

Use of Artificial Intelligence in Career Guidance: Perspectives of Secondary Guidance Counselor

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Choosing the correct academic track and strand is a significant decision for junior high students, often complicated by various environmental influences. Assisting these students with an effective tool to provide suitable track options is crucial for their future career success. This study explores the use of Artificial Intelligence (AI) in career guidance within public secondary schools in Legazpi City, Philippines. The researcher employed a mixed-method approach to achieve the research objectives. A systematic review was conducted to gather and analyze related literature and data, supplemented by interviews with guidance counselors. Sentiment analysis was performed to capture the respondents' insights and opinions.

The findings revealed positive feedback from respondents regarding the integration of AI in career guidance. The results suggest that AI holds substantial potential in enhancing the career guidance process for both counselors and grade 10 students. Respondents highlighted several benefits of AI, including increased efficiency in their work, the ability to guide students more effectively, opportunities for further research, and enabling students to make informed decisions about their academic paths. The study underscores the need for intelligent tools and software systems to support career guidance, emphasizing the potential for ongoing research and development in this field. The integration of AI in career guidance can significantly impact the ease and accuracy of guiding students towards suitable academic and career paths, ultimately contributing to their future success.

Keywords: Artificial Intelligence, Career Decision Tool, Career Guidance, K-12.

1. Introduction

Decision-making is an integral part of everyday life, influencing choices as mundane as selecting an outfit or planning a meal. While these decisions often seem straightforward, the transition into puberty and adolescence brings a different set of challenges. During this

developmental stage, making crucial decisions, such as selecting a career path, becomes significantly more complex and impactful.

K – 12 Program

The K-12 program in the Philippines has revolutionized the country's basic education system, aiming to address longstanding challenges and prepare students for the demands of the 21st century. Through the K-12 program, the curriculum has been decongested, offering a comprehensive 12-year education that provides students with ample time to master essential skills and competencies [1]. This restructuring is aligned with the program's overarching goal of developing lifelong learners and equipping graduates for various paths, including tertiary education, middle-level skills development, employment, and entrepreneurship[2].

One of the key features of the K-12 curriculum is its emphasis on practical skills and lifelong learning. Students are introduced to fundamental concepts like numbers, alphabet, colors, and shapes through engaging activities such as dances, games, and songs [3]. These interactive learning experiences foster not only academic growth but also critical thinking and problem-solving abilities.

The additional years of schooling in the K-12 program serve a dual purpose. They help the Philippines catch up with global education standards by providing students with sufficient time to develop essential skills and absorb core competencies [3]. Simultaneously, they ensure that graduates are better prepared to meet the evolving demands of the job market equipped with the knowledge and skills necessary for success in various fields.

Amidst these changes, the K-12 program offers students a range of career tracks to choose from, including academic, technical-vocational-livelihood, arts and design, and sports. Within these tracks are specialized strands tailored to cater to diverse interests and aptitudes, providing students with opportunities to explore and excel in areas aligned with their aspirations.

Given the significance of career decision-making within the K-12 framework, it becomes essential to provide students with effective guidance tools. These tools can help students navigate the plethora of options available to them, ensuring that they make informed choices that align with their interests, abilities, and long-term goals. By empowering students to choose the right career path, the K-12 program sets them on a trajectory toward personal and professional fulfillment, ultimately contributing to the development of a skilled and resilient workforce in the Philippines.

Impact of Wrong Decision on the Future Career

A Research indicates that factors such as family influence, personal interests, educational background, and societal expectations play crucial roles in shaping students' career decisions [4][5][6]. However, despite their best efforts, students may sometimes make choices that do not align with their true passions or aptitudes [7][8]. The consequences of these misaligned decisions can be profound and far-reaching.

Wrong career choices can lead to job dissatisfaction, decreased motivation, and limited career advancement opportunities [9][10]. Individuals may find themselves trapped in

professions that do not fulfill them or provide avenues for personal and professional growth [11]. This dissatisfaction can extend beyond the workplace, impacting overall well-being and life satisfaction [12].

