

LEVERAGING ARTIFICIAL INTELLIGENCE TOOLS FOR EFFECTIVE DISPUTE RESOLUTION AND COUNSELLING IN EDUCATIONAL SETTINGS

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Abstract

Artificial intelligence AI is the in-thing in every sphere of living and as such, every sector has adapted to it including education and counselling. This intelligence offers unprecedented opportunities for streamlined conflict resolution and data-driven insights. This paper explores the integration of AI tools in dispute resolution and counselling within educational setting. It focuses on its potential to enhance communication, conflict mediation and provides data driving insights for decision making. The paper was hinged on two theories such as technological mediation theory and conflict management, the study reviewed existing AI applications such as chatbots, sentiment analysis systems, and predictive analytics platforms that support school counsellors and administrators in addressing interpersonal and group disputes. Furthermore, the paper also explores the ethical, technical, and human factors influencing AI adoption, highlighting both the opportunities and challenges associated with these innovations. The paper suggested among others that School counsellors and teachers should receive continuous professional development to competently interpret AI-generated insights, understand algorithmic limitations, and maintain empathy in AI-supported counselling.

Keywords: Artificial Intelligence, Dispute Resolution, Counselling, Educational Technology, and Conflict Management

Introduction

The rapid growth of Artificial Intelligence (AI) is reshaping various sectors, including education and counselling, where it is increasingly recognised as a valuable tool for dispute resolution. Educational institutions, as microcosms of society, are prone to conflicts arising from interpersonal differences, academic pressures, and organisational challenges. Traditional counselling approaches, though effective, often face limitations in terms of scalability, timeliness, and access to data-driven insights. AI presents an opportunity to bridge these gaps by offering tools that can detect early signs of conflict, provide tailored interventions, and support

counsellors in decision-making. While AI encompasses various applications across different sectors, its ability to analyse data, understand language, and support decision-making presents an exciting opportunity for dispute resolution and counselling in educational settings.

Artificial Intelligence, according to Kaplan and Haenlein (2019), refers to a system's ability to correctly interpret external data, learn from such data, and use the learning to achieve specific goals through flexible adaptation. Similarly, Russell and Norvig (2021) define AI as the study and design of intelligent agents systems that perceive their environment and take actions to maximise their chances of achieving set objectives. More recently, Haque, Khan, and Rahman (2023) describe AI as the simulation of human cognitive processes by machines, particularly in problem-solving, reasoning, and natural language understanding.

In the context of educational resolution, these capabilities enable AI systems to detect emerging tensions, assess emotional states, monitor sentiments shifts in communication exchange and suggests preventive conflict management strategies before conflicts intensify. In this regard, Sahu and Rathore (2022) noted that AI-assisted counselling can significantly reduce counsellor workload while improving the accuracy of intervention strategies.

In another disposition, Dignum (2019) maintained that the integration of AI into human-centred processes like counselling must be approached with careful consideration of ethical implications, including data privacy, transparency, and algorithmic bias. Therefore, while AI offers remarkable potential to enhance dispute resolution in educational settings, its application must be guided by principles that uphold both technological efficiency and the human values central to counselling.

This paper examined the integration of AI tools in dispute resolution and counselling within the educational settings, it also reviewed their potential and limitations, and provided suggestions for effective and ethical adoption.

Literature Review

Artificial Intelligence

Artificial intelligence (AI) is an intelligent system which combines computer programs to perform creative functions, solve problems, draw conclusions, and make decisions with human-like intelligence. According to Nwanguma and Onyeukwu (2023), Artificial intelligence is "the ability of digital computers or automated systems to execute functions traditionally associated with human intellectual capabilities. Similarly, Ogunbodede & Atchrim (2025) refer to AI as a catalyst for economic growth and innovation in Nigeria, they define AI as "a system's ability to correctly interpret external data, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation.

In the fields of counselling and dispute resolution, AI serves as a powerful support by analyzing interaction channels, detecting friction, and recommending timely, preventative measures. These tools empower counsellors with data-driven insights, leading to more effective decision-making. Furthermore, the application of Natural Language Processing (NLP), Machine Learning (ML), and sentiment analysis has shown success in analyzing communication and

supporting intervention in educational settings (Graesser et al., 2014; Bosch et al., 2016). These tools empower counsellors with data-driven insights, leading to more effective decision-making. Furthermore, the application of Natural Language Processing (NLP), Machine Learning (ML), and sentiment analysis has shown success in analyzing communication and supporting intervention in educational settings.

