# LLM-driven educational game for conflict mediation training in Ukrainian wartime conditions

Sofiia V. Ilkova[1], Pavlo V. Merzlykin[2] and Natalia V. Moiseienko[2]

[1]Ukrainian-American Lyceum, 19 Dmytra Yavornytskoho Ave., Dnipro, 49005, Ukraine
[2]Kryvyi Rih State Pedagogical University, 54 Universytetskyi Ave., Kryvyi Rih, 50086, Ukraine

**Abstract**

Wartime conditions in Ukraine have led to a significant increase in interpersonal conflicts, negatively affecting psychological well-being and social cohesion. This paper introduces an innovative AI-driven educational game that teaches mediation skills through dialogue with characters generated by large language models (LLMs). The system features dynamically generated conflict scenarios and personalized responses, providing a safe, repeatable environment for mediation practice. We implemented the game using Gemini 1.5 Flash LLM and evaluated different mediation strategies quantitatively. Our experiments demonstrate that the compensation strategy appeared to be effective in investigated conflict scenarios. Our approach enables the quantitative evaluation of mediation approaches, which is virtually impossible in real-world settings. This technologically advanced approach addresses a significant gap in mediation education, offering an accessible tool for training mediators in war-affected regions.

**Keywords**

mediation training, conflict resolution, large language models, educational games, Gemini API, wartime education, AI in education

## 1. Introduction

Wartime conditions create challenges for interpersonal relationships [1, 2, 3, 4, 5, 6, 7]. The war in Ukraine, ongoing since 2014 [8, 9, 10], has caused profound disruption to social fabric with increasingly severe consequences for mental health and social cohesion. According to national and international monitoring agencies, since the beginning of the war, 21.3 million Ukrainians (with 57% of children among them) have experienced its consequences and needed humanitarian assistance [11]. These circumstances generate extraordinary stress and destroy not only actual infrastructure, but also vital social connections.

Children and adolescents are particularly vulnerable to these negative impacts. Under war conditions, normal psychological development faces significant disruption from stressful situations and traumatic experiences. Without timely and qualified psychological assistance, traumatized children may experience serious developmental issues with long-term consequences that can cause interpersonal later [12].

Mediation is a valuable tool for peacefully resolving disputes, but there is still a critical shortage of accessible and interactive tools to learn these skills, particularly in war-affected territories. This educational gap is especially relevant in Ukraine. Addressing this need requires innovative approaches that combine educational theory with modern technology.

Large language models (LLMs) open opportunities to create interactive educational experiences [13, 14]. Their ability to generate contextually relevant dynamic content, respond intelligently to user input, and simulate complex social interactions makes them particularly suitable for training social

*AREdu 2025: 8th International Workshop on Augmented Reality in Education,*
*co-located with the 6th International Conference on History, Theory and Methodology of Learning (ICHTML 2025),*
*May 13, 2025, Kryvyi Rih, Ukraine*

sofia1112018@gmail.com (S. V. Ilkova); ipmcourses@gmail.com (P. V. Merzlykin); n.v.moiseenko@gmail.com (N. V. Moiseienko)
https://kdpu.edu.ua/personal/pvmerzlykin.html (P. V. Merzlykin); https://kdpu.edu.ua/personal/nvmoiseienko.html (N. V. Moiseienko)
0000-0002-4017-7172 (P. V. Merzlykin); 0000-0002-3559-6081 (N. V. Moiseienko)

skills like mediation. However, while LLMs have been integrated into various educational applications, their potential for teaching conflict resolution skills remains unexplored.

## 2. Related work

The psychological impact of war extends far beyond immediate trauma. Brulin et al. [15] characterize war as a major, persistent polytraumatic event with deleterious psychological consequences affecting large populations within and outside war-affected territories. The research by Semigina [16] reveals that Ukrainian social services and social workers were largely not prepared to operate effectively in emergency situations.

The Ukrainian legal framework defines mediation as "an extrajudicial voluntary, confidential, structured procedure during which the parties, with the help of a mediator, try to prevent or resolve a conflict through negotiations" [17]. Since 2018, thousands of Ukrainian schools have established "Reconciliation Services" that actively work on preventing and responding to conflicts in educational environments [18]. In 2024, several new mediation-related educational projects were launched, including the Erasmus+ project "The Art of Negotiation and Conflict Resolution (Mediation)/ArtNoConflict" and a joint project between Kharkiv National University and UNICEF focusing on trauma-oriented approaches to mental health, psychological support, and mediation [19, 20].