Furthermore, a wrong choice of career might lead to a job-skills mismatch, which is one of the top concerns of employers, with 42% citing it as a significant issue [13]. Inadequate preparation, including education, training, and guidance, is a primary cause of job-skills mismatch. Figure 1 illustrates the factors contributing to career indecision and the causes of choosing the wrong profession.

Research also indicates that career indecision significantly affects the choice of occupation [14]. The quality of decisions made by students during their junior high years is crucial for both their individual growth and societal welfare [15].

Recognizing the potential consequences of wrong career choices, the Philippine government began prioritizing career guidance in 2008 due to the alarming rates of unemployment among college graduates [16]. The misalignment between graduates' skills and workforce demands contributes to unemployment and underemployment rates. The wrong choice of course taken by many high school students exacerbates these issues [17].

These findings underscore the importance of providing students with comprehensive career guidance and support to help them make informed decisions that align with their interests, skills, and aspirations. By addressing the root causes of career indecision and ensuring adequate preparation, stakeholders can empower students to navigate their career paths successfully and contribute positively to the workforce and society as a whole.

It is proven that technology has greatly improved the education sector. This is demonstrated by the numerous technologies, both old and new, that teachers and students use in classrooms on a daily basis [18]. Artificial Intelligence is one of the many fields of technology used in education to give universal access to learning. However, Artificial Intelligence remains a mystery in the field of career counseling, particularly in the Philippines. This study will discover what AI can offer to improve career guidance.

2. METHODOLOGY



Systematic Review

A systematic review is a meta-analysis of studies. It seeks to assemble all available evidence on a specific topic in order to answer a specific research question. The researcher used

PRISMA guidelines and a flow diagram.

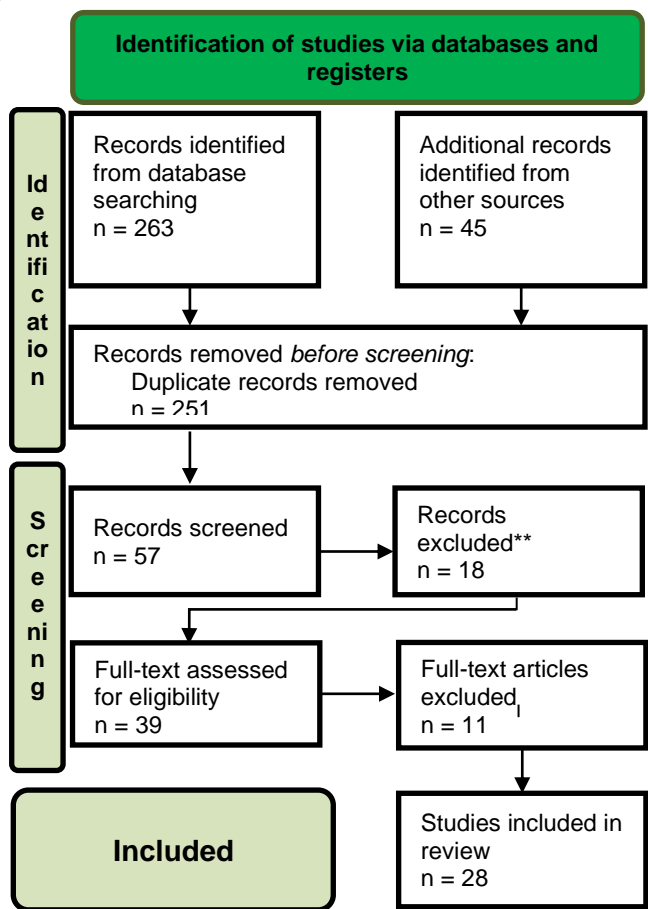
Step 1. Prepare Topic

In this step, the researcher identifies a research question that would help to give a clearer view. The topic of the literature review was taken from published papers between 2017 and 2021, with search keywords of career guidance, career counseling, factors in career decision-making, artificial intelligence, and expert systems. The electronic databases used to seek literature studies include the International Journal of Modern Education Studies and Computer Science and the International Journal of Academic Research in Business and Social Sciences.