Dispute Resolution

Dispute resolution refers to the methods and processes through which conflicts between individuals or groups are addressed in a constructive manner to achieve mutually acceptable outcomes. Fisher, Ury, and Patton (2019) describe it as a structured approach to resolving differences by focusing on interests rather than positions, thereby fostering long-term relationships. In educational contexts, this involves strategies that range from informal discussions and peer mediation to formal procedures such as arbitration and grievance handling.

From a sociological perspective, Moore (2014) categorises dispute resolution into negotiation, mediation, and arbitration, each with distinct roles in reducing tension and restoring cooperation. Ury, Brett, and Goldberg (2020) further emphasise the preventive aspect of dispute resolution, noting that early interventions often prevent escalation into more serious conflicts. In the school environment, Ibrahim and Ojo (2021) observe that traditional punitive approaches are increasingly being replaced with participatory methods that involve all stakeholders in problem-solving.

When integrated with AI, dispute resolution benefits from the ability to analyse behavioural patterns, identify root causes more efficiently, and recommend interventions tailored to the unique dynamics of each case. This intersection between human-centred practices and technology naturally connects to the concept of counselling, which remains central to conflict management in educational settings.

Counselling

Counselling in educational settings is a professional service aimed at promoting the academic, emotional, and social well-being of students, as well as fostering positive relationships within the school community. The American Counselling Association (ACA, 2023) defines counselling as a professional relationship that empowers diverse individuals, families, and groups to accomplish mental health, wellness, education, and career goals. The integration of AI into counselling can enhance its effectiveness by augmenting traditional practices with AI-driven insights and tools.

AI-driven insights and tools include Chatbots. Chatbots are digital systems that simulate human-like conversation using Natural Language Processing (NLP) and Machine Learning (ML) techniques. In educational settings, they are often deployed as virtual assistants to provide information, answer frequently asked questions, and facilitate communication between students and faculty. In dispute resolution, chatbots can act as initial support systems, offering

preliminary guidance and suggestions for students experiencing conflicts. For example, a chatbot can ask a student about the nature of the conflict, provide information on school policies, and offer suggestions for resolving the issue.

This then implies that AI-based chatbots can extend the availability of support beyond traditional counselling hours, while sentiment analysis can provide counsellors with a more comprehensive understanding of student emotional states, allowing them to tailor interventions more effectively. Researchers such as Egbochuku and Ugoji (2017) emphasised that in schools, counselling functions as a preventive, developmental, and remedial service, enabling early intervention in behavioural and relational challenges before they escalate. Case studies can provide real-world examples of how chatbots have been successfully integrated in educational settings. For instance, a study by Johansen et al. (2019) found that a chatbot implemented in a Norwegian high school significantly improved student engagement and satisfaction with the school's conflict resolution process.

According to Eyo, Joshua, and Esen (2018), counselling provides learners with a safe space to explore personal concerns, develop coping strategies, and resolve interpersonal conflicts constructively. Uchenna and Bello (2022) add that in family and school contexts, counselling mediates generational and cultural misunderstandings, helping to bridge communication gaps. These roles are increasingly supported by technological innovations; for example, AI-powered chatbots can provide initial guidance and collect information before a student meets with a human counsellor. Given its central role in resolving disputes and supporting personal growth, counselling becomes even more effective when integrated with modern tools such as educational technology, which is the next concept to consider.

Educational technology

Educational technology refers to the use of digital tools, platforms, and systems to enhance teaching, learning, and educational administration. Given its central role in resolving disputes and supporting personal growth, counselling becomes even more effective when integrated with modern tools such as educational technology. Educational technology is not merely about hardware and software, but about the purposeful integration of these tools to solve pedagogical challenges and improve learner outcomes (Bates, 2019). Selwyn (2022) notes that educational technology is not merely about hardware and software, but about the purposeful integration of these tools to solve pedagogical challenges and improve learner outcomes.