Large language models have demonstrated significant potential for enhancing educational experiences across disciplines. Bewersdorff et al. [21] highlight how LLMs, particularly Multimodal Large Language Models (MLLMs) like GPT-4 Vision, can process multimodal data to create enriched, personalized, and interactive learning environments. These applications range from content creation to learning support, fostering engagement in scientific practices, and providing nuanced assessments and feedback.

In educational gaming contexts, LLMs have been employed to enhance player experiences by creating dynamic, responsive environments. Gatti Junior et al. [22] explore the application of LLMs such as ChatGPT in designing educational board games, guiding educators through phases of ideation, customization, and prototype feedback. Similarly, Todd et al. [23] investigate the use of LLMs to generate functional video game levels, finding that performance scales impressively with dataset size.

The integration of LLMs with game-based learning environments has shown particular promise. Goslen et al. [24] introduced a plan generation framework that leverages text representations of students' interactions in game-based learning environments to generate plans for accomplishing target goals. Their results indicate that AI-generated plans can guide students to achieve learning objectives more efficiently than traditional approaches.

However, significant challenges remain in implementing LLMs in educational contexts. As noted by Huber et al. [25], while LLMs provide numerous opportunities, they also introduce risks of over-reliance that could potentially limit the development of authentic domain expertise. Furthermore, Gatti Junior et al. [22] identify challenges such as biases from training datasets, generation of inaccurate details, counter-intuitive rules, and misinterpretation of feedback, which can result in unintended learning dynamics.

There have been attempts to use LLMs for conflict resolution and negotiation training. Bianchi et al. [26] developed NEGOTIATIONARENA, a flexible framework for evaluating and testing the negotiation abilities of LLM agents. Their findings indicate that while LLMs can significantly improve negotiation outcomes by employing certain behavioral tactics, they also exhibit irrational negotiation behaviors similar to those observed in humans. Shaikh et al. [27] introduced Rehearsal, a system enabling users to practice handling conflicts with a simulated interlocutor, explore alternative conversational paths, and receive targeted feedback on conflict strategies. Their approach conditions the output of an LLM on the Interest-Rights-Power (IRP) theory from conflict resolution literature, guiding users toward strategies that help de-escalate difficult conversations.

However, to our knowledge, no existing work has specifically addressed the use of LLMs for teaching mediation skills in the context of wartime, particularly in the Ukrainian context. This gap represents an important opportunity to leverage the advanced capabilities of LLMs to address an urgent social need

with significant implications for community resilience.

# 3. Methodology

## 3.1. Game design and architecture

The game features a 2D environment where players navigate and interact with various characters, each possessing unique personalities and conflict scenarios. Figure 1 illustrates the class diagram.

Key classes are:

- *GameObject* is the base abstract class for all the game objects. They include *Player* (player character), *Obstacle* (houses, trees etc.), *AICharacter* (opposing characters), *AIAssistant* (a virtual mentor character who gives mediation tips and helps player).
- Each *AICharacter* has *trust* and *consent* integer fields that store the level of trust to the player and willingless to resolve the conflict. These variables are affected by player's actions.
- *Conflict* class stores the essence of the conflict between two characters.
- *SpriteSheet* is a class for loading sprites from files.
- *MyConsoleWindow* is a subclass of *pygame_gui.windows.UIConsoleWindow* with nearly identical functions.