Step 2. Conduct literature search

The researcher was able to obtain 308 articles using the mentioned search keywords. Mendeley Reference Manager is used to compile/group the obtained literature to create bibliographies, remove duplicate records, and easily cite them in the paper.

Steps 3 to 6. Screen and Select studies, extract the data, analyze and synthesize evidence, and present the findings.



Following the last phase of the systematic review, which presented the findings, the researcher used the results to show and introduce “Artificial Intelligence” to the target respondents. This allowed them to understand the technology and get an idea of how it could be used in their field.

Interview

The researcher interviewed 11 registered and designated guidance counselors from public secondary schools in Legazpi City. This investigative approach was undertaken to meticulously identify and comprehend the prevailing practices, existing career decision tools, and challenges and requisites within the domain of career guidance.

Respondents’ Perspective

The researcher presents and discusses the results of the conducted systematic review. This is for the respondents to understand what AI is and what it can offer for career guidance. During one-on-one interviews with each guidance counselor, the researchers were able to delve deeply into respondents' thoughts and feelings, uncovering rich and nuanced insights about the possible use of Artificial intelligence in their work and field.

3. RESULTS AND DISCUSSION

The focus of the identification and analysis of this study is divided into four sections:

Current Process and Tool in Career Guidance

The career guidance and counseling program in the Philippines is a vital component of the education system aimed at providing students with the necessary support and resources to make informed decisions about their future careers. Several legislative measures and initiatives have been implemented to strengthen and institutionalize career guidance programs across educational institutions in the country.

Career Guidance Program

The enactment of Republic Act No. 11206, also known as the "Guidance and Counseling Act of 2018," underscores the government's commitment to promoting the welfare and development of individuals through guidance and counseling services. This law mandates the integration of comprehensive guidance and counseling programs in all public and private educational institutions, from elementary to tertiary levels [19]. It emphasizes the importance of career guidance in helping students explore their interests, aptitudes, and aspirations, thereby enabling them to make well-informed career choices.

To support the implementation of career guidance programs, various tools, and assessments are utilized to assess students' interests, skills, and personality traits. These assessments help identify potential career paths and match students with suitable educational and vocational opportunities. Profiles Asia Pacific, a leading provider of assessment solutions, offers insights into the importance and benefits of career guidance assessments in the Philippines, emphasizing their role in facilitating career decision-making and personal development [20].

Republic Act No. 10533, also known as the "Enhanced Basic Education Act of 2013,"

further underscores the importance of career guidance and counseling in the Philippine educational system. This law recognizes the need to equip students with the knowledge, skills, and competencies necessary for their future careers and endeavors. It emphasizes the integration of career guidance activities into the K-12 curriculum to prepare students for further education, employment, and entrepreneurship[18]

The Department of Education (DepEd) plays a central role in implementing career guidance programs across schools nationwide. Through its Career Guidance Program, DepEd provides schools with guidelines, resources, and training to enhance the delivery of career guidance services. The program aims to equip students with the necessary information and skills to make informed career decisions and transition successfully from school to the workforce [19].

