

AI-POWERED LEARNING: THE NEXT FRONTIER IN EDUCATION

The aim of this paper is to understand the requisite of initiating AI education at high school level

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ABSTRACT

Can high schools truly prepare students for the AI-driven future?

This research paper explores the transformative potential of introducing AI education into high school curricula. This study, conducted through a comprehensive survey involving 100 high school students, provides an insight on students' opinions and perceptions about AI education in their learning journey. The survey, inspired by the thought-provoking questions raised at the beginning of this research, delved into various aspects of AI education's potential impact. We reveal how AI-powered learning experiences enhance student engagement, improve academic outcomes, and foster critical thinking skills

The survey also sought to uncover their perspectives on how introducing AI might affect the education system as a whole, particularly focusing on whether it would have a positive or negative effect

Students highlighted a strong desire to gain AI-related skills, seeing them as valuable assets in the job market and beyond. The responses gathered from these high school students painted a vivid picture of their recognition of AI's growing importance .

By grounding our research in the views and opinions of these students, we present a holistic perspective on the significance of AI education in high schools. This insight contributes to a nuanced discussion on the potential benefits, challenges, and recommendations for the successful integration of AI education.

INTRODUCTION

The importance of educating the next generations in the understanding of the fundamentals of the upcoming scientific and technological innovations that will force a broad social and economical paradigm change cannot be overstressed. One such breakthrough technologies is Artificial Intelligence (AI), specifically machine learning algorithms. Nowadays, the public has little understanding of the workings and implications of AI techniques that are already entering their lives in many ways. We aim to achieve widespread public understanding of these issues in an experiential learning framework. In this paper we focus on the evolution of AI education for High School students. The extent of the impact on the students of this experience is

measured through questionnaires. AI and adaptive learning technologies are prominently featured as important developments in educational technology in the 2018 Horizon report (Educause, [2018](#)), with a time to adoption of 2 or 3 years. According to the report, experts anticipate AI in education to grow by 43% in the period 2018–2022, although the Horizon Report 2019 Higher Education Edition (Educause, [2019](#)) predicts that AI applications related to teaching and learning are projected to grow even more significantly than this. As the world becomes increasingly driven by AI technologies, preparing our students for this AI-powered landscape is no longer a choice but a necessity. By embracing AI education in high schools, we empower the next generation with the knowledge and skills to navigate, shape, and thrive in a world where human intelligence and artificial intelligence converge." Considering High School students for this research was given an acute preference since they are the future Global leaders and acquainting them with this skillset at an early age gives them an opportunity to discover boundless horizons with abundance of time. This can also help them to attain Sustainability and provide a broader view to create innovations.

METHOD

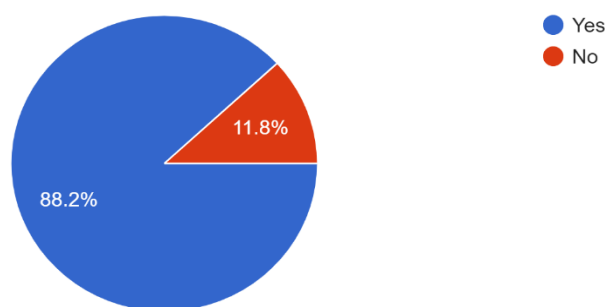
A survey was conducted among 100 High School students, particularly of Belgaum [Karnataka, India] to know their opinions for better analysis. Multiple student testimonials were taken to understand how they saw AI being a part of their curriculum. The statistical records derived from the survey provided a better insight on young generation's perspective about this new prospective addition to our education system.

RESULTS

Through a multidimensional analysis of current practices, challenges, and future prospects, we arrived at the following results:

1. Should AI be Introduced as a subject in your School/College?

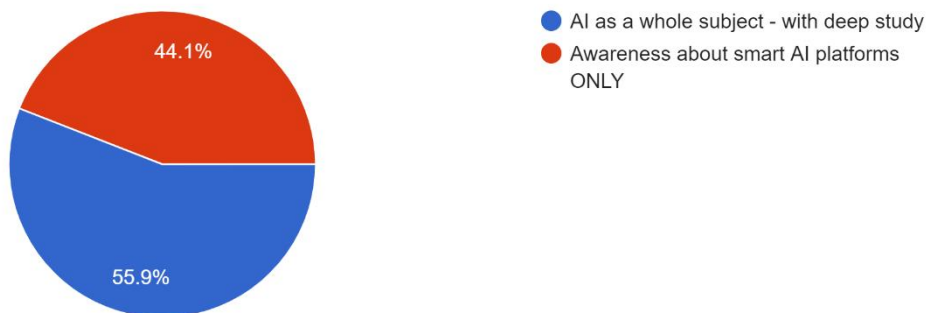
93 responses



According to our research, 88.2% of students were in favor to start learning AI.

