[1] **Jing Huang**

[2]* **Sabariah Sharif**

[3] **Bee Seok Chua**

Applications of AI Information Technology in Psychological Education

Journal of Electrical Systems

Abstract: - Information technology and education have recently been integrated into every subject. Here, based on the application of artificial intelligence in information technology and its practice in the communication of psychological education, we look into the application of artificial intelligence in information technology for psychological education. For developing countries, artificial intelligence has a growing role in carrying out comprehensive development in computer instruction to offer superior quality, efficient, and individually focused training that replicates the main characteristics of other computers. The aim is to develop an adaptive, easy-to-operate, and practical computer instruction recovery method with a better curative effect under artificial intelligence technology.

The use of artificial intelligence has expanded rapidly in recent years. The study aims to provide information technology in education, as students and staff must turn to the international network to complete electronic tasks, such as handling the material. The study's objective is to explore how the AI-based system enhances learning outcomes through reviews of previous literature and direct analyses and assistance with faculty. The outcomes display the current feasibility that further expenditure on additional skills determines superior added value with the assistance of the distributed system. An in-depth discussion of the overall study is included. The rising development in artificial intelligence has strongly promoted the rapid advancement of all sectors, particularly in the field of automated computers.

Keywords: *Psychological Development and Education*

I. INTRODUCTION

Information technology has become increasingly important in various fields. Educational circles often use information technology for teaching and learning with the advent of the Internet, cloud computing, and other technologies. (Li & Jiang, 2021) . The number of AI-related technical papers and industrial applications in psychological and behavioral fields and the discussion of the benefits and risks of merging AI and psychological methods in the popular science community suggests that this essay is timely(Xin et al., 2022). Digital era psychological education should be handled with newer technological approaches. In this section, we aim to consolidate, summarize, and analyze the AI technology and psychological methods that apply in practice and to integrate the development of scientific experiments and relations with social demand

AI is increasingly being used to automate tasks that people have traditionally performed. Over time, technological advancements have led to the development of computers and machines that are capable of AI, especially in information technology(Xing & Wang, 2022). We also link information technologies, intelligent tutoring aids, real-world experiments, and psychological theories to assist further advances in psychological education systems. Artificial Intelligence (AI), recognized for its transformative potential, has been increasingly leveraged across industries to enhance operational efficiency and provide innovative solutions, as exemplified in the financial sector (Chin et al., 2024). Data-driven decisions and strategies, particularly involving quality assurance and lesson design, have been identified as critical in optimizing institutional efficiency (Wong et al., 2024). We explore psychology as an AI turn from an educational standpoint, and the following questions are used to define the framework for this analysis. Despite the potential concerns, this paper is primarily intended for psychology teachers at colleges and universities. In this essay, we aim to describe an opportunity to create a system that focuses on the integration of psychological theories and AI information technologies in practical and scientific experiments, explicitly mentioning the templates that emerge when using such technologies, as well as the opportunities and risks to researchers and their projects(Chae, 2022).

II. THEORETICAL FOUNDATIONS OF AI IN PSYCHOLOGICAL EDUCATION

Artificial Intelligence (AI) is a branch and application of computer science that aims to develop systems capable

[1] Universiti Malaysia Sabah; Nei Jiang Normal University China
[2]* Corresponding author: Universiti Malaysia Sabah, Email: sabariah@ums.edu.my
[3] Universiti Malaysia Sabah

of undertaking tasks that typically require human intelligence. Over recent years, there has been remarkable progress in key areas such as inductive reasoning, machine learning, and predictive modeling. In artificial intelligence, learning is a crucial area for development. In machine learning, an application of AI, computer programs carry out tasks through a process of learning from data. In this way, it is believed that AI technologies will play an increasing role in transforming education from young adults to professional and lifelong learning.

The creation of the interdisciplinary field of psychological education in the 1980s promoted the integration of psychological theories into educational practice, which made teachers realize that knowing the psychology of intellectual development and the psychological behavior of students was the necessary condition for the rational application of their pedagogy(Mohamed et al., 2022). Psychological education can be applied to all types, subjects, and levels of learning content without exception(Adıgüzel et al., 2023). The colonization of psychological theories in education has been largely confined to the field of teaching development, student quality assessment, and career choice counseling. AI is committed to building intelligent systems that can process information similarly to human capacity(Alam, 2021). This common connection to the psychology of human information processing has provided a bridge between psychological theories about information processing and the development of computer-based educational technologies. The computer can be used to simulate the operations performed by the human mind, making it possible to test the predictions of these theories(Kumar et al.2023).