Homeroom Guidance

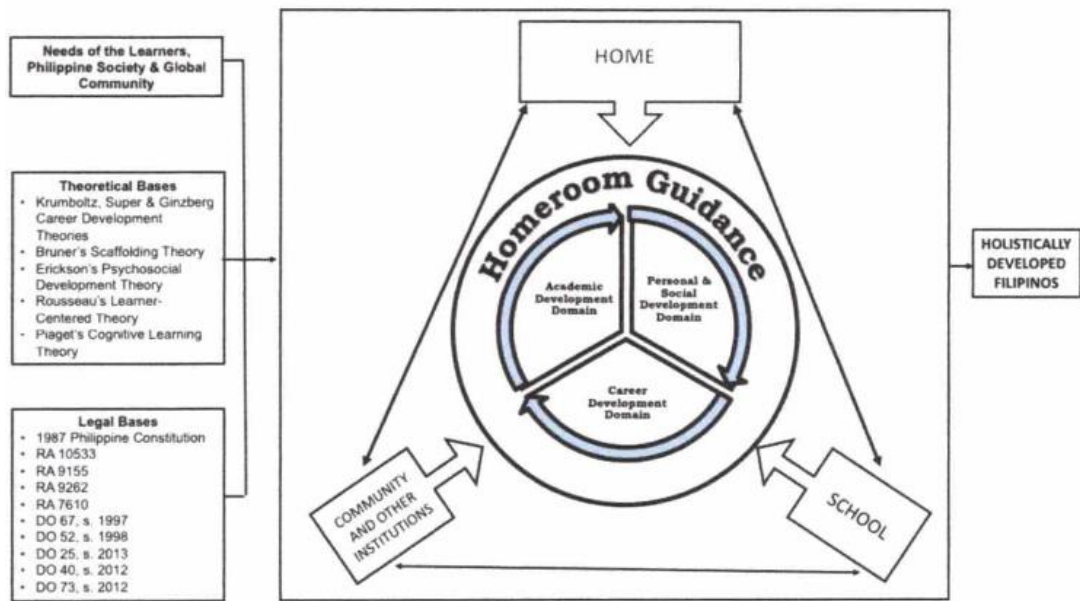


Figure 1. Homeroom Guidance Framework

Homeroom Guidance is a comprehensive, developmental, and proactive program that teaches K–12 students life skills in three areas: academic development, personal and social development, and career development (based on DM 155 s. 2020) [21]. Homeroom guidance modules, developed by DepEd and other educational organizations, serve as valuable resources for homeroom advisers in delivering relevant and engaging guidance activities to students.

These modules cover various topics, including self-awareness, goal-setting, study habits, time management, peer relationships, conflict resolution, and career exploration. By addressing these topics, homeroom guidance programs aim to empower students to become responsible and productive members of society, capable of navigating the challenges and opportunities they encounter in their academic and personal lives.

The Homeroom Guidance is implemented in secondary school through student and parent orientation, distributing the printed modules, and uploading the softcopy to a virtual classroom like Google Classroom. Per quarter. The distribution and collection of returned modules were assigned to each homeroom adviser. The collected modules were assessed and graded using the Learner's Development Assessment Tool. In the said tool, the students are being graded using a verbal description: (1) No Chance to Observe; (2) Needs Improvement; (3) Developing; (4) Sufficiently Developed; and (5) Developed and Commendable.

National Career Assessment Examination (NCAE)

Introduced in January 2007, the National Career Assessment Examination (NCAE) stands as a pivotal tool in the K to 12 Basic Education Program, serving as an aptitude test aimed at furnishing junior high school students with invaluable insights through self-assessment, career awareness, and guidance [19]. However, the advent of the COVID-19 pandemic in 2020 and subsequent lockdown measures disrupted the traditional conduct of face-to-face classes, leading to a hiatus in administering the NCAE to grade 9 students. In light of this challenge, guidance counselors have leaned on alternative resources, particularly the Homeroom Guidance modules and supplementary materials like the Multiple Career Development Pathways (MCDP) Toolkit [21].

The MCDP Toolkit serves as a vital resource for Homeroom Guidance teachers, equipping them with essential tools and techniques to conduct career coaching activities with grade 10 or incoming senior high school students. This comprehensive toolkit encompasses a range of career planning activities and assessment tools tailored to assist learners in exploring various career options and charting their desired career paths. By considering factors such as talents, values, interests, personal goals, and aspirations, students are guided in making informed decisions, such as selecting a preferred senior high school track aligned with their individual strengths and aspirations.

Despite the challenges posed by the pandemic, the utilization of the Homeroom Guidance modules and the MCDP Toolkit underscores the resilience and adaptability of the education system in continuing to provide crucial support to students in their journey toward academic and career success. By leveraging these resources, educators and guidance counselors strive to empower students with the knowledge, skills, and confidence needed to navigate the complexities of the ever-evolving job market and pursue fulfilling career paths aligned with their unique talents and aspirations.

