

Digital Career Guidance Through Artificial Intelligence: Transforming Career Readiness of Secondary School Students

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Abstract- Career guidance has become a vital component of secondary education as students navigate an increasingly complex academic and professional landscape in the digital age. Artificial Intelligence (AI) is playing a transformative role in career counselling by offering personalized guidance, intelligent career recommendations, labour market insights, and multilingual support. This conceptual paper explores the opportunities and challenges of AI-enabled career guidance in enhancing the career readiness of secondary school students. The study employs a descriptive research design using secondary data sourced from UNESCO, OECD, NEP 2020, and relevant scholarly articles published between 2020-2026. The paper reveals that AI can be leveraged to provide personalized career assessments, address rural-urban disparities in career counselling, recommend scholarships and colleges, facilitate data-driven decision-making, and foster collaborative counselling ecosystems. However, ethical concerns around data privacy, algorithmic bias, digital divide, and the need for teacher training in AI applications pose significant challenges to effective implementation. The paper concludes that AI should be utilized as an augmentative tool to enhance the pedagogical and counselling capabilities of educators rather than a substitute for human expertise. It recommends the need for ethical AI frameworks, digital infrastructure development, and teacher training programs to realize the full potential of AI in school career guidance.

I. INTRODUCTION

Education, occupation, and technology have been significantly altered in the twenty-first century. Rapid developments in artificial intelligence, automation, data science, robotics, and communications have created a wide labor market for young people. New occupations such as an AI Engineer, Data Analyst,

Cybersecurity Specialist, Prompt Engineer, and a Digital Content Strategist have attracted students to invest more effort and time in gaining new skills and proficiencies. In this regard, secondary school students may benefit from up-to-date and reliable career guidance. Career counselling enables students to identify their interests, abilities, values, personality, and aspirations and find appropriate educational and occupational opportunities. Schools traditionally offer career guidance through in-person counseling, career events, booklets, and psychometric tests administered by a counselor at regular intervals. However, such guidance may be limited by a lack of counselors, access to information about the world of work, insufficient career planning, and equity.

Artificial Intelligence (AI) is considered a game-changer in terms of offering personalized and data-driven career guidance to students.

AI-assisted career guidance can analyze a wide range of personal and situational variables and advise students based on their interests, abilities, personality, achievements, and labor market information. Additionally, students can access up-to-date information regarding higher education, including bursaries, scholarships, entrance examinations, and occupations in demand.

The Government of India's National Education Policy (NEP) 2020 recognizes the importance of digital technology and Artificial Intelligence (AI) in empowering students through education. NEP 2020 promotes holistic, multidisciplinary, and digital literacy education while also emphasizing the need for vocational education and career awareness at

school levels. The policy highlights the need to create technology-enabled educational ecosystems through the National Educational Technology Forum (NETF) and the National Digital Education Architecture (NDEAR). These initiatives prioritize innovation and AI-assisted teaching and learning processes and enable counsellors to guide students effectively in terms of education and occupation.

UNESCO highlights the need for a human-centered approach to AI while also considering the opportunities and risks it presents in education. The report focuses on areas where AI can support education, such as personalized learning, intelligent educational management, teacher assistance, inclusion, diversity, and accessibility. At the same time, UNESCO highlights ethical issues associated with AI in education, including privacy, bias, and fairness. These considerations are essential in career counseling, as students' aspirations and socio-cultural background must inform and complement technology-driven career advice.

Students need reliable and updated career information to make informed career decisions. Although there has been progress in making the world of work visible to students, there are still disparities in providing quality career guidance to young people. Students in government schools and those in rural areas are inadequately informed about career opportunities, scholarships, skill training, and emerging labor markets. At the same time, counselors need more training on using career information and guidance systems efficiently. Consequently, the integration of AI-assisted career counseling is dependent on digital infrastructure, counselors' proficiency, and policies that promote equity in education. This conceptual paper explores the role of AI in digital career guidance and counseling. The study highlights the potential of using AI in career counseling, challenges, and future research directions.

II. REVIEW OF LITERATURE

The use of Artificial Intelligence (AI) in education has been the subject of extensive research, international organisation reports, and policy reviews

in the last decade. Recent studies suggest that beyond instruction and learning, AI is leveraged for student guidance, career planning, and competency development. Notably, limited research has examined the role of AI-enabled career guidance in supporting students' career readiness. Below is a review of the literature on the topic.

UNESCO recommends that AI should be embedded in human-centred and ethical processes to foster inclusive education and ensure education technology and decisions make sense rather than replacing teachers. UNESCO has also published several reports on AI-powered competency frameworks for students and teachers to prepare them for future jobs that will be transformed by AI.