Artificial Intelligence (AI) has drawn wide attention in recent years. AI refers to the theory and development of a set of techniques or technologies that aim to enable machines to simulate human cognitive functions such as learning, reasoning, and understanding natural language and acting on their own. Machine learning is a branch of AI that focuses on developing algorithms that enable computers to learn from and make predictions on data. Other AI subsets, including computer vision, natural language processing, intelligent agents, and robotic process automation, also gained traction (Shanmugam et al., 2023). AI algorithms can process large datasets containing human data that surpasses the amount of one's experiences. With insights drawn from the data, AI can develop wisdom. Advanced computing power and storage capacity allow massive datasets to inform decision-making. AI's greatest promise is elevating raw data into recognized, understandable, and actionable information. (Dong et al., 2020)(Pedro, 2023)(Dai & Ke, 2022)(Zhang & Lu, 2021)(Van et al.2024In terms of educational applications, AI is capable of informed teaching; it is not just technological advances that offer new opportunities for personalizing learning and enhancing learners' experiences. Most AI applications in education involve some form of individual tutoring; it is no surprise that the interest in educational AI often takes the form of interest in intelligent tutoring systems. The program automatically and instantaneously assesses the tasks in intelligent tutoring systems, and personalized feedback and hints are communicated to the student. The tutorial interventions are personalized according to the student's learning difficulties, prevalent misconceptions, and learning pace. Multiple-choice questions can be elaborated that assess only factual or declarative knowledge(Shanmugam et al., 2023). A sufficient expansion is using drag-and-drop items in which students provide right or wrong responses. It not only applies to memory but also to basic comprehension or conducting computation. Nevertheless, the creation and validation of the exercises are often more difficult due to the increased complexity of knowledge representation and the structure of concept mapping. Conclusively, AI is said to launch groundbreaking changes in the future. Education will need to integrate this rapid shift by adapting the educational paradigm, syllabus design, instruction modes, and capabilities assessment. However, there is no clear trend toward integrating AI because of the various difficulties and challenges that AI encompasses(Alam, 2021).

III. Applications of AI in Psychological Education

3.1 **Psychological Education**

Psychological education focuses on providing psychological knowledge to college or university students in a way that can be applied. (Wang et al., 2020). Professional psychology students will receive advanced psychological courses and training in the curriculum, while those who are not specialized in psychology will also receive some psychological knowledge(Wang et al., 2021). Some may use psychological education directly in their future careers, and some will use psychological knowledge to coordinate their behavior in their daily life. Psychological education has its own characteristics, such as life application, humanism, theory application, individualization, participation, inheritance, and innovation. With sufficient time, modern teaching equipment, and a suitable teaching environment, psychological lessons are introduced. This education pays attention to cultivating the

student's learning initiative and practical ability by using diverse teaching methods, including mainly lecturing, secondly discussion, and imitation (Wu et al., 2020) Marler et al.2024The goal of education is to promote human growth and development. We must learn relevant psychology theories to better understand the brain, learn the human body and mind, and consequently carry out education better. Guidance on education, psychological counseling for students, and appropriate interest orientation can only be achieved using psychological theories(Cuzzolin et al., 2020).

The main research areas in psychology are teaching and learning theories, counseling theories, intelligence and cognitive theories, motivation and evaluation theories, communication, interpersonal relationship theories, and personality and mental health theories. So, any educational practice usually resonates with psychological theories(Usher et al., 2024).

Educational psychology is offered to teacher-training students so they can know how to teach students better according to their psychological characteristics, learning strategies, teaching theories, and different abilities in different periods of development. Educational psychology has always been based on psychological theories and researched in relation to education problems (Hasan & Bao, 2020).

Good teachers must have good psychological knowledge and strong psychological practice, especially in effective communication and classroom management skills. A survey of educational experts shows that there is a strong emotional education presence among good teachers. The most important role of teachers is psychological comfort and emotional concern. It is important to use modern artificial intelligence information technology to realize the future of human personality and emotional education. In fact, we all have a common belief that psychologists and psychiatrists are essential(Wang & Guan, 2020).

3.2 **AI Technologies in Psychological Education**

In the field of psychological education, various AI-related technology or software is designed to assist teaching, and platforms for conducting learning and assessments have been developed. Intelligent chatbots and virtual assistants on educational platforms can provide students with immediate interactive support regarding learning issues, emotional support, and psychological assessment. These systems use information related to the educational process and psychological problems, which is obtained during the interaction, to respond to further student queries and then analyze this data to identify the personalized needs of learners according to their conditions. A personalized learning platform in counseling psychology can adapt the educational process to students' needs in real-time, allowing trainers to identify which aspects of the lecture or the learning process do not sufficiently engage students in achieving the desired competencies(Wang, 2023).

Facial and voice emotion recognition technology may also be used to monitor student engagement and psychological well-being by evaluating emotional states. Furthermore, 'personalized assistant' chatbots with dialogue systems and text mining may be developed to provide counseling or help to raise students' awareness of various study-related issues, such as writing essays, managing workload, and personal and professional development. We can also find practice in virtual reality systems that allow the user to experience situations that could torment patients in real life so that the therapist can observe their reactions and assess the severity of their condition in a controlled environment. These AI technologies and applications align with the previously mentioned technological developments regarding their use in training psychological consultancy on a broader scale. Such developments emphasize technological opportunities in dealing with reaching out and delivering psychological services.

3.3 **Chatbots and Virtual Assistants**

In the field of psychological education, various AI-related technologies or software are designed to assist teaching, and platforms for conducting learning and assessments have been developed. Intelligent chatbots and virtual assistants on educational platforms can provide students with immediate interactive support regarding learning issues, emotional support, and psychological assessment. These systems use information related to the educational process and psychological problems, which is obtained during the interaction, to respond to further student queries and then analyze this data to identify the personalized needs of learners according to their conditions. The ability to instantly access data or information has a profound impact on leadership's decision-making process, making it more analytical and strategic by leveraging improved data analytics (Liu, Chin, & Ma, 2024).