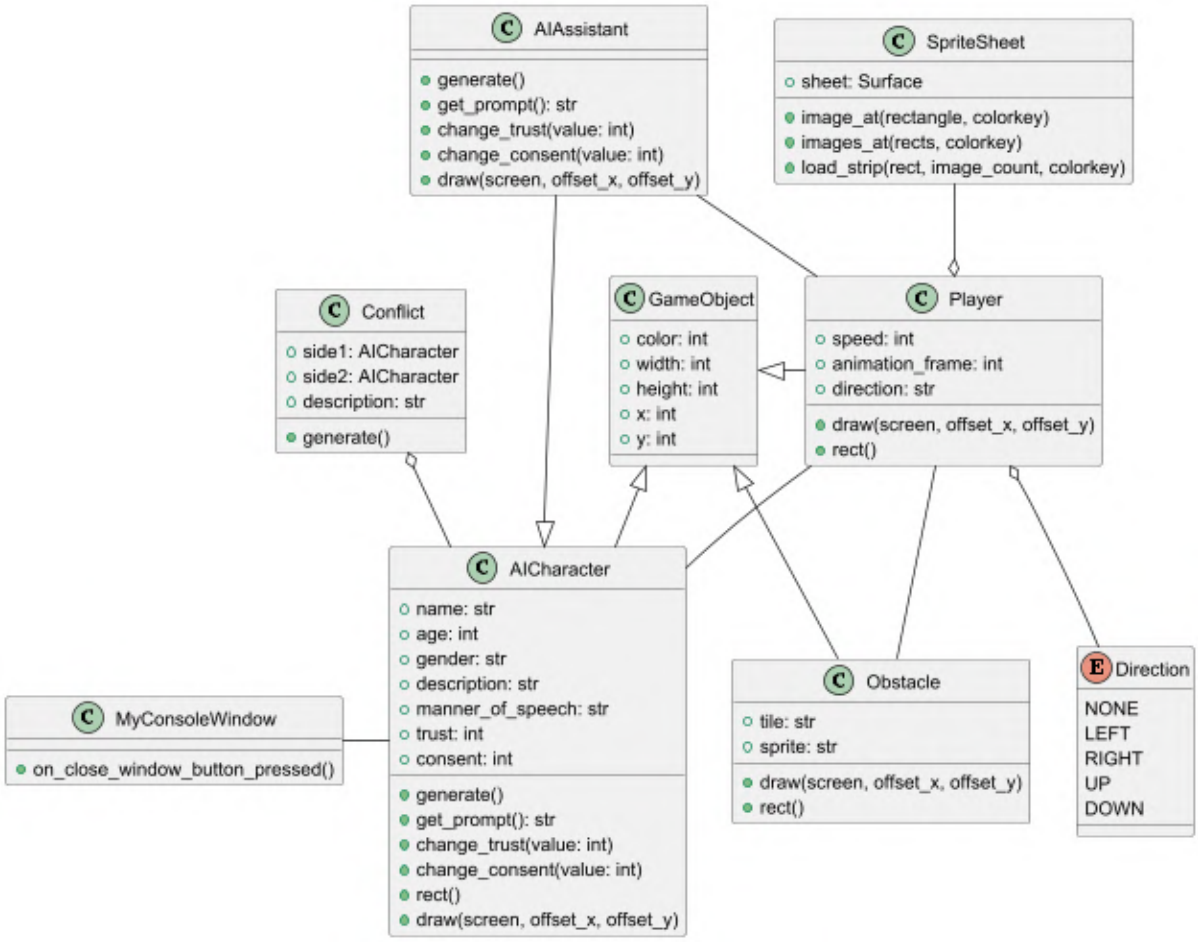


**Figure 1:** UML class diagram of the game.

The game interface (figure 2) was designed with user experience principles in mind, ensuring intuitive navigation and clear visual feedback on mediation progress through trust and compromise metrics.