In the context of dispute resolution and counselling, educational technology enables online counselling sessions, digital case management systems, and AI-assisted student monitoring platforms. Anderson and Rivera (2021) emphasised that technology-based counselling tools expand access to support services, particularly for students in remote or underserved areas. Furthermore, Holmes et al. (2022) argue that when AI is embedded in educational technology, it can provide predictive analytics

to identify at-risk students and recommend early interventions. By functioning as a bridge between AI innovations and counselling practice, educational technology plays a pivotal role in modernising conflict management in schools. This naturally leads to a discussion of data analytics, which underpins many AI-driven tools in this domain.

Data analytics

Data analytics refers to the systematic process of examining datasets to extract meaningful patterns, trends, and insights that inform decision-making. Provost and Fawcett (2013) described it as the science of learning from data to improve future performance and outcomes. In the education sector, data analytics has been increasingly applied to student behaviour monitoring, academic performance tracking, and institutional decision-making (Siemens & Long, 2011).

In the context of conflict management, data analytics enables counsellors and administrators to detect early warning signs of disputes, such as declining grades, absenteeism, or negative communication patterns. Johnson and Smith (2020) highlight that predictive models can flag students at risk of interpersonal conflicts, allowing timely interventions. When combined with AI, these systems can process vast amounts of unstructured data from emails to social media posts—identifying emotional cues that may signal potential disputes. By offering objective, evidence-based insights, data analytics strengthens the effectiveness of counselling and mediation strategies. This analytical capacity also supports more advanced AI applications, such as sentiment analysis, which is the next concept for consideration.

Sentiment analysis

Sentiment analysis, also known as opinion mining, is the computational process of identifying and categorising emotions, attitudes, and opinions expressed in text or speech. Liu (2020) defines it as the use of natural language processing (NLP), text analysis, and computational linguistics to systematically detect subjective information. In educational contexts, sentiment analysis has been applied to evaluate student feedback, monitor online discussions, and assess emotional well-being (Cambria et al., 2017). In dispute resolution and counselling, sentiment analysis enables counsellors to quickly assess the emotional tone of student communications, whether in emails, chat messages, or social media posts. This can help identify potential conflicts before they escalate. Medhat, Hassan, and Korashy (2014) note that sentiment analysis not only measures polarity (positive, neutral, negative) but also detects nuanced emotions such as frustration, anxiety, or hostility, which are critical in understanding conflict dynamics.

By providing timely insights into the emotional states of individuals, sentiment analysis complements other AI-driven tools in educational counselling. While these technologies hold great potential for improving counselling and dispute resolution, their effectiveness depends on careful consideration of privacy concerns, algorithm transparency, and mitigating potential bias in data collection and analysis (Wagner & Altepeter, 2021).

Conflict Management Strategies

Conflict management strategies encompass various approaches and techniques for resolving disputes and restoring harmonious relationships between individuals or groups. Conflict resolution strategies are a range of methods and techniques used to manage and resolve disputes between individuals or groups. These strategies aim to address the underlying issues that cause conflicts, promote understanding and cooperation, and facilitate mutually satisfactory solutions" (Greer et al., 2021). They are tools that help people resolve disagreements and find peaceful solutions to conflicts. They can be used in a variety of settings, including schools, workplaces, and communities. The goal of conflict resolution strategies is to reduce tensions, repair relationships, and promote understanding between parties involved in a conflict" (Lederach, 2019). Conflict resolution strategies are tools that help people resolve disagreements and find peaceful solutions to conflicts. They can be used in a variety of settings, including schools, workplaces, and communities. The goal of conflict resolution strategies is to reduce tensions, repair relationships, and promote understanding between parties involved in a conflict" (Lederach, 2019).

According to Rahim (2021), conflict management strategies can be categorized into five primary types: accommodating, avoiding, compromising, competing, and collaborating. These strategies vary in the degree of concern for one's own outcomes versus concern for the other party's outcomes, and their effectiveness depends on the nature of the conflict and the relational context (Rahim, 2021). Accommodating, involving high concern for others and low concern for self, can be useful when preserving relationships is critical or when one party prioritizes harmony over winning; however, overreliance may suppress legitimate needs and stifle innovation (Jones & Comfort, 2020; Kim & Kim, 2021). Avoiding, marked by low concern for both self and others, can serve as a short-term strategy to de-escalate emotional tensions, but persistent avoidance often leads to unresolved issues and diminished trust (Lee et al., 2022; Ribeiro & Martins, 2023).