Conventional personalized feedback is time-consuming, but chatbots can provide personalized or even emotionally tailored feedback instantaneously as a virtual coach. Integrating a chatbot or a virtual assistant in an academic program can provide various extra services, such as asking about schedules or easy administrative queries. To receive feedback, students can even interact online using avatars. Once integrated, chatbots can provide 24/7 support and respond to individual student queries, allowing educators to allocate more time to other teaching or research activities and improving the education workflow. Although the primary focus of chatbots has been on automating task flows or answering pre-set FAQs, chatbot integrations are becoming more advanced, and chatbots can use their knowledge about a particular user profile and historical data to follow up on previous conversations or redirect users to helpful resources or services (Zhang & Aslan, 2021).

3.4 **Personalized Learning Platforms**

Developing personalized learning platforms is an important part of educational informatization, and personalized learning is particularly important in psychological education. Personalized learning provides students with individualized learning plans according to their conditions so that students can learn according to their aptitude. Personalized learning is made possible through the use of AI in learning platforms. These platforms first collect different data on students' aptitude, interests, learning habits, and so on, and then analyze and summarize this data. Finally, they provide students with personalized learning. These personalized learning plans are very helpful in improving teaching effectiveness. For example, personalized learning plans can be useful when students have different levels of mastery over subjects or when students have different interests in their studies.

Developing a personalized learning system can improve student learning styles in real educational environments while improving student learning styles also helps schools maintain teaching quality. In personalized education, some learning system mechanisms support the adaptation process, such as curriculum sequencing mechanisms, interactions, pedagogical strategies, curriculum design strategies, teaching strategies, presentation design strategies, and feedback strategies. Curriculum sequencing mechanisms can be based on both learning strategy choices and the learning style of each individual student. In addition, an effective personalized learning system requires designing an environment within which feedback from learners and teachers is taken into consideration and utilizing learning style options. Feedback is key to ensuring ongoing improvement in any personalized educational system. However, some systems cannot collect accurate data in real schools, and others provide incorrect feedback. In brief, personalization is about realizing personalized learning plans by integrating students' learning interests, learning characteristics, ability differences, and other factors. However, personalization faces the following problems in real educational environments(Khare et al., 2024).

IV. Ethical and Practical Challenges

4.1 **Emotion Recognition Technology**

With the support of facial feature extraction and deep learning, AI could recognize micro-expressions of subtle and instantaneous emotional dynamics or infer reliable facial expression information from very low-resolution images. Meanwhile, with the popularity of AI technology in utilizing acoustic signals for processing and analyzing data, a voice pattern classification model to detect patient psychological distress using participant vocal tone has also been reported(Mohammad, 2022). Thus, the application of AI in emotion recognition is practical in the field of psychological education. The core idea of applying this technology in psychological education is detecting and analyzing the face and voice (facial expressions, vocal tone, etc.) of a human representative (student) and then helping the reader make a main assessment (emotions)(Zhang et al., 2020).

Emotion information sensing and extraction can be regarded as an important means to grasp the real-time state of the reader. Real-time recognition of student engagement and positive well-being with advanced AI systems based on physiological signals, including facial expressions and voice tone, can help psychological educators and related professionals to timely adjust their teaching and counseling strategies for students in psychological education(Dalvi et al., 2021)). However, in applying technology, the exhibition of privacy concerns in systematically collecting students' facial and emotional data significantly limits its application in digital learning environments. Further, technology alone cannot eliminate a host of negative mindsets and behaviors, and technologies that attempt to outwork bad attitudes can only be half successful at the maximum. Technology's limitations include the software's accuracy, ethical factors, and a student's preference for learning in a more

traditional classroom setting. Furthermore, the technical burden of using this technology in the classroom environment is substantial and difficult to integrate for less computer-savvy instructors to make it functional (Alswaidan & Menai, 2020).

In conclusion, the application of AI in emotion recognition, behavior detection, and abnormal behavior analysis will make education more efficient, personalized, and innovative. More discussion on integrating advanced technology is expected (Alswaidan & Menai, 2020).

4.2 **Data Privacy and Security**

One of the most significant concerns is that using residential and ubiquitous AIT in the psychological and educational fields further exacerbates privacy and security issues. National legislations across the globe have a qualification for the right to privacy. Most privacy laws mention that there are two major sectors that will protect student data privacy and security. The first one is related to school administration, and the next one is related to health and psychology education. Even though the government provides regulations to assure student safety, these approaches still have significant issues.

Data Privacy and Security The purpose of educational institutions is to enhance their students' learning and personal development. AI tools take significant responsibility in providing quality education. AI helps the human instructor identify student issues and collect student recommendations. Support is vital for student retention and may have ethical consequences if not delivered in a responsible way. While each organization has specific characteristics and guidelines, students, faculty, community partners, and staff must believe in the commitment and ability to offer an ethical service. A data leak undermines students' trust in organizations and may lead to resignation if data leakage is particularly detrimental to the organization. Even small errors in keeping private data confidential may generate negative public relations for institutions of higher learning, affecting employment and student registration. Property leaks may result in privacy invasions, harm, and even legal repercussions. Therefore, educational AI, including psychological behavioral reflection, must be considered for privacy and security.

There are numerous strategies for mitigating privacy and security concerns. The university could safeguard itself by developing clear guidelines that all staff and faculty agree upon. Additionally, performing safety training on a regular basis is a helpful approach. Data might include a sketch, which is a massive component of the data that can be publicly available. Informants must provide permission before information is disclosed. Conducting an ethical analysis now is essential since the future may offer AI capabilities that can be leveraged with strategies potentially dangerous for privacy. However, acquiring consent and debating how AI can negatively affect one’s privacy is more difficult. Consequently, institutions should be wary of the use of AI. Ultimately, when using AI, encryption and training should be closely examined. The stored data may not serve as the last resort for privacy. The hour of safety is here and is critical for AI’s ethical deployment (Liu,2024).