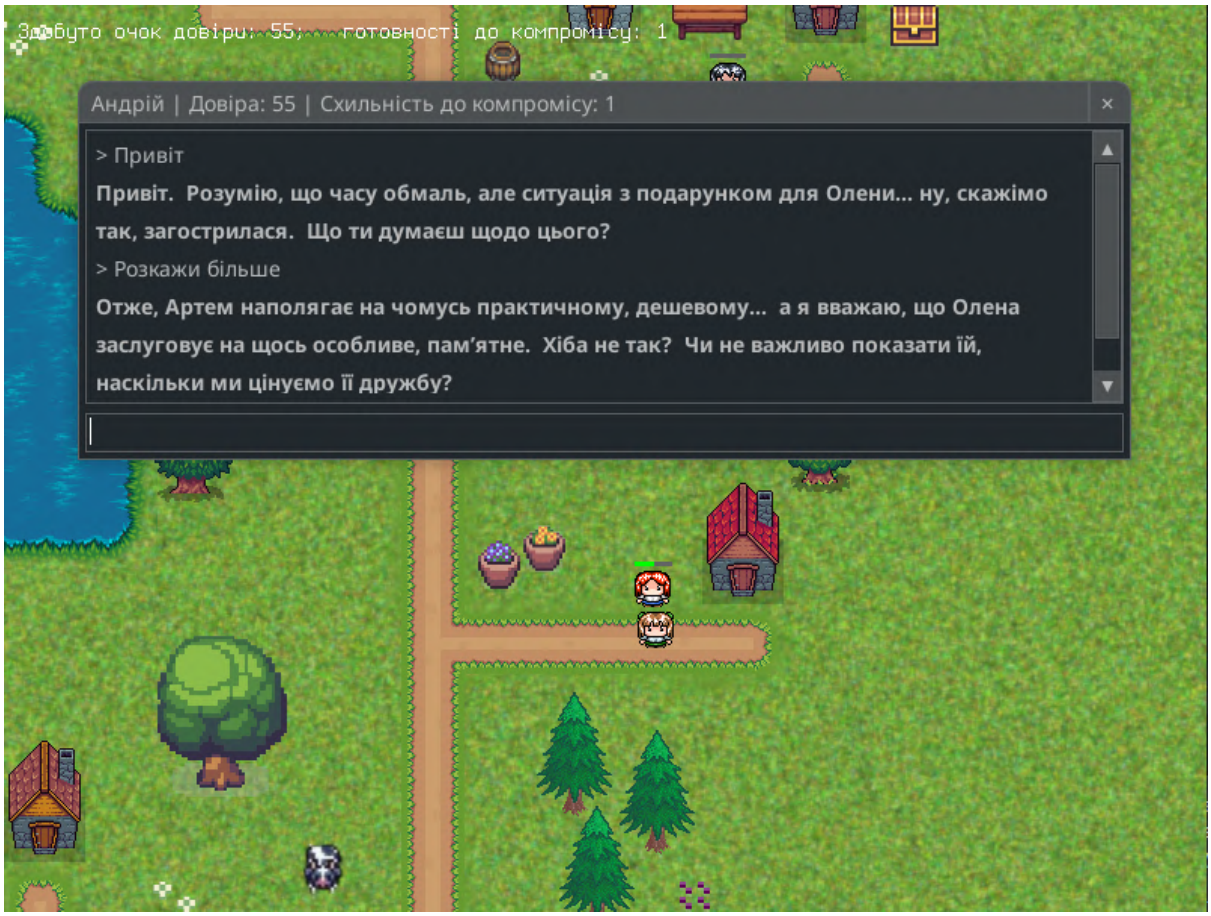


**Figure 2:** Game interface showing player character, environment, and dialogue console.

### 3.2. LLM selection and integration

We considered hosting a local LLM, but it would dramatically increase system requirements giving ho-hum generation quality compared with larger commercial LLMs.

After comprehensive evaluation of several state-of-the-art LLMs, we selected Gemini 1.5 Flash for our implementation. This decision was based on comparative research examining the performance capabilities of ChatGPT-4o and Gemini 1.5 Flash [28], which showed that while ChatGPT-4o demonstrates high baseline performance, specialized training produces only marginal accuracy improvements. In contrast, Gemini 1.5, despite lower initial performance, exhibits substantial improvements after training, particularly with textual data. These findings indicate Gemini 1.5's superior ability to store and retrieve contextual information, making it potentially more effective for dynamic dialogue generation in educational contexts.

Another factor was cost-effectiveness. Gemini 1.5 Flash provides limited free account, which is sufficient for single-player game.

Integration with the Gemini API involved several technical steps:

1. Obtaining an authenticated API key through Google AI Studio.
2. Installing and configuring the Python google.generativeai library.
3. Developing system instructions for character-specific information processing.
4. Implementing a dialogue management system for handling user input and LLM responses.
5. Creating a response parsing mechanism to extract character dialogue and update game state metrics.