On the same note, OECD asserts that AI can be used to provide learners with 24/7 personalized educational and career guidance by understanding their needs and helping them make informed decisions. The report also notes that for AI to be effective in education, it must be used to complement good pedagogy. OECD's Digital Education Outlook 2026 also affirms AI's potential in personalised learning and career guidance.

Meanwhile, research by Kasneci et al. (2023) reveals that generative AI can play a role in educational planning, feedback, and learner decision-making. In addition, Holmes et al. recommend that there is a need for transparency and responsible AI to realise ethical and accountable education. On their part, Celik (2023) concludes that teachers need to be AI literate to effectively guide and advise students in an AI-based education system.

In turn, recent reviews of literature reveal that AI literacy is increasingly being emphasized as a competency that needs to be cultivated among secondary school students. For example, a study by Ghosh, Gardia, and Singha (2026) reveals that curricula being used in AI literacy focus on enabling students to participate in an AI-driven economy while being aware of ethical issues and cultivating creativity and innovation. In short, education researchers are beginning to recognise the need for students to gain foundational AI literacy to

understand the opportunities and risks that the technology presents.

Table 1. Selected Studies on AI and Digital Career Guidance

Author(s)	Year	Research Focus	Major Findings
UNESCO	2023	AI in Education	Human-centred and ethical AI promotes inclusive education
UNESCO	2024	AI Competency Framework	AI competencies prepare students and teachers for future careers
OECD	2026	Digital Education Outlook	AI can be used to provide personalized learning and career guidance
OECD & European Commission	2026	AI Literacy Framework	AI literacy fosters informed and responsible decision-making
Holmes et al.	2022	Ethical AI	Transparency and human oversight are key to trustworthy education systems
Kasneji et al.	2023	Generative AI	AI supports planning, feedback, and decision-making in education
Celik	2023	Teacher Readiness	Teachers need AI literacy to effectively implement AI in education
Crompton & Burke	2023	K-12 AI Review	AI promotes personalized learning experiences
Hwang et al.	2020	AI in Education	AI supports intelligent learning systems and future education
Ghosh et al.	2026	AI Literacy in Secondary Education	Ethics-integrated AI curriculum builds student agency

Summary of the Literature

Overall, the reviewed studies highlight the transformative potential of Artificial Intelligence (AI) in school education. While most prior research has been focused on leveraging AI in teaching and learning, recent studies have begun to focus on how the technology can be integrated into career guidance services to promote student career readiness. To advance understanding of this emerging area, this paper aims to review the opportunities and challenges of using AI in school career guidance and explore future research directions.

III. STATEMENT OF THE PROBLEM

Career selection remains one of the critical aspects of students' lives during their secondary education. Nowadays, students can no longer select the wrong streams, specializations, areas of study, and the future profession since multiple factors must be considered in career decision-making processes. In most cases, students are undecided, uninformed, and misguided in their choices due to parents' expectations, friends' persuasion, social stigma, or irrelevant information. Consequently, the majority of children in the secondary education system make inappropriate and irrational career decisions, leading to their overall

dissatisfaction and misemployment in the long run. The rising complexity of the modern working world creates increased career guidance needs among students. Artificial intelligence (AI) can be applied in various ways to support the students in their career choices and help them become successful and self-reliable adults. Such an approach can also reduce the likelihood of career-related mistakes among the school-going generation. However, some government schools have poor infrastructure, lack internet access, and do not have appropriate resources to implement such a project. This study's significance is determined by the fact that the current educational scenario is highly concerned about the use of technology in career guidance for secondary school students. Although educationalists have done extensive research on AI's pedagogical and administrative potential, there is a minimal interest in studying how AI can be used to enhance career readiness and decision-making skills of the students. Hence, to address the issue of adopting AI for providing effective career guidance to secondary students, it is essential to focus on opportunities, barriers, and future directions for using AI-enabled digital career guidance for students' empowerment.

IV. OBJECTIVES OF THE STUDY

Based on the research problem, the current study has several objectives:

- To evaluate the role of Artificial Intelligence in digital career guidance for secondary school students.
- To identify the opportunities and benefits of implementing AI-enabled career guidance for students' career readiness and decision-making.
- To investigate the ethical, technological, and institutional challenges of utilizing AI-enabled career guidance in school education.
- To highlight future directions for integrating AI into the school's career counselling system.
- To propose recommendations for policymakers, school administration, teachers, and career counsellors in using Artificial Intelligence for career guidance.

V. RESEARCH METHODOLOGY

The current study adopts a conceptual and descriptive research design similar to the one used for your IRE paper. We will utilize secondary sources instead of primary data collection and focus on AI-enabled career guidance. Please find below the attached files for your reference.