Competing, or assertively pursuing one's own goals at the expense of others, may be effective in time-pressured situations requiring decisive action, yet excessive competitiveness can harm long-term collaboration and reduce psychological safety (Nguyen & Bryant, 2021; Singh & Gupta, 2023). *Compromising*, which represents moderate concern for both self and others, often provides practical, mutually acceptable solutions; however, it may result in suboptimal outcomes because neither party fully attains its goals (Chen & Wang, 2019; Patel & Krishnan, 2022). In contrast, *collaborating* high concern for both self and others aims for integrative, win-win solutions and has been linked to improved relationship quality, shared learning, and sustained performance outcomes (Garcia & Huang, 2020; Abdullah & Al-Shammari, 2024). Importantly, contemporary research emphasizes that no single style is universally best; rather, effective conflict management involves *adaptive use* of these strategies in response to situational demands, cultural norms, power dynamics, and organizational goals (Rahim, 2021; Zhao & Li, 2024).

In the context of educational settings, conflict management strategies can involve a range of approaches depending on the nature of the conflict and the individuals involved. For instance,

peer mediation programs involve students acting as mediators to resolve disputes among their peers (Goldstein & Brooks, 2019). Restorative justice practices, which emphasize repairing harm done to relationships rather than punishing wrongdoers, have also gained popularity in schools (Crawford & O'Malley, 2021). These methods have been found to be effective in reducing disciplinary incidents and improving the overall climate of schools.

Moreover, educators can employ conflict resolution strategies to prevent conflicts before they arise. For example, conflict resolution training programs can be implemented to equip students with the skills and knowledge necessary for handling disagreements peacefully (Cole, 2017). Similarly, creating a positive school culture that promotes empathy, understanding, and respect can reduce the likelihood of conflicts arising in the first place (Jackson, 2018). These approaches, when combined with AI-driven tools such as sentiment analysis and predictive analytics, can provide a comprehensive and effective strategy for addressing conflicts in educational settings. In the next section of this paper, we will explore the integration of these technologies in more detail, focusing on real-world applications and case studies.

Theoretical Framework

This review was anchored on two complementary theoretical models: Social Exchange Theory Thibaut and Kelley (1959) and Dialectical Perspective by Keltner et al., (2003).

The Social Exchange Theory by Kelley (1959)

The Social Exchange Theory was propounded by Kelley (1959). This theory emphasised the role of perceived costs and benefits in human interactions and decision-making, including conflict management. According to this theory, individuals strive for mutually advantageous exchanges in their relationships, including interpersonal and intergroup contexts. In the school environment, conflicts can arise when individuals perceive an imbalance in their exchanges, such as unfair treatment or unequal distribution of resources.

By incorporating AI-driven tools such as sentiment analysis and predictive analytics, counsellors can identify imbalances or negative sentiments early on, facilitating timely interventions and negotiations that aim to restore balance and mutual benefit. This can be seen as a technologically enhanced application of the Social Exchange Theory, helping to reduce conflicts and foster constructive relationships in educational settings. Social Exchange Theory also provides a framework for understanding the costs and benefits of interpersonal and intergroup interactions, which can be leveraged by AI-driven predictive analytics to detect imbalances and recommend interventions that restore harmony.

The Dialectical Perspective (Keltner et al., 2003)

The Dialectical Perspective theory was propounded by Keltner et al., (2003). Dialectical Perspective theory emphasised the idea that conflict is not inherently negative but can be a constructive force for growth and development when managed effectively. The Dialectical Perspective suggests that conflicts are often a result of competing, yet complementary, opposites or "dialectics," such as autonomy versus connectedness, continuity versus change, and

integration versus separation. By understanding these dialectics and facilitating dialogue that acknowledges both sides, counsellors can help resolve conflicts and foster empathy and understanding.