The integration utilized Gemini's system instructions mechanism to provide character-specific contextual information processed by the model before handling the main conversational request. We

developed a specialized prompt template describing the generated character, their conflict situation, and specific response format instructions. Additionally, we implemented a custom delimiter-separated values (DSV) protocol using the ^ symbol to split the received response into three components: the character's textual response, a trust score (ranging from -5 to 5), and a willingness-to-compromise score (ranging from -3 to 3).

```
# Model preparation
def set_context():
    genai.configure(api_key=api_key)
    MODEL = 'gemini-1.5-flash'
    SYSTEM_INSTRUCTION = current_character.get_prompt() + \
            "Conflict essence: " + \
            conflict.description + \
            " \nFORMAT OF YOUR RESPONSES: three lines separated by '^' character. \n1. First line - text response of your character." + \
            " \n2. Second line - integer from -5 to 5, which shows whether your TRUST towards the player has changed." + \
            " -5 means significantly decreased, 5 means significantly increased." + \
            " \n3. Third line - integer from -3 to 3, which shows whether your WILLINGNESS TO COMPROMISE has changed." + \
            " -3 means significantly decreased, 3 means significantly increased."

    print(SYSTEM_INSTRUCTION)
    global model
    global chat
    model = genai.GenerativeModel(MODEL, system_instruction=SYSTEM_INSTRUCTION)
    chat = model.start_chat()
```

Listing 1: Model configuration for character-specific dialogue generation.

### 3.3. Mediation strategy evaluation framework

To evaluate the effectiveness of different mediation approaches, we designed a controlled experiment comparing four distinct strategies established in conflict resolution literature. Table 1 outlines these strategies and their key characteristics.

**Table 1**
Mediation strategies evaluated in the experimental study.

| Strategy | Description |
|---|---|
| Integration | Focuses on identifying and leveraging shared interests between conflicting parties. The mediator helps participants discover common ground and develop compromises that satisfy core needs of both sides. |
| Pressure | Involves strategically limiting options where no agreement exists. The mediator reduces the perceived attractiveness of alternatives that exclude agreement, thereby motivating parties toward compromise through controlled environmental constraints. |
| Compensation | Centers on expanding the range of possible agreement options. The mediator actively seeks additional incentives, benefits, or creative solutions for each party to enhance the likelihood of reaching mutually beneficial agreements. |
| Inaction | Represents minimal intervention in the negotiation process, allowing parties to resolve disputes through their own initiative. This approach is typically employed when participants demonstrate existing capacity for autonomous conflict resolution. |

In each experimental trial, we utilized the same character pair and identical conflict scenario to ensure controlled conditions. For each strategy, we conducted 20 dialogue turns, systematically applying the principles of that specific approach throughout the interaction sequence. The effectiveness of each strategy was measured using the game's trust and willingness-to-compromise metrics, which

were updated after each player interaction based on the LLM's assessment of interaction quality and appropriateness within the simulated conflict context.

This experimental design was specifically developed to demonstrate the potential of quantitative strategy evaluation in mediation training, an approach that is nearly impossible in real conflicts.

# 4. Implementation

## 4.1. Game development

We developed the game using Python with the Pygame library providing the core rendering and interaction framework. For modular architecture and maintainable code, we organized the implementation into six primary components:

- `main.py`: contains the central game loop, primary settings, movement mechanics, and AI request management
- `aicharacter.py`: contains *AICharacter* class implementation, handles character generation, trait management, and behavior modeling
- `player.py`: contains *Player* class implementation, controls player appearance, animations, and user-directed actions
- `conflict.py`: contains *Conflict* class implementation, defines conflict scenarios and relationships
- `obstacle.py`: contains *Obstacle* class implementation, implements environmental elements and collision detection
- `spritesheet.py`: provides sprite loading, animation sequencing, and visual processing.

The initialization process establishes the Pygame environment and creates a game window with specific dimensions. We implemented the graphical user interface using the *pygame_gui* library, which provides a dialogue window functionality for character communication.