4.3 **Bias and Fairness**

Bias and Fairness. Black-box models and causal reasoning are potential contributors to AI bias. Bias is a violation of learning outcome equity and the predictor that most affects learning outcomes. Meta-analyses have identified individual differences that can affect learning outcomes, indicating that, statistically, there is likely to be some bias. In educational technology, the likely result is inequitable educational opportunities for the less powerful social groups. The repurposing of AI tools intended for commercial markets rather than education may have contributed to this. Opportunities to improve data collection or technologies for equity have resulted in predictive modeling to identify and support at-risk youth, alternative admissions models based on exploring causal models, and decentralized blockchains for fully disaggregating student data. Active research communities have built up around ethically removing bias, so high-quality solutions will likely become available before too long. The potential of AI to personalize education with adaptive educational systems is greatly limited by technical and theoretical problems (Liu,2024).

A project has found predictive policing AIs to embody and propagate existing racism. A facial recognition camera that was fed predominantly white data ended up misidentifying ethnic minorities, equivalent to one in six people. This was fixed in a follow-on product trained on a more representative data set, indicating that this was not a universal condition. Several newly released projects uncovered further problems in AI. The marketing AIs were shown to consume existing racism data and reproduce it. Users avoided women bosses, achieving, in fact, higher

click-through rates for a product with a male logo over an identical one with a female logo. Extending further than fundamental datasets, the dataset the AI used for ad placement was found to have a stronger preference for male over female CVs. Implications have also been found in online display ads: higher-income neighborhoods are shown higher-paying job ads. A company was found to be racially profiling by sending out collection letters based on data purchased via big data sources. This problem has been shown to be largely self-correcting in the short term because of the randomness of the legal system. These suggest a need to educate developers on these implications and how to mitigate them, but not for educators to actually mitigate them in the AI. They should simply be aware of the potential dangers (Liu,2024).

4.4 **Loss of Human Connection**

Concerns and anxiety over replacing human educators with artificial intelligence, such as the implications of IQ being worshipped, service teachers' respect, service education, student-teacher relationships, feelings, and the value of humanity in duties, have caused many educators to consider their responsibilities. In psychological education, a "one-to-one" training model with therapists who require physical and psychological contact is widespread, highlighting the importance of empathy, encouragement, and emotional support. Service educational empathy has been shown to assist in solving students' emotional, financial, and other difficulties by developing a culture of compassion, respect, and understanding at the center of online student support offices and acting as a bridge to the provision of programs at the earliest stages of entry. The role of empathy and commitment in educational pauses to enable conversations about learning and the relevance of technology to student learning and progress, without focusing on student advising and coaching, is equally mirrored in interpersonal relationships in education (Aldrup et al., 2022).

A delicate balance must be struck when determining the best approach for employing AI to maintain contact after transactions where empathy and understanding are paramount. An unsophisticated mix of AI and human services can transform the essence of a caring environment into a "depersonalized bureaucracy" that suppresses expansion or converts empathetic interaction details into liabilities. A version of using AIED technologies to enhance rather than substitute human educators is recommended for service training contexts. However, maintaining efficient delivery and teacher support with such a relationship is critical to providing high-quality learning(Wink et al., 2021).

V. Enhancing Educational Impact with AI

5.1 **Benefits of AI in Psychological Education**

As we all know, AI technology can provide a more intuitive, personalized, inclusive, and effective educational environment, meeting individual differences and interdisciplinary needs, and enabling students to address the requirements of intelligence, multi-level counseling, and physical and mental health education in psychology. In terms of teaching, it can also provide teachers, researchers, and educators with more accurate data analysis, allowing for continuous improvement in refined management and efficient teaching in education. At the same time, for college students who are in a critical period of psychological, physical, and mental health development, whether AI technology can further enrich the learning and educational environment is the focus of this paper. Combining the concept of artificial intelligence with psychology helps students understand the disciplinary connotation of "artificial intelligence" from a real perspective, and it also aids in understanding the influence of "emotional intelligence." The pros and cons of psychological classes enable students to gain their own insights into the combined content of "artificial intelligence" and "psychological education" through group discussion and presentation. In brief, due to the significant benefits of AI's applications to psychology education, using AI to enhance psychological education has promising applications and excellent performance. In addition to improving the overall learning experience, various types of assistance that can be provided are beneficial for novice learners.

5.2 **Enhanced Learning Experience**

Throughout the field of education, AI has shown potential for enhancing the learning experience. Learning is greatly enhanced when students are engaged in content. Integrating AI with psychology can include experiences that personally address users or emotionally impact them, making for a more immersive experience. Technologies such as voice assistants or chatbots present opportunities to create personalized experiences for each user through conversational platforms. It is also important for students to have a deeper understanding of content in order to

apply it. When a simulation can be created to mimic a mental disorder, for example, this situates students in a position of understanding towards those with the disorder. AI can simulate a conversation with someone with such a disorder, providing instant feedback about their experiences.