2. In what aspect would you like to learn AI if given a choice?

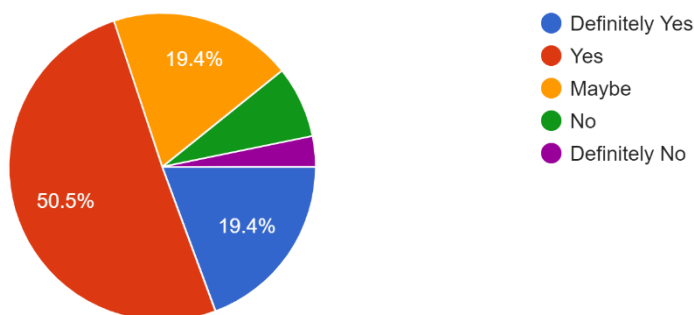
93 responses



The graph illustrates a remarkably balanced distribution of opinions, with a near-even split between "AI as a subject" and "Awareness about only Smart AI Platforms " responses, highlighting the closely contested nature of the subject matter.

3. Learning AI will also provide a better opportunity to polish other aspects like critical thinking, logical reasoning and help build a strong mathematics foundation?

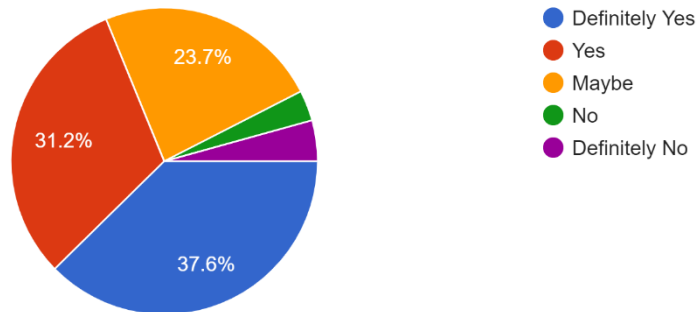
93 responses



The above graph clearly states, more students opted for “Yes” option as compared to “Definitely Yes”, which in turn showcases that the knowledge for AI and its impact on reasonable quality of an individual is still inadequate. Early learners develop a unique set of problem-solving abilities that enable them to tackle complex challenges with efficiency and innovation

4. Will learning AI skills at an early age take you 10 steps ahead in your career journey?

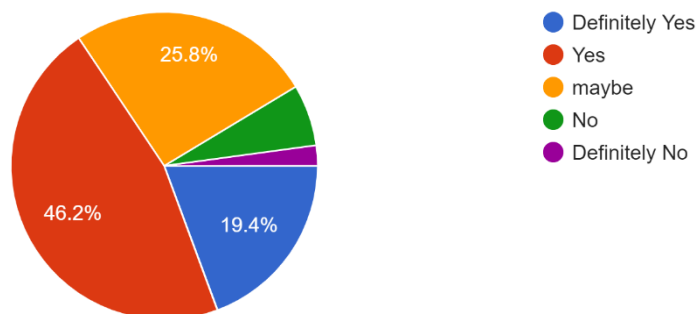
93 responses



Emphatically, the evidence gathered from this research points to an unequivocal 'Definitely Yes' regarding the transformative impact of early AI skill acquisition on an individual's career trajectory. Equipped with foundational knowledge and practical experience in AI technologies, these individuals possess a dynamic skill set that grants them an edge over their peers in an increasingly AI-driven job market.

5. With the advancement in AI, do you think learning this at an early age allows to step in the industrial and commercial world ?

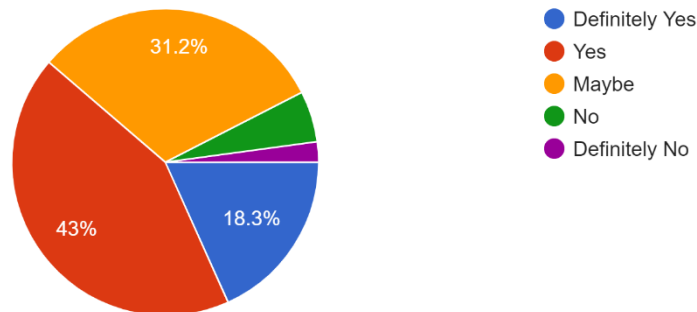
93 responses



The graph exhibits a compelling trend in responses, predominantly leaning towards the “yes” and “maybe” spectrum, regarding the notion of early AI learning facilitating entry into the industrial and commercial world

6. With AI going hand in hand with every other industry , do you think learning it will help you start earning at an early age?