Career Orientation & Hopping

Despite the prevailing challenges posed by current learning modalities and physical restrictions within educational institutions, secondary schools continue to prioritize career orientation activities. These sessions often involve collaboration with government agencies such as the Department of Science and Technology (DOST), Department of Labor and Employment (DOLE), Commission on Higher Education (CHED), Technical Education and Skills Development Authority (TESDA), and various private institutions.

It is widely recognized that exposure to professional orientations at a young age significantly influences students' ability to envision their future careers effectively. Therefore, initiating professional orientation activities within schools is essential. These sessions serve to

heighten students' awareness of the diverse nature of different occupations and aid in identifying career paths that align with their individual strengths and interests. Furthermore, such orientations play a crucial role in acquainting students with the social environments associated with various careers, providing them with invaluable insights into the professional landscape.

Moreover, some schools go beyond traditional career orientations by facilitating career-hopping opportunities for their students. Through programs like career hopping, students have the chance to explore different senior high tracks and strands firsthand. This may involve sitting in on classes from different tracks or visiting various career workspaces. By experiencing firsthand the realities of different career paths, students can make more informed decisions about their educational and career trajectories, ultimately leading to better alignment between their skills, interests, and aspirations. Problems and Needs in Career Guidance.

Challenges in Current Career Process and Tool in Career Guidance

Lack of Registered Guidance Counselor

Currently, Legazpi City faces a shortage of registered guidance counselors, with only three serving the entire area. Consequently, some schools have had to designate teachers from their existing staff to fulfill the role of guidance counselors. For instance, in one school, a Filipino teacher was assigned to this role. However, these designated counselors are not authorized to provide counseling services to students in need. To address this challenge, schools have adopted a clustering approach. Under this method, schools without registered guidance counselors are paired with those that have them. When a student requires counseling support, the designated guidance counselor refers them to the registered counselor from the paired school, following the cluster method, a process that can be time-consuming.

Work Overload

As already mentioned in the previous section, some schools only have designated guidance counselors. These are the teachers with different majors and are given additional work as designated guidance counselors. For instance, one respondent mentioned that their designated guidance counselor is a Filipino teacher. In addition to fulfilling their primary role as a Filipino teacher, these individuals are tasked with various responsibilities typically associated with guidance counseling, such as reviewing modules, generating reports for submission to DEPED, and more. Juggling multiple roles often places significant pressure on these teachers, leading to challenges in meeting deadlines and effectively fulfilling their duties.

Limited Communication.

In Legazpi, a significant portion of public schools is located in remote areas, which presents logistical challenges in the distribution and collection of study modules. These areas often lack efficient transportation infrastructure, making it difficult for teachers to deliver modules to students and collect completed assignments in a timely manner. As a result, ensuring that all students receive and return their modules on time becomes a considerable challenge for educators.

Moreover, when students consistently fail to submit their modules, it becomes the responsibility of the subject teacher to report this to the guidance counselor. However, reaching out to these students poses another obstacle. Many students attending public schools in these remote areas do not have access to mobile phones, and their residences are often situated far from the school premises. Consequently, making direct contact with these students or their families becomes challenging for teachers and guidance counselors alike.

This lack of communication channels and geographical distance between the school and students' homes compounds the difficulties guidance counselors face in fulfilling their responsibilities. In particular, generating accurate and timely reports required by the Department of Education (DepEd) becomes problematic, as many students may have incomplete records due to unsubmitted modules.

Late NCAE Results

The National Career Assessment Examination (NCAE) is a significant assessment tool administered to Filipino students to help them identify their career interests and aptitudes. [22], [23], [24], [25], [26] However, the timely receipt of NCAE results can be a concern for students awaiting their outcomes.

According to information from the Department of Education (DepEd), the NCAE results are typically released around four to six months after the examination date. This delay in receiving results can be attributed to various factors, including the processing and analysis of test scores, as well as the coordination of efforts between different educational institutions and DepEd offices [19], [21].