Character generation is managed by the *AICharacter* class, which defines comprehensive behavior models and interaction properties for game agents. The class includes methods for dynamically generating character traits and updating game metrics based on the quality and appropriateness of player interactions.

```
class AICharacter:
    color = (255, 0, 0)
    width, height = 50, 50
    x, y = 100, 100
    tile = ""
    sprite = None
    name = "Anonymous"
    age = 20
    gender = "male"
    description = ""
    manner_of_speech = ""
    objective = ""
    trust = 0  # trust towards player
    consent = 0  # willingness to compromise

    def generate(self):
        self.name = random.choice(names)
        self.age = random.randint(18, 70)
        self.gender = random.choice(["male", "female"])
        self.description = random.choice(descriptions)
        self.manner_of_speech = random.choice(speech_manners)
        self.objective = random.choice(objectives)

    def change_trust(self, value):
```

```
        self.trust += value
        self.trust = max(0, min(100, self.trust))

    def change_consent(self, value):
        self.consent += value
        self.consent = max(0, min(100, self.consent))
```

Listing 2: AICharacter class definition for modeling character behavior.

Player movement is implemented through keyboard input controls that enable navigation in multiple directions. The system restricts movement while the dialogue console is active, ensuring players maintain focus on the mediation process during critical character interactions.

The conflict generation system creates diversified scenarios by algorithmically combining different conflict descriptions, participant characteristics, and contextual factors. This procedural generation ensures each gameplay session presents unique mediation challenges reflective of real-world complexity.

```
conflict_descriptions = [
    "p1 and p2 work together in a local community organization, but have developed tension over resource allocation for displaced families.",
    "p1 and p2 are neighbors in a building partially damaged by shelling, and disagree about reconstruction priorities.",
    "p1 and p2 have a joint volunteer initiative, but have different views on coordinating with military personnel.",
    "p1 and p2 are teachers at the same school with conflicting approaches to helping traumatized students."
]

class Conflict:
    side1 = None  # conflict party 1
    side2 = None  # conflict party 2
    description = ""

    def generate(self):
        self.description = random.choice(conflict_descriptions)
        self.description = self.description.replace("p1", self.side1.name)
        self.description = self.description.replace("p2", self.side2.name)

    def __init__(self, s1:AICharacter, s2:AICharacter):
        self.side1, self.side2 = s1, s2
        self.generate()
```

Listing 3: Conflict scenario generation system.

## 4.2. Dialogue system

The dialogue system constitutes the core of the game's mediation training functionality. When a player encounters a character through proximity detection, the *current_character* variable is initialized, triggering the preparation of the AI model for context-aware dialogue. This action opens the console window to initiate communication with the character. For processing user input and generating contextually appropriate AI responses, we construct a structured request in the PROMPT variable that incorporates the current trust level, willingness to compromise, and the new input message. The *chat.send_message(PROMPT)* method transmits this request to the AI engine and receives a formatted response. Upon character response generation, an audio notification plays, and the dialogue content appears in the game's console window, with character metrics updated according to AI-assessed interaction quality.

```
if (event.type == pygame_gui.UI_CONSOLE_COMMAND_ENTERED and
        event.ui_element == console_window):
    command = event.command
    if current_character:
```

```
        PROMPT = "Your current TRUST level is " + str(current_character.trust) + " out of 100." +
    \
                "Your WILLINGNESS TO COMPROMISE is currently " + str(current_character.consent) +
    \
                " out of 100." + "Next interlocutor reply: " + command + " "
        response = chat.send_message(PROMPT)
        print(response.text)
        talk_sound.play()  # sound on response
        console_window.add_output_line_to_log(response.text.split("^")[0], is_bold=True)
        try:
            # Change trust level and willingness to dialogue
            current_character.change_trust(int(response.text.split("^")[1]))
            current_character.change_consent(int(response.text.split("^")[2]))
        except:
            pass
        console_window.set_display_title(current_character.name + \
                        " | Trust: " + str(current_character.trust) + \
                        " | Willingness to compromise: " + str(current_character.consent))
```

Listing 4: Dialogue processing and response handling system.

This dialogue system creates a dynamically responsive interaction experience where player choices directly influence character trust and willingness to compromise, providing immediate feedback on mediation effectiveness. The system's design emphasizes educational value through experiential learning, allowing players to witness the consequences of their mediation approaches in a realistic but controlled environment.

# 5. Results and discussion

## 5.1. Mediation strategy evaluation

The comparative assessment of different mediation strategies revealed substantial variations in effectiveness as measured by our game's quantitative trust and willingness-to-compromise metrics. Figure 3 presents the comparative effectiveness of each strategy based on our experimental trials.