5.1 Research Design

The current research utilizes a conceptual, descriptive, and qualitative design to identify the role of Artificial Intelligence in enhancing digital career guidance and promoting career readiness among secondary school students. Instead of using primary data collection methods such as questionnaires and interviews, we will rely on secondary sources of information to generate research findings.

A descriptive study design was selected because it allows a detailed analysis of the phenomenon of interest, explores emerging trends, and offers opportunities for providing recommendations for practice.

5.2 Sources of Data

The research will be generated using secondary sources of information. The following databases will be used:

- UNESCO's reports on artificial intelligence in education
- OECD digital education outlook reports
- National Education Policy (NEP) 2020
- Scopus and Web of Science (peer-reviewed journals)
- ERIC and Google search (research articles)
- Research reports and articles published in 2020-2026
- Government publications on digital education

The chosen databases offer a wealth of information on the role of artificial intelligence, education technology, career counselling, and future skills.

5.3 Inclusion Criteria

The following inclusion criteria will be used:

Studies exploring artificial intelligence in education, research articles focusing on career guidance, readiness, and counselling; peer-reviewed journals, reports, and articles published between 2020 and 2026; and studies focusing on secondary and school education published in English.

5.4 Exclusion Criteria

The following exclusion criteria will be used:

Studies focusing on fields of education; research articles focusing only on higher education and excluding school; newspapers, magazines, journals, and websites articles; and publications with no substantial information on the topic of research.

5.5 Method of Analysis

We will adopt thematic analysis to analyze the collected data and identify key themes. Thematic analysis is a suitable method for examining a set of qualitative data generated using descriptive research design. The current study will focus on several themes explored in the previous research article on AI and education. Similar to the IRE assignment, the following themes will be used:

- AI-enabled personalized career guidance
- Career readiness and decision-making
- Digital accessibility and inclusion
- Ethical and privacy concerns
- AI literacy and skills for teachers and counselors
- Future direction of school-based career counselling

The use of thematic analysis will allow the researcher to engage in creative processes of generating new ideas and providing an integrated perspective on AI-enabled career counselling.

VI. OPPORTUNITIES OF ARTIFICIAL INTELLIGENCE FOR DIGITAL CAREER GUIDANCE

Artificial Intelligence offers opportunities to change career guidance from a generic, one-size-fits-all practice into a more individualised and student-centred process. Career guidance artificial intelligence technologies offer insights into students'

interests, aptitude, academic achievement, personality type, and labour market prospects, influencing their educational and occupational decisions. For secondary education students, artificial intelligence for career guidance facilitates career awareness, exploration, and decision-making, while also supporting teachers and career counsellors in their efforts to enhance career guidance services.

6.1 Personalized Career Recommendations

The power of Artificial Intelligence to give personalized suggestions to students based on their academic and personal profile and other factors stands out as an advantage over conventional counselling approaches. This can create a better fit between students' skills, interests and the educational or career options they choose.

For instance, AI can recommend AI, Mathematics, Engineering, Statistics, Data Science, etc., to a student who demonstrates proficiency in the subject and a career in fields such as Design, Architecture, or Digital Media to a student with creative talents

6.2 Intelligent Career Interest Assessment

Career interest assessment tools are used world-over to help students explore their interests and connect them with relevant careers. AI can offer digital career interest assessments that can offer quick analysis and interpretation of career interests of students based on Science, Commerce, Arts, Sports, Entrepreneurship, Healthcare, and Vocational streams. Such assessments produce career profiles that help students and counsellors make better career decisions. Similarly, such profiling can be utilized within school career counselling programs.

6.3 Labour Market Information

Artificial intelligence can also offer information about the labour market, including new occupations and professions and the required competencies, salary trends, job, and employment opportunities. It enables counsellors and students to take informed decisions based on current and future labour market needs.

6.4 Higher Education Guidance

Choosing between colleges, universities, scholarships, and various examinations is another

area where AI can benefit counsellors and students, especially government school students. Intelligent agents can recommend suitable institutions based on students' academic qualifications, financial status, location, and personal interests.

6.5 Multilingual Digital Career Counselling

Career counselling resources should be accessible and easy to understand in local languages. Artificial Intelligence has the capacity to offer multilingual career counselling resources in Punjabi, Hindi, English, and other Indian languages, and help students, parents, and counsellors find appropriate career guidance resources. Similarly, the use of language can increase parent engagement, particularly in rural areas. By being able to provide career guidance in local languages, AI can boost student learning and engagement.

6.6 Inclusive Career Guidance Resources

Artificial Intelligence can offer features such as speech recognition and voice assistants, text-to-speech and speech-to-text, and other assistive technologies to benefit students with specific needs, such as those with poor eyesight or other developmental or sensory disabilities. Using such features can help students with disabilities access career guidance resources and participate in career guidance activities, benefiting both students and counsellors.