The prolonged wait for NCAE results can have implications for students' academic and career planning. Without timely access to their assessment outcomes, students may experience uncertainty about their future career paths and struggle to make informed decisions regarding their educational and vocational pursuits. Also, the student's interest or behavior can change, which is why the respondents also mentioned that some of the results are not congruent with the student's current desire.

Multiple Career Development Pathways Missing Outputs

The low participation rate in the Multiple Career Development Pathways (MCDP) poses a significant challenge for guidance counselors tasked with evaluating and guiding students. With only a few students engaging in the MCDP, counselors may find it difficult to gather sufficient data to assess students' career interests, skills, and aspirations accurately.

This lack of participation in the MCDP can hinder the effectiveness of career guidance programs within schools. Without comprehensive information about students' career preferences and aptitudes, counselors may struggle to provide tailored guidance and support to help students make informed decisions about their future paths.

Furthermore, the limited engagement in the MCDP may indicate a broader issue related to students' awareness and understanding of the program's benefits. It is essential for schools to promote the MCDP actively and encourage greater participation among students to ensure that they receive the full benefits of career guidance initiatives.

Addressing the low participation rate in the MCDP may require proactive measures, such as

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increasing awareness through informational campaigns, providing incentives for participation, and integrating MCDP activities into the curriculum. By fostering a culture of career exploration and development within schools, guidance counselors can better fulfill their role in guiding students toward successful and fulfilling career pathways.

Benefits of AI in Career Guidance

Systematic Review Results

Artificial Intelligence (AI) has emerged as a transformative tool in various fields, including career guidance, offering numerous benefits that enhance the effectiveness and efficiency of counseling services. Through AI-powered systems, students and career counselors alike can access a wide range of resources and tools tailored to their specific needs, facilitating informed decision-making and personalized support throughout the career exploration process.

Efficiency and Accessibility: AI streamlines administrative tasks and information retrieval processes, saving time and effort for both counselors and students. With AI algorithms, vast amounts of career-related data can be analyzed and organized efficiently, providing instant access to relevant information and resources from anywhere at any time [23], [24], [25].

Personalized Guidance: AI algorithms can analyze individual student data, such as academic performance, interests, and personality traits, to generate personalized career recommendations and pathways. By considering each student's unique profile, AI-powered systems can offer tailored guidance that aligns with their strengths, preferences, and aspirations, thereby enhancing the relevance and effectiveness of career counseling interventions [23], [24], [25], [26], [27], [28].

Continuous Support and Monitoring: AI-enabled platforms can provide ongoing support to students throughout their career journey, offering regular updates, reminders, and recommendations based on their evolving needs and goals. Through automated notifications and progress tracking features, students can stay engaged and motivated to explore various career options and take proactive steps towards achieving their objectives[23], [28], [29].

Data-Driven Insights: AI algorithms can analyze large datasets to identify trends, patterns, and correlations related to career preferences, labor market demands, and educational pathways. By leveraging data-driven insights, career counselors can gain a deeper understanding of the evolving job market landscape and tailor their guidance strategies to better meet the needs of students and employers[30], [31].

Scalability and Adaptability: AI-powered career guidance systems can be scaled to accommodate large student populations and diverse educational settings, making them accessible to individuals from various backgrounds and demographics. Additionally, these systems can adapt to changes in the job market and educational landscape, ensuring that students receive up-to-date and relevant guidance throughout their academic and professional journey[23], [27], [28], [29].

Guidance Counselor Perspective

Work Less and Faster:

The guidance counselor acknowledges that AI can significantly reduce their workload by automating tasks such as monitoring student activity, preparing reports, and accessing information quickly with just a click.

With AI, there's no need to print numerous modules, as they can be generated in minutes, streamlining administrative processes.

Easily Guide Each Student at One Glance:

AI enables the counselor to have instant access to students' data, allowing for efficient guidance and personalized suggestions.

The counselor can provide timely support without waiting for results, enhancing the effectiveness of their interventions.