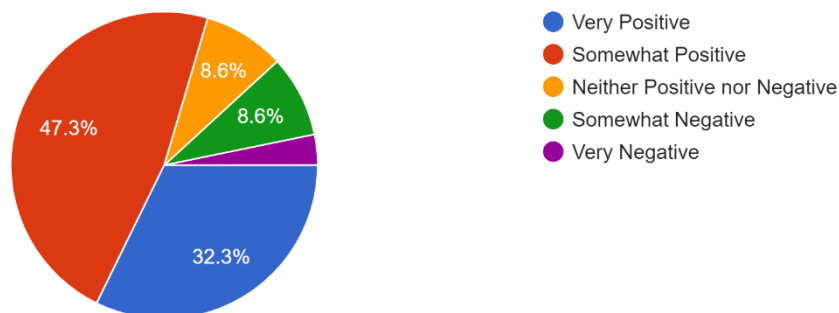
93 responses



The question of whether learning AI will enable individuals to start earning at an early age elicits a diverse range of responses, with a significant number of participants expressing 'yes' and openness ("maybe") toward the potential financial benefits of early AI education.

7. Do you think introducing artificial intelligence (AI) will overall have a positive or negative effect on the education system?

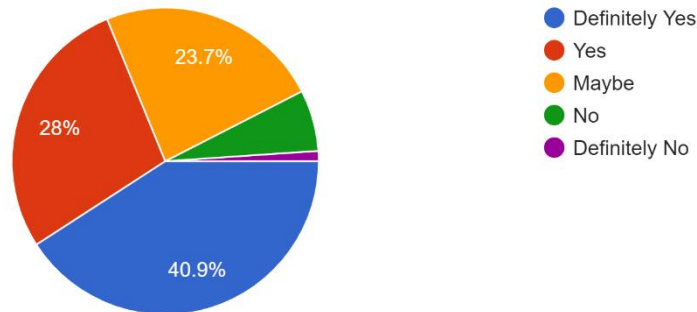
93 responses



The question of whether introducing artificial intelligence (AI) will have a positive or negative effect on the education system yields a clear inclination toward the affirmative, with a substantial number of participants responding "YES" and a notable proportion expressing an even more resolute stance with slightly "DEFINITELY YES." This graph captures the prevailing optimism surrounding the integration of AI in education.

8. Will introducing AI in high school save your time from tedious assignments?

93 responses



The question of whether introducing AI in high school will save time from tedious assignments elicits a predominantly positive response, with a notable number of participants expressing "DEFINITELY YES" and a considerable portion firmly supporting the notion with a straightforward "YES." The graph illustrating these responses reveals a widespread belief in the time-saving potential of AI integration in high school education

DISCUSSION

The successful integration of AI education in high schools is contingent upon various factors, including available resources, teacher preparedness, and institutional support. As our study has revealed, there is a growing interest in AI literacy among educators and students alike. However, significant challenges persist in implementing comprehensive AI curricula. Issues such as insufficient funding for AI infrastructure, limited access to AI tools, and a shortage of qualified AI educators stand as prominent obstacles hindering the seamless integration of AI education.

Despite these challenges, our research demonstrates that students who are aware of AI and its benefits showcase heightened enthusiasm and interest in exploring AI concepts and applications. The exposure to AI tools and programming languages significantly contributes to enhancing critical thinking, problem-solving abilities, and creativity among students. Moreover, participants express greater confidence in navigating AI-driven technologies and exhibit a positive outlook on their future career prospects in AI-related fields.

Furthermore, our findings suggest that by mastering AI programming languages, comprehending machine learning algorithms, and gaining hands-on experience in real-world AI applications, these early learners develop a unique set of problem-solving abilities. These skills not only enable them to tackle complex challenges with efficiency and innovation but also foster adaptability for continuous learning. This positions them as potential trailblazers in an ever-evolving technological landscape. In essence, the early acquisition of AI skills not only augments one's career prospects but also fosters an entrepreneurial mindset,

inspiring the pursuit of ambitious ventures and groundbreaking initiatives. Additionally, one of the notable advantages highlighted in our research is the potential for AI to personalize education. AI-driven adaptive learning systems can cater to individual learning styles, pace, and preferences, as mentioned in responses to questions about time-saving in assignments. This personalization not only enhances comprehension but also saves valuable time by eliminating one-size-fits-all approaches to teaching. Our research demonstrates that AI education benefits students irrespective of their chosen profession. AI is increasingly becoming a ubiquitous technology, impacting fields far beyond computer science. In healthcare, AI assists in disease diagnosis and drug discovery. In finance, it enhances fraud detection and risk assessment. In agriculture, it optimizes crop management. In journalism, it aids in data-driven reporting. The applications are vast and span nearly every industry, making AI literacy an asset in any career path.

In conclusion, our research underscores the transformative potential of introducing AI education in high schools. It is evident that despite the challenges, AI education holds great promise for preparing students to excel in an AI-augmented world. To fully harness this potential, we recommend a concerted effort to address the obstacles we've identified, such as resource limitations and teacher preparedness. By doing so, high schools can effectively integrate AI education into their curricula, providing students with the tools they need to thrive in a technology-driven future.