Traditional educational content has always been one-size-fits-all, but AI can transform this. By analyzing data collected about a student's past history and predicting their needs, personal assignments can now be generated automatically. Instead of fitting a lesson to a class of 10 or 100 based on an average, which leaves most either bored or falling behind, students can now get a highly tailored experience that maximizes the effectiveness of their time. Data analysis systems can also help improve access to resources, provide diverse learning experiences, and routinely change content that is no longer relevant. Allowing students to make decisions in arguments or storytelling that lead them down a different path deepens their understanding in these areas. Students are using higher-order thinking skills by asking or generating their own content. When students work through assignments like these, more support is provided automatically, as students meet qualitative milestones showing their work is good enough for them to continue. Continuous growth and constant relevance also support higher retention rates when learning online(Liu,2024).

5.3 **Individualized Support**

The individualized support given by a tutor to each student is the uniqueness of a tutorial system. Human teachers cannot meticulously analyze different learning patterns of every student in one classroom, especially when the number of students is more than 200. Therefore, most teachers tend to apply the teaching standards of the average group to the students. AI-driven tools can clarify the specifics of each student. Consequently, tailored resources can be made available to students whenever they sit down at a computer, with instructions on what to review, paths to follow, clear learning sequences, and teaching, training, and assessment strategies.

Educational psychology conveys that an appropriate positive impact on student learning and emotional state can be achieved when educators provide an effective response to students' mental health issues. The provision of proactive intervention, as presented by AI, is most beneficial when timely support is given to students when things are starting to go wrong. A proactive approach diminishes the potential long-term impact of future difficulties, particularly in exam results. It has significant impacts beyond psychological distress. The learning and teaching needs of students cannot be comprehensively evaluated by physical teachers themselves, and another of the advantages mentioned is the effort to provide an inclusive learning environment for everyone. Learners with various learning styles may benefit from using AI learning-environment systems. The first expanded use of AI in various domains, including the educational domain, concerned its ability to provide instant feedback and include up-to-date references and associated resources. The availability of instant chapter-specific guidance may also increase student involvement and deepen learning in chosen areas. Although it is most effective to guide students in this way, it is impossible in every situation, and educators worry about the potential over-reliance on technology.

5.4 **Efficient Assessment and Feedback**

Publications focused on the use of technology in education have described the advantages of using automated grading systems and other AI tools that not only grade students' performance at scale but also allow them to realize in real-time how well they have performed and provide hints or explanations. Regarding AI, efficient assessment in both time and monetary costs is mentioned as one of the core advantages. Real-time feedback is also mentioned as an important aspect of learning. In general, formative assessment is described as a good basis for informing instruction, but it is also associated with benefits to motivation. In addition, grading tools can provide insights on student, assignment, course, or workshop level. Because the data on students accumulate rapidly, academics should be supported by AI to process them rapidly and in bulk because individual scores from students are interesting; for example, regarding the popularity of the exercises, they are also interested in long-term trends. For product evaluations, studies have been found on time spent and thesis scores, not for assessing the development of the skills of psychology students during the studies or workshops. It has been found that the process of developing research skills can be evaluated, especially in statistics courses. Two additional strategic values of formative assessment are described. First, sample monitoring strategies have been elaborated that allow us to monitor the nature of students' learning curves and adjust teaching accordingly at each learning curve stage. In addition, we can evaluate whether students from different backgrounds benefit differently from the learning materials offered to increase equity. In order to implement this plan, there is an ethical issue to be considered: Are

we going to share all future observations with students to allow transparent algorithms to calculate informed scores, or will we keep the data confidential? It is a complex issue, especially from a privacy perspective. However, educational and psychological research has shown that sharing also benefits students and educators(Chen et al., 2020).

The deadline for processing the acquired data must be set before the data are acquired so that the data will be processed in the near future. In this way, the benefits of AI for training can be used in a transparent and responsible manner, which is beneficial to everyone: the training and, therefore, the training of students, the continuous professionalization and skill enhancement of psychologists and educators, and the internal quality assurance processes that help to ensure that we deliver optimal training. Regarding potential limitations, AI does not "understand" in the same way as a human. That is, conceptual understanding, like understanding a psychological disorder, cannot be "assessed" by an algorithm(Owen et al., 2023). However, the tool can assess behavior on problems that do (or do not) assume conceptual understanding. In this respect, the tool provides only part of the view on a specific ability, which is also the case for any other examination method. Finally, there are technical limitations of algorithms. Information processing by algorithms differs fundamentally from that by humans. It is important to remember that AI is a form of automating our way of thinking. Interpersonal dynamics, such as confidence, open-mindedness, openness to feedback, and other non-cognitive and interpersonal characteristics that are so important for a psychologist, are not accessible to "testing," as we understand it. Nevertheless, they are assessed in other ways(Fitria2021). Consequently, AI can be used to save time and money. What is essential for doing so is that educators and administrators consider very seriously which educational goals can be reached and how "successful student behavior" or change should be defined(Hooda et al., 2022).

5.5 **Challenges and Ethical Considerations**

Data privacy and security. Student data and related information are highly sensitive. In psychological education, psychological test data are personal data. How to ensure that student data will not be disclosed or illegally obtained and how to ensure data security are two major problems to be faced in the application of large data technology. The first is to prevent data breaches and loss; the second is algorithm performance risk; the third is to prevent accidental or inappropriate data sharing. Although cloud storage is popular, the data storage location in the cloud is unknown. Related security and network protection facilities must be established, and regular response and assessment of security incidents and data-related impact assessment must be performed.

