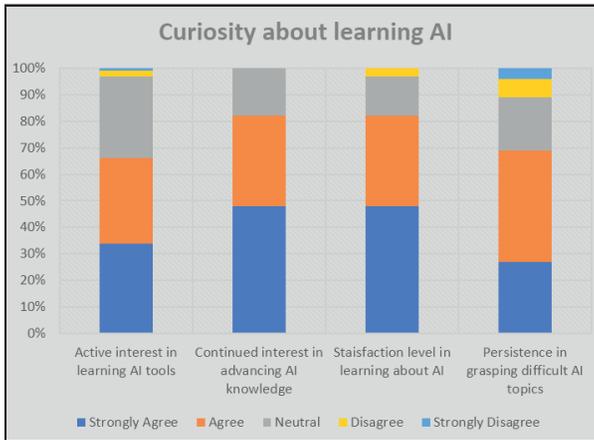


Fig. 1: Level of curiosity for AI literacy

Figure 1. illustrates students' interest and motivation towards learning AI. The distribution of student's response indicates a positive pattern towards intrinsic interest and voluntary engagement with AI. About 34 % students with strong agreement expressed an active interest beyond just awareness but towards practical dimension of engagement with AI tools. Singh et. al. (2024) in their study, also demonstrated that AI tools enhanced learning experiences. The interest further deepens towards expressing sustained interest with 48% showing curiosity in advancing their knowledge

about AI. Students also expressed high satisfaction level with their learning experience. The contrasting trend emerges with regards to persistence in grasping difficult AI topics remains lower with only 27% strongly agreeing to this issue. All over data advocates a positive outlook yet addressing challenges and nurturing persistence would help in maintaining the curiosity of students about learning AI. Strengthening instructional approach and scaffoldings may contribute with cognitive support further balancing the motivational dimensions.

Students' engagement with AI

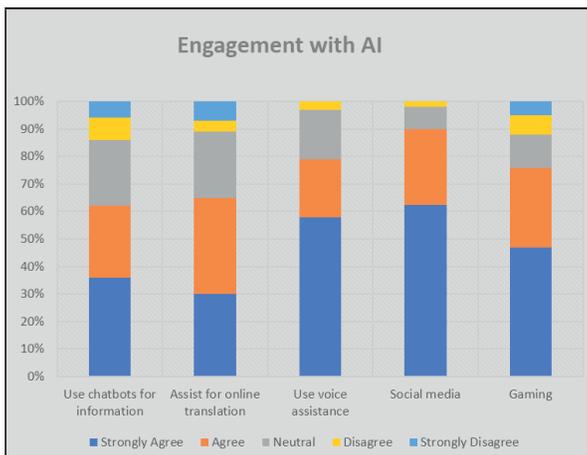


Fig. 2. Level of engagement with AI tools

Figure. 2 demonstrates engagement of students with AI tools across different spheres of functional domain. A substantial number of students indicate using AI tools. The highest level of engagement is reflected in using voice assistance (58%). Around one fourth of the respondent interact regularly with voice-based AI tools like Google Assistant, Alexa and Siri. Similarly, with 61% strong agreement and 27% agreement, the students expressed their strong inclination towards using AI functionalities in social media which

is the most common and accessed AI environment. Through AI gaming applications also 47% of students strongly assisted AI. In contrast, the lower frequencies are recorded in the use of chatbots for retrieving information. The use of AI-assisted translation also showed relatively lower usage by middle-stage students. The data underlines the significant role of AI in facilitating everyday tasks and entertainment than information gathering and academic support.

Students’ attitude towards AI

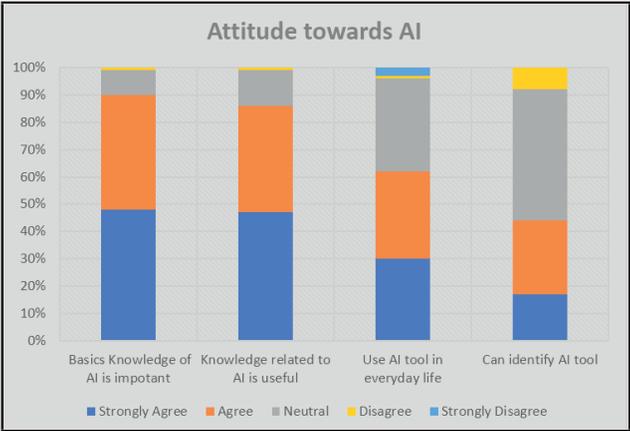


Fig. 3. Attitude of students towards AI

Figure 3. depicts attitude, importance and utility of AI. 48% students strongly perceive that it is important to have basic knowledge about AI. A comparable pattern is also observed in perceived usefulness, indicating AI as a valuable component in the contemporary era. Interestingly, when middle-stage students were asked about frequent use of AI tools in daily life, only 30% strongly agreed accompanied by the ability to identify AI tools (17%) showcasing the limited confidence and partial routine use of AI. The data indicates that students have progressive and positive attitude towards AI yet acceptance is limited towards practical familiarity. This aligns with the study of Moosa et. al. (2024) where they also highlighted

that while students believe AI enhances learning efficiency yet they show lower confidence in its broader contribution like problem solving skills.