Will Open for More Research:

The availability of data through AI facilitates further research, enabling a deeper understanding of the field and driving improvements in the education sector.

Students Can Decide What Career Path to Take:

Students benefit from AI by accessing their own data to explore suitable career tracks and strands.

They can identify areas for improvement and explore alternative career options based on their interests and strengths.

While recognizing these benefits, the respondents emphasize the importance of human interaction in counseling. They believe that the role of providing emotional support and guidance to students should remain with registered guidance counselors rather than being solely reliant on AI. This underscores the need for a balanced approach that leverages the strengths of both technology and human expertise in career guidance.

Perceived Challenges and Risks of AI in Career Guidance

Teachers and Students' Equipment or Devices: One of the primary challenges in implementing AI-driven career guidance systems is ensuring access to adequate technology among both teachers and students. Disparities in device availability and technological proficiency may hinder the effective utilization of AI tools, limiting their impact on career counseling outcomes.

Internet Connection: Reliable internet connectivity is essential for accessing AI-powered career guidance platforms. However, inadequate internet infrastructure or connectivity issues in certain regions may impede students' ability to engage with these systems effectively. This poses a significant barrier, particularly in remote or underserved areas with limited internet access.

User Acceptance and Adaptation: The successful adoption of AI in career guidance hinges on user acceptance and adaptation. Resistance to change, skepticism about AI technology, and reluctance to rely on automated systems for career advice may hinder the widespread adoption of AI-driven solutions among educators, students, and parents. Overcoming these barriers requires proactive efforts to educate stakeholders about the benefits and capabilities of AI in career counseling.

Data Security: The use of AI entails the collection and analysis of vast amounts of student data, raising concerns about privacy and data security. Safeguarding sensitive information against unauthorized access, breaches, or misuse is paramount to maintaining trust and confidence in AI-driven career guidance systems. Implementing robust data protection measures, adherence to privacy regulations, and transparent data handling practices are essential to address these risks effectively.

Addressing these perceived challenges and risks is crucial for the successful integration of AI into career guidance practices. By prioritizing access to technology, ensuring connectivity, fostering user acceptance, and implementing robust data security measures, educational institutions can maximize the potential of AI to enhance career counseling outcomes while mitigating associated risks.

4. CONCLUSION

The exploration of challenges, benefits, and perceived risks associated with current career guidance practices and the integration of Artificial Intelligence (AI) in secondary education offers valuable insights into the perspectives of secondary guidance counselors. The identified challenges, including the lack of registered guidance counselors, workload pressures, communication limitations, delayed assessment results, and low participation rates in career development pathways, underscore the need for innovative solutions to enhance the effectiveness of career guidance services.

Despite these challenges, AI's benefits in career guidance are substantial. AI-powered systems offer efficiency, accessibility, personalized guidance, continuous support, data-driven insights, and scalability. From streamlining administrative tasks to providing tailored recommendations based on individual student profiles, AI has the potential to revolutionize career counseling practices and empower students to make informed decisions about their future paths.

The perspectives of guidance counselors highlight the importance of maintaining a balance between technology and human expertise in counseling. While AI can enhance efficiency and provide valuable insights, human interaction remains essential for providing emotional support and guidance to students. This emphasizes the need for a collaborative approach that leverages the strengths of both AI and human counselors to deliver comprehensive and personalized career guidance services.

Addressing the perceived challenges and risks associated with AI implementation, such as technology access, internet connectivity, user acceptance, and data security, is critical for the successful integration of AI into career guidance practices. Proactive measures, including infrastructure investments, stakeholder education, and robust data protection measures, are

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necessary to maximize the benefits of AI while mitigating potential risks.

In conclusion, the perspectives of secondary guidance counselors underscore the transformative potential of AI in enhancing career guidance services. By embracing innovation, fostering collaboration, and prioritizing student-centered approaches, educational institutions can leverage AI to empower students in their journey towards academic and career success. Continued research, investment, and dialogue are essential to realizing the full potential of AI in career guidance and shaping the future of education.

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