The challenge of fairness. Because the data of facial features, voice recognition, etc., in AI systems are mainly from people with European ancestry, there is a built-in racial bias, gender bias, etc., which may produce unfair results, adversely affect some students, and may lead to unfairness. It is not only unfair in itself that people are treated differently, but also unfair in terms of education rights. Teachers' evaluation and partiality to students; different teachers have different teaching abilities, and new teachers have been appointed, and there may be different potential teaching qualities and accumulation of work experience.

The tendency to alienate students. Although AI technology is good, if it is over-reliant, there is a risk that it will lose its personal touch and gradually alienate students. The AI robot, chatbot, or AI teaching system talks to students while it is not. The presence of the AI machine may make it difficult for students to give an honest and open narration. In fact, the most important thing in psychological education is empathy, respect, help, encouragement, trust, confidence, etc. Because AI agents are mainly based on student historical learning data and statistical models of large samples for simulation teaching, there may be some cognitive biases. In the initial stages, it can use technical means to monitor the correctness of education and control abnormal students. In any event, once AI education enters the black box, it is difficult to redevelop education with human understanding and guidance. Particularly worthy of attention is when a code of conduct is used as the basis for the evaluation. A code of conduct is the dignity and sensitivity of each individual. The foremost ethical issue concerning AI systems and algorithmic decision-making is ensuring egalitarian and equitable access to education for all. The advantage of using AI in education is the seamless merging of learning technologies with real life and providing personalized support to every student. If access to learning systems based on the use of AI is not differentiated, the former also has a regenerating effect, creating a potential scenario of digital divide. This could affect the performance of education and the future of young people. For these reasons, the responsibility for the ethical integration of AI will be established through a strong, transparent regulatory system that will ensure student privacy and model

transparency used in teaching systems, along with a set of responsible principles on AI ethics. Educational ethics guarantee that AI technology is a tool for learning improvement and not an aggravating de-etiquette tool.

VI. Recommendations for Future Research

In looking forward to the future directions of AI in psychological education, research, and the market suggest several trends and emerging technologies that will likely impact the field in the coming years. AI capabilities are expected to continue to improve and develop in directions that will be of increasing use to educators and technologists in developing and deploying educational technologies. The challenges lie not just in developing new AI technologies, these experts argue, but in facilitating interdisciplinary collaboration between teachers and AI experts in creating truly intelligent, communicative, and human-centered systems. Some believe that AI is likely to gradually transform the landscape of the entire education industry. In response, many technologies that aim to 'humanize' education are being developed or released for use in settings ranging from primary and secondary schools to universities. At the most advanced end of the continuum, AI Emotional-Social Intelligence (AESI) may offer future systems an unprecedented level of insight into students' evolving experiences and emotional worlds, which could be applied not just in educational systems but for broader potential benefits, including strengthening families, communities, and societies, and supporting mental health research(Liu,2024).

Despite the rise of intelligent educational technologies, ethical and safety concerns surrounding the use of AI in psychological education are being raised by both the research community and practitioners. As with every application of AI, it is essential to ensure that AI systems in this domain are transparent, accountable, and just and that they serve not to deepen but to remedy social inequities. Governments and policymakers' role in regulating and facilitating the development and deployment of new intelligent educational technologies has also been acknowledged. There is a call for policy research that examines the factors influencing AI adoption, for consensus and clear communication between regulatory, industry, and academic sectors, and an expectation that forward-looking and supportive policies will facilitate research and development in this fast-evolving area(Liu,2024).

VII. Discussion and Conclusion

In conclusion, in the context of the development of AI technology in society, AI information technology can accelerate the development of psychological education, making the teaching content richer, the learning experience diversification, the learning process standardization, and the effect of psychological education. However, AI information technology used in psychological education is at the initial stage, and many problems remain to be further solved. Therefore, we should be down-to-earth in applying AI information technology in psychological education and cannot ignore the related challenges and ethical issues. We should take a forward-looking perspective and conduct in-depth empirical research on AI information technology in psychological education so as to dynamically and scientifically evaluate the role of AI information technology in psychological education and promote the scientific and efficient development of AI technology in psychological education. The future direction is to focus on the research framework and strategy of the application of AI in psychological education. First, AI has a more basic and critical impact on educational practices, which tend to be fully individualized and intelligent. Second, ethical and moral problems have attracted extensive attention in education. How to develop AI information technology in psychological education in an ethical and moral direction has gradually become a topic of discussion. Moreover, whether AI can replace or promote certain educational roles is still controversial. Therefore, we still need to continue to enrich and develop the topic of AI application in psychological education. Educational practitioners, students, and even policymakers should be brought into consideration, listen to their voices, and provide theoretical and practical support for policies in the future. There is a high degree of identification between educational technology and human development in the process of educational content. Therefore, when we look forward to high AI technology, we should focus on the development of students. In the context of the rapid development of information technology, we should constantly develop technological advantages and provide technical services to make full use of them. At the same time, educational content, service forms, and educational processes should be based on human development's basic needs and status. AI technology should be used to serve ethics and moral education. AI can enrich the learning experience of individuals and provide live services for individuals to adapt to the best service rhythm. At the same time, the role of teachers is changing. The teachers are no longer directly responsible for improving basic skills and abilities. However, they must pay more attention to cultivating students' personalities and self-adjustment abilities. In the

process of meeting human needs and promoting the development of students, AI information technology is transformed from the auxiliary system of education to the core support of the new education(Liu,2024).