6.7 Career Counsellors Analytics

AI should not replace human career counsellors, but instead augment and support their efforts, and improve upon existing career counselling resources. This can be achieved by creating analytics reports and visual dashboards that inform counsellors, especially within schools, of students' interests and aptitudes. Counselors can use such information to advise and guide individual students or groups of students by analyzing students' skills, interests, and values against their career choices, and by tracking students' career readiness and providing targeted career counselling services.

6.8 Future Skills Development

Students need to acquire future skills beyond choosing a career or an occupation. Future skills such

as critical thinking, creativity, collaboration, communication, digital skills, problem-solving, entrepreneurship, and innovation are becoming increasingly important. AI can recommend or offer online courses, certifications, competitions, and other resources that students can use to develop their competencies, knowledge, and skills in chosen specializations or fields of study. As a result, career counselling becomes a process of helping students achieve their career goals through continuous learning and practice.

Summary of Section

The literature shows that Artificial Intelligence has the potential to transform career guidance, enabling more students to identify lucrative fields of study and build rewarding careers, particularly by providing personalized recommendations, skills and knowledge resources, inclusive solutions and multilingual information. By doing so, AI can support career readiness and improve school counselling services during students' secondary and higher education studies.

VII. CHALLENGES AND ETHICAL CONCERNS OF AI-ENABLED CAREER GUIDANCE

Artificial Intelligence can be applied in myriad ways to provide career counselling services in secondary education. The key challenge is to ensure that such technologies are used ethically to enhance decision-making processes. Career guidance is a highly sensitive area of students' life, and thus, Artificial Intelligence must be used responsibly and with caution. International organizations advocate for the ethical use of AI in education, and such technologies should respect students' rights, as well as adhere to equality and protection principles.

7.1 Data Privacy and Security

Artificial Intelligence requires processing students' data, and the information must be handled carefully to avoid security breaches and unauthorized use. Educational institutions need to develop appropriate measures for collecting, storing, and using personal information, and students should give their consent to such activities. Additionally, ethical guidelines for

teachers, administrators, and counsellors should be established to ensure that personal data is protected from theft and illegal redistribution.

7.2 Algorithmic Bias and Fairness

Developers of artificial intelligence software usually train such systems using existing data sets. However, the information may reflect historical biases, and thus, AI may perpetuate social divides by recommending specific careers for some individuals and rejecting others. To address this issue, training data sets should be reviewed, and algorithms must be held accountable for their recommendations. In addition, international organizations should play a crucial role in ensuring that AI-based career counselling services operate globally and offer fair recommendations.

7.3 Digital Divide and Accessibility

The ethical use of AI in education can only be achieved if all students can equally benefit from such technologies. However, many institutions in remote areas lack the technological infrastructure to store and process large amounts of data. As a result, some students may find it difficult to access AI-enabled career guidance because of the absence of digital equipment and reliable internet connections. Such disparities may arise when developers fail to consider institutional needs.

7.4 Limited AI Literacy Among Teachers and Counsellors

Teachers and counsellors play a critical role in helping students make informed career decisions. However, they need to be familiar with Artificial Intelligence basics, including its capabilities and limitations, so that they can advise learners appropriately. Educational institutions should develop continuous professional development programs for teachers and counsellors, so that they can understand how to apply such technologies to enhance career guidance services.

7.5 Overdependence on Artificial Intelligence

Career counselling considers students' interests, abilities, and values, and thus, it is a comprehensive process. However, Artificial Intelligence algorithms are unable to analyse personal aspects, such as

individual perspectives and motivations. Therefore, students should not rely solely on AI recommendations, and counsellors need to ensure that graduates utilise a mix of conventional and modern approaches when making career decisions.

7.6 Transparency and Explainability

Students and parents need to know how Artificial Intelligence works and how it arrives at its recommendations. Developers should make their algorithms open-source and explain their inner workings so that students can understand how such technologies can benefit them. In addition, career counsellors should help learners explore the mechanisms of AI to ensure they make rational career-related choices.

7.7 Reliability of AI-generated Career Advice

Generative artificial intelligence applications have the potential to provide misleading information about careers, colleges, scholarships, salaries, and other crucial areas. Such recommendations can deter learners from pursuing certain opportunities, and thus, career counsellors should ensure that the information is credible and up-to-date. In addition, the professionals should remind students that the recommendations do not constitute the truth about the chosen area.

7.8 Policy and Institutional Readiness

Many educational institutions have yet to develop appropriate policies about the ethical use of Artificial Intelligence in career counselling. Such guidelines need to be created to ensure that institutions utilise a responsible approach when implementing such technologies. Furthermore, ethical principles are vital for promoting student welfare, as well as ensuring that career advisors adhere to professional accountability and integrity.