AI-powered tools such as chatbots and predictive analytics can support this process by providing real-time insights into the underlying tensions and facilitating early interventions that address the core dialectics. Similarly, the Dialectical Perspective highlights the importance of understanding conflicting needs and tensions, which can be supported by sentiment analysis and chatbots that facilitate open, empathetic dialogue.

Application of AI in Dispute Resolution and Counselling

The use of AI-driven tools, grounded in theoretical frameworks such as the Social Exchange Theory and the Dialectical Perspective, has shown promise in enhancing conflict management strategies in schools. These tools can be used in various ways, including: Predictive Analytics and Sentiment Analysis.

Predictive Analytics: Algorithms can analyse historical data to identify patterns and predict potential conflicts, allowing counsellors and administrators to intervene early and prevent escalation. As Omidyar et al. (2019) argued, predictive analytics can analyse historical data to identify patterns of potential conflicts, enabling early intervention and prevention. These insights demonstrate the potential of AI-driven tools in enhancing conflict management strategies, supporting the effective resolution of disputes and fostering harmonious relationships within schools. Also, researchers such as Chen et al. (2020) who found that predictive analytics systems based on social network analysis were effective in identifying high-risk students in schools.

Sentiment Analysis: NLP techniques can analyse written or verbal communication to identify emotional patterns and assess the impact of conflicts on individuals and groups. Foster et al. (2021) emphasized the importance of incorporating sentiment analysis in AI-based conflict management systems to facilitate empathetic and personalised interactions with students. Similarly, Sinha and Wilson (2018) explored the use of sentiment analysis in analyzing student feedback and found that it could provide valuable insights into the emotional climate of schools, leading to more targeted interventions. Li et al. (2022) proposed a sentiment-based chatbot for conflict management in schools that combined sentiment analysis with machine learning techniques to provide personalized advice and resources to students. Even though there very many usefulness of predictive analytics and sentiment analysis, there are challenges and ethical considerations associated with the use of AI in this context, which must be carefully navigated to ensure the responsible and beneficial integration of AI in conflict resolution and counselling.

Challenges and Ethical considerations of using AI tools in educational settings:

Although AI has the potential to enhance conflict management and support personal growth, there are several concerns that need to be addressed. These challenges include:

Bias and fairness: AI systems can inadvertently perpetuate existing biases and inequalities if they are not trained on diverse and representative datasets. O'Neil (2016) in her book, "Weapons of Math Destruction," highlights the risks of AI bias and calls for more scrutiny and accountability in the development and deployment of AI systems. Calo and Crawford (2016) proposed a "Fairness by Design" approach that involves incorporating fairness considerations from the design phase of AI systems, particularly in sectors like education where privacy and bias concerns are prevalent.

Privacy and security: Collecting and analysing sensitive information about students and families raises serious concerns about privacy, confidentiality, and the potential misuse of personal data. Scholars have noted that the increasing use of data analytics and AI in education can lead to heightened surveillance, data breaches, and ethical dilemmas regarding consent and transparency (Slade & Prinsloo, 2013; Regan & Jesse, 2019; Williamson, 2017).

Data privacy and security: Barocas and Selbst (2016) argue that AI systems may exacerbate existing biases and injustices by perpetuating human biases in datasets and decision-making algorithms. They emphasize the importance of regulating data privacy and security in education. AI-based recommendations and decisions can be opaque, making it difficult to understand how these systems arrive at conclusions, leading to potential disputes and mistrust.

Human-machine interaction: The use of AI in counselling and dispute resolution raises questions about the role of human expertise and empathy in these processes. Meredith Whittaker and Alex Campolo (2017) examine the unintended consequences of AI-driven systems, particularly in the context of decision-making and accountability. They suggest a framework for ensuring that human values and expertise are incorporated into the design and deployment of AI systems.

These ethical considerations must be carefully weighed and mitigated to ensure that AI is used ethically and responsibly to support educational counselling and dispute resolution

Approaches taken to address challenges

There are several approaches that can be taken to address the changes

- 1. Ensuring Diversity and Inclusivity in Dataset Development:** Ensuring that datasets used in AI systems reflect the diverse socio-cultural, linguistic, and economic experiences of learners is a key strategy for reducing bias and discrimination. In the Nigerian context, Ifediatu (2025) highlights that AI systems developed without consideration of local realities risk reinforcing existing inequalities in education, particularly given the country's complex socio-economic and linguistic diversity. Equitable AI requires participatory design involving educators and learners to avoid systems that entrench disadvantage rather than dismantle it.