REFERENCES

[1] Adıgüzel, T., Kaya, M. H., & Cansu, F. K. (2023). Revolutionizing education with AI: Exploring the transformative potential of ChatGPT. Contemporary Educational Technology. Retrieved from ed.gov

[2] Aldrup, K., Carstensen, B., & Klusmann, U. (2022). Is empathy the key to effective teaching? A systematic review of its association with teacher-student interactions and student outcomes. Educational Psychology Review. Retrieved from springer.com

[3] Alam, A. (2021, December). Should robots replace teachers? Mobilisation of AI and learning analytics in education. In 2021 International Conference on Advances in Computing, Communication, and Control (ICAC3) (pp. 1–12). IEEE. Retrieved from ssrn.com

[4] Alswaidan, N., & Menai, M. E. B. (2020). A survey of state-of-the-art approaches for emotion recognition in text. Knowledge and Information Systems. Retrieved from [HTML]

[5] Bai, X., Zhang, F., Li, J., Guo, T., Aziz, A., Jin, A., & Xia, F. (2021). Educational big data: Predictions, applications, and challenges. Big Data Research. Retrieved from researchgate.net

[6] Chae, S. E. (2022). Executive function and effortful control—Similar and different evidence from big data analysis. Frontiers in Psychology. Retrieved from frontiersin.org

[7] Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. IEEE Access. Retrieved from ieee.org

[8] Chin, Y. F., Leung, W. C., Rahman, M. F. A. B., & Zhang, L. (2024). Impact of artificial intelligence in the financial industry: Disruption or annihilation. Proceedings of the 2024 International Conference on Science, Technology, Engineering and Management (ICSTEM 2024).

[9] Cuzzolin, F., Morelli, A., Cirstea, B., & Sahakian, B. J. (2020). Knowing me, knowing you: Theory of mind in AI. Psychological Medicine, 50(7), 1057–1061. Retrieved from cambridge.org

[10] Dai, C. P., & Ke, F. (2022). Educational applications of artificial intelligence in simulation-based learning: A systematic mapping review. Computers and Education: Artificial Intelligence. Retrieved from sciencedirect.com

[11] Dalvi, C., Rathod, M., Patil, S., Gite, S., & Kotecha, K. (2021). A survey of AI-based facial emotion recognition: Features, ML & DL techniques, age-wise datasets, and future directions. IEEE Access. Retrieved from ieee.org

[12] Dong, Y., Hou, J., Zhang, N., & Zhang, M. (2020). Research on how human intelligence, consciousness, and cognitive computing affect the development of artificial intelligence. Complexity. Retrieved from wiley.com

[13] Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantino, I., Duan, Y., Edwards, J. S., ... & Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. International Journal of Information Management, 55, 102211. Retrieved from brad.ac.uk

[14] Fitria, T. N. (2021, December). Artificial intelligence (AI) in education: Using AI tools for teaching and learning process. In Prosiding Seminar Nasional & Call for Paper STIE AAS (Vol. 4, No. 1, pp. 134–147). Retrieved from site-aas.ac.id

[15] Gill, S. S., Xu, M., Patros, P., Wu, H., Kaur, R., Kaur, K., ... & Buyya, R. (2024). Transformative effects of ChatGPT on modern education: Emerging Era of AI Chatbots. Internet of Things and Cyber-Physical Systems, 4, 19–23. Retrieved from sciencedirect.com

[16] Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. Sustainable Operations and Computers, 3, 275–285. Retrieved from sciencedirect.com

[17] Hasan, N., & Bao, Y. (2020). Impact of "e-Learning crack-up" perception on psychological distress among college students during COVID-19 pandemic: A mediating role of "fear of academic year." Children and Youth Services Review. Retrieved from nih.gov

[18] Hooda, M., Rana, C., Dahiya, O., Rizwan, A., & Hossain, M. S. (2022). Artificial intelligence for assessment and feedback to enhance student success in higher education. Mathematical Problems in Engineering, 2022(1), 5215722. Retrieved from wiley.com

[19] Khare, S. K., Blanes-Vidal, V., Nadimi, E. S., & Acharya, U. R. (2024). Emotion recognition and artificial intelligence: A systematic review (2014–2023) and research recommendations. Information Fusion. Retrieved from sciencedirect.com

[20] Kumar, D., Haque, A., Mishra, K., Islam, F., Mishra, B. K., & Ahmad, S. (2023). Exploring the transformative role of artificial intelligence and metaverse in education: A comprehensive review. Metaverse Basic and Applied Research, 2, 55–55. Retrieved from semanticscholar.org

[21] Li, J., & Jiang, Y. (2021). The research trend of big data in education and the impact of teacher psychology on educational development during COVID-19: A systematic review and future. Frontiers in Psychology. Retrieved from frontiersin.org

[22] Liu, H., Chin, Y. F., & Ma, Y. (2024). Unraveling the experimental effects of machine learning-based leadership and administration on microsystems technology. Proceedings of the 3rd International Conference on Advances in Computing, Communication and Applied Informatics (ACCAI 2024).

[23] Liu, Y., & Chang, P. (2024). Exploring EFL teachers' emotional experiences and adaptive expertise in the context of AI advancements: A positive psychology perspective. System. Retrieved from.