Students’ view on future Prospects of AI

Figure 4. displays students’ opinion about future potential of AI across the dimensions of professional development, innovation, employment and global transformation Around 38% of students expressed strong agreement that AI can stimulate professional development and will play an important role in moulding individuals with required skills. Similar perception was recorded in terms of innovation, where the students consider AI as the catalyst.

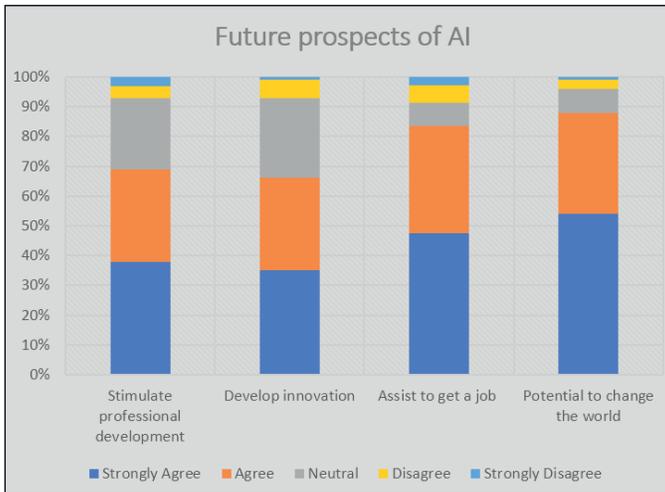


Fig. 4. Students view about future prospects of AI

The highest endorsement emerged with regards to obtaining future employment accompanied by belief that AI has the capability to transform the world (54%). This reflects that middle-stage students' attitude is grounded in expectations of the future with a large-scale impact.

Findings and Discussion

The present study examined the AI literacy of middle-staged students at cognitive and engagement level followed by the perception towards AI learning, usefulness and future prospects. The findings revealed a positive orientation towards AI along with the gaps between theory and application. From the achievement test, the maximum score of 28 and the minimum score of 11 out of 30 marks reveal that not all students hold the same level of understanding. On an average, it can be stated that students hold a positive note on understanding the basics of AI since the concept is new to them. The moderate but typically above-average score in the AI literacy test demonstrates that students are gradually becoming familiar with basic AI concepts. Further, the foundational knowledge across dimensions of

Remembering and *Understanding* reflected conceptual clarity and reduced misconceptions; which aligns with other studies (Kim et al., 2023; Mertala and Fagerlund, 2024). The performance deteriorated in higher-order domains of *Applying* and *Analysing* indicating challenges in experiential opportunities in formal school setting. Students' perception also reinforces this pattern. The curiosity level among students also varies. Where some show a high level of interest others are comparatively low interest. Curiosity in acquiring more knowledge about AI also relies on the tendency that, since students are continuously witnessing rapid changes in their surroundings, and so they naturally want to comprehend them. Yet, the decline in interest arises as the concepts become more tough, affecting sustained learning motivation. Without planned teaching support or related approaches, curiosity sometimes remains at the surface and does not progress to deeper conceptual learning (Long and Magerko, 2020). The findings also resonate with the study of Chai et al. (2020, 2023), who stressed that motivation alone is insufficient for AI learning unless subsidised by appropriate learning strategies. It also sheds light on the

need of integration of AI in curriculum and also in teaching learning practice at an early stage to bring exposure, create readiness and increase enthusiasm to shape the students accordingly in this technology-driven era. With regards to engagement; the study highlights a high level of interaction with AI technologies in the informal and entertainment. The study revealed that students actively use voice assistants, gaming, and social media features, all of which are meant for entertainment purpose, making AI appear as a regular part of life (Bulger, 2016). On the contrary, it also shows the restricted use of AI for academic purposes, despite the fact that the majority of them believe AI is useful for learning, indicating the concern that schools have yet to integrate this everyday exposure with AI to learning. The findings also revealed that only a few students could name particular AI technologies that contribute to learning, indicating a lack of experience with AI in the school. This situation aligns with previous research, which found that technological usage can often have a greater impact on students' digital skills than formal teaching (Selwyn, 2021). Also, lack of exposure to AI tools could be the reason for the same. This gap between knowledge and practical recognition reinforces concern that

inappropriate early AI education may hinder learners' ability to meaningfully connect with future AI development (Ghallab, 2019). On the other hand, students' positive perceptions of AI's role in the future show that they are not just aware but also hopeful about how AI might aid in professional development and societal improvement. Such perspectives are influenced by larger social and media narratives in which AI is frequently portrayed as a technology that will revolutionise life and bring new opportunities (OECD, 2021). Some respondents expressed uncertainty about the impact of AI on them, showing a lack of confidence in its capabilities and how it will work out. Through overall analysis, it should be stated that students are enthusiastic yet do not seem prepared critically and effectively for academic purposes. The studies (Hossain et al., 2025; Long and Magerko, 2020) presses the need of critical orientation and beyond conceptual exposure to promote motivation and deep learning strategies. Thus, it is important for schools to present the AI concept not just theoretically but practically in terms of identification and usage of AI effectively for educational purposes, making students skilled and technologically ready for the future.

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