2. **Implementing Robust Data Security and Privacy Policies:** The rapid deployment of AI in education and other sectors underscores the need for strong governance frameworks that define how personal data are collected, stored, used, and protected. Nigerian legal scholars Emmanuel Salami and Nwankwo (2024) argue that without robust privacy and data protection frameworks tailored to AI's data practices, individuals' rights may be compromised through unauthorized data processing or misuse. Strengthening Nigeria's data protection regime to address AI-specific concerns such as algorithmic transparency and accountability can mitigate privacy risks while enabling innovation.
3. **Promoting Transparency, Explainability, and Human Oversight:** AI systems should operate in ways that can be understood and interpreted by educators and stakeholders rather than as inscrutable black boxes. Incorporating explainability and human-in-the-loop processes allows for human intervention when automated decisions may be unfair or inappropriate. This approach aligns with broader calls in Nigerian AI ethics discourse for responsible use of technology emphasizing that AI should *augment* human judgment and respect learner rights rather than replace them.
4. **Developing Context-Specific Ethical and Policy Frameworks** Rather than adopting ethical frameworks developed for other regions without adaptation, AI governance in education should reflect local priorities and values. Nigerian researchers such as Elems-Ikwegbu (2025) stress the importance of creating ethical benchmarks and policy guidelines grounded in Nigeria's educational realities and institutional contexts. Such frameworks should integrate multidisciplinary perspectives, including educators, policy experts, and technologists, and address equity, inclusion, and responsible innovation.

Counselling Implications

1. AI-driven tools can support counsellors by providing timely insights into student wellbeing and conflict dynamics, facilitating early intervention and more tailored support.
2. The use of AI in counselling requires careful consideration of the role of human expertise and empathy, ensuring that AI complements rather than replaces human-centred approaches to dispute resolution.
3. Counsellors and educators should be adequately trained in data security and ethical use of AI to prevent misuse of sensitive information and maintain trust in these systems.
4. Schools and educational institutions should establish clear guidelines and policies for the use of AI tools, including consultation with students, parents, and other stakeholders.
5. Governments and educational authorities should consider funding research into ethical AI applications in education, promoting best practices and standards across the sector.

Conclusion

In conclusion, the integration of artificial intelligence tools into conflict management and counselling in educational settings presents significant opportunities for improving responsiveness, early intervention, and data-informed decision-making. However, the

effectiveness of these technologies depends largely on how responsibly they are designed, implemented, and monitored. Ethical concerns relating to bias, privacy, transparency, and human oversight must remain central to AI adoption strategies. As scholars and practitioners, continued critical engagement with both the transformative potential and inherent risks of AI in education is essential. Interdisciplinary collaboration among educators, counsellors, technologists, and policymakers will play a crucial role in shaping AI systems that are equitable, context-sensitive, and aligned with educational values.

Suggestions

School counsellors and teachers should receive continuous professional development to competently interpret AI-generated insights, understand algorithmic limitations, and maintain empathy in AI-supported counselling. Without adequate human capacity, AI systems may be misapplied or over-relied upon, thereby weakening the relational foundation central to effective counselling practice.

School administrators and governing boards should establish clear governance and oversight mechanisms for AI adoption, including ethics review structures to ensure fairness, transparency, explainability, and compliance with data protection standards. Institutions must also ensure that parents and students are informed about how AI systems are used in counselling and conflict management processes to strengthen accountability and trust.

National and state governments should develop context-specific regulatory frameworks defining standards for data privacy, algorithmic accountability, and ethical compliance in educational settings. Public investment in locally grounded research is essential to ensure culturally relevant and equitable AI implementation.

AI developers and educational technology providers should collaborate closely with educators, counsellors, and subject experts during system design and deployment to ensure pedagogical appropriateness and cultural sensitivity. Clear documentation of system functions and limitations should accompany implementation to support informed institutional decision-making.

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