[24] Marler, E. K., Bruce, M. J., Abaoud, A., Henrichsen, C., Suksatan, W., Homvisetvongsa, S., & Matsuo, H. (2024). The impact of COVID-19 on university students' academic motivation, social connection, and psychological well-being. *Scholarship of Teaching and Learning in Psychology, 10*(3), 320. Retrieved from [HTML]

[25] Mohamed Hashim, M. A., Tlemsani, I., & Matthews, R. (2022). Higher education strategy in digital transformation. *Education and Information Technologies, 27*(3), 3171–3195. Retrieved from springer.com

[26] Mohammad, S. M. (2022). Ethics sheet for automatic emotion recognition and sentiment analysis. Computational Linguistics. Retrieved from mit.edu

[27] Pedro, F. (2023). Theoretical analysis of the brain and artificial intelligence. Journal of Robotics Spectrum. Retrieved from anapub.co.ke

[28] Saleema, A., & Thampi, S. M. (2020). User recognition using cognitive psychology-based behavior modeling in online social networks. In Advances in Signal Processing and Intelligent Recognition Systems: 5th International Symposium, SIRS 2019, Trivandrum, India, December 18–21, 2019, Revised Selected Papers 5 (pp. 130–149). Springer Singapore. Retrieved from

[29] Sechin Matoori, S., & Nourafza, N. (2021). Big data analytics and cognitive computing: A review study. Journal of Business Data Science Research, 1(1), 23–32. Retrieved from academia.edu

[30] Shanmugam, G., Thanarajan, T., Rajendran, S., & Murugaraj, S. S. (2023). Student psychology-based optimized routing algorithm for big data clustering in IoT with MapReduce framework. Journal of Intelligent & Fuzzy Systems, 44(2), 2051–2063. Retrieved from

[31] Terzieva, V., Todorova, K., & Ivanova, T. (2021, October). Conceptual model of intelligent educational system and the need for big data analytics. In 2021 Big Data, Knowledge and Control Systems Engineering (BdKCSE) (pp. 1–8). IEEE. Retrieved from

[32] Van Rooij, I., Guest, O., Adolfi, F., de Haan, R., Kolokolova, A., & Rich, P. (2024). Reclaiming AI as a theoretical tool for cognitive science. Computational Brain & Behavior, 1–21. Retrieved from springer.com

[33] Vincent-Lancrin, S., & Van der Vlies, R. (2020). Trustworthy artificial intelligence (AI) in education: Promises and challenges. OECD iLibrary. Retrieved from oecd-ilibrary.org

[34] Wang, J., Bu, L., Li, Y., Song, J., & Li, N. (2021). The mediating effect of academic engagement between psychological capital and academic burnout among nursing students during the COVID-19 pandemic: A cross-sectional study. Nurse Education Today. Retrieved from nih.gov

[35] Wang, K., Chai, C. S., Liang, J. C., & Sang, G. (2024). Exploring teachers' behavioral intentions to design artificial intelligence-assisted learning in Chinese K–12 education. Technology, Pedagogy and Education, 33(5), 629–645. Retrieved from

[36] Wang, L. (2023). Students' psychology for teaching design with artificial intelligence approaches for enhancing teaching. Soft Computing. Retrieved from [HTML]

[37] Wang, Y., & Guan, H. (2020). Exploring demotivation factors of Chinese learners of English as a foreign language based on positive psychology. Revista Argentina de Clinica Psicologica. Retrieved from researchgate.net

[38] Wang, Z. H., Yang, H. L., Yang, Y. Q., Liu, D., Li, Z. H., Zhang, X. R., ... & Mao, C. (2020). Prevalence of anxiety and depression symptoms, and the demands for psychological knowledge and interventions in college students during COVID-19 epidemic: A large cross-sectional study. Journal of Affective Disorders, 275, 188–193. Retrieved from nih.gov

[39] Wong, N. Z. Y., Chin, Y. F., Sharif, S., & Ompok, C. S. (2024). Data-driven decision making in TVET: The impact of augmented reality technology on institutional efficiency. Journal of Electrical Systems, 20(10s), 4898–4903.

[40] Wink, M. N., LaRusso, M. D., & Smith, R. L. (2021). Teacher empathy and students with problem behaviors: Examining teachers' perceptions, responses, relationships, and burnout. Psychology in the Schools. Retrieved from

[41] Wu, Y., Yu, W., Wu, X., Wan, H., Wang, Y., & Lu, G. (2020). Psychological resilience and positive coping styles among Chinese undergraduate students: A cross-sectional study. BMC Psychology. Retrieved from springer.com

[42] Xing, W., & Wang, X. (2022). Understanding students' effective use of data in the age of big data in higher education. Behavior & Information Technology. Retrieved from

[43] Xin, X., Shu-Jiang, Y., Nan, P., ChenXu, D., & Dan, L. (2022). Review on a big data-based innovative knowledge teaching evaluation system in universities. Journal of Innovation & Knowledge, 7(3), 100197. Retrieved from sciencedirect.com

[44] Zhang, C., & Lu, Y. (2021). Study on artificial intelligence: The state of the art and future prospects. Journal of Industrial Information Integration. Retrieved from

[45] Zhang, J., Yin, Z., Chen, P., & Nichele, S. (2020). Emotion recognition using multi-modal data and machine learning techniques: A tutorial and review. Information Fusion. Retrieved from google.com

[46] Zhang, K., & Aslan, A. B. (2021). AI technologies for education: Recent research & future directions. Computers and Education: Artificial Intelligence. Retrieved from sciencedirect.com