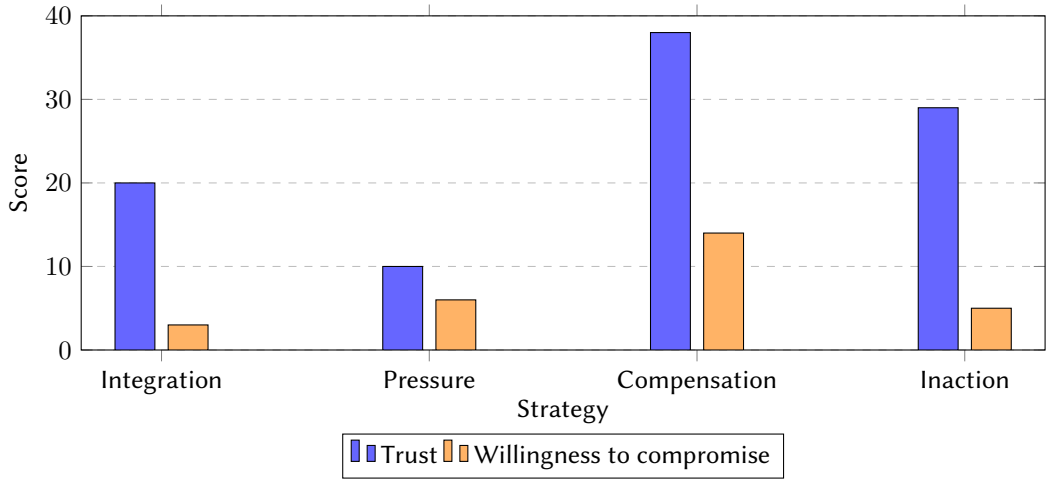


**Figure 3:** Comparative effectiveness of mediation strategies measured by trust and willingness to compromise scores.

The compensation strategy demonstrated superior effectiveness in our generated conflict scenarios, achieving an average trust score of 38 (out of 100) and a willingness-to-compromise score of 14 (out of 100) after 20 dialogue turns.

The integration and inaction strategies proved moderately effective. The pressure strategy demonstrated limited effectiveness, with average scores of 10 for trust, but 6 for willingness to compromise,

which is better compared to integration and inaction strategies.

Interestingly, the inaction strategy performed better than expected on trust metrics (29) but poorly on willingness to compromise (5). This suggests that while non-intervention may preserve trust relationships to some degree, it fails to advance actual conflict resolution progress.

These findings complement research by Carnevale [29], who identified compensation as particularly effective in certain conflict types characterized by resource scarcity and high emotional intensity. However, it's important to acknowledge that our results are specific to the AI-generated conflict scenarios in our system and may not generalize perfectly to all real-world conflicts.

### 5.2. Implications for mediation training

Our research demonstrates the significant potential of LLM-based educational games for teaching mediation skills, particularly in contexts where traditional training methods face resource or access limitations. The game provides several advantages over conventional approaches.

First, the digital format enables widespread distribution, making mediation training accessible to individuals who might otherwise lack access to formal instruction. This accessibility is particularly valuable in war-affected regions like Ukraine, where the need for mediation skills is acute but training resources are often severely constrained.

Second, the system creates a risk-free environment for users to experiment with different mediation strategies without fear of real-world consequences. This psychological safety encourages experimentation and learning through trial and error, which is essential for developing mediation skills.

Third, unlike traditional role-play exercises, our system provides immediate, quantitative feedback on the effectiveness of different approaches through trust and willingness-to-compromise metrics. This data-driven feedback allows users to gain concrete insights into which strategies prove most effective in different scenarios, accelerating the learning process through clear outcome visualization.

Fourth, the ability to generate diverse conflict scenarios and reset interactions enables users to practice identical mediation techniques across different contexts or try alternative approaches with the same characters. This capability reinforces learning through repetition while developing adaptability through contextual variation.

### 5.3. Limitations and future work

While our research demonstrates the significant potential of LLM-based games for mediation training, several limitations should be acknowledged. The effectiveness of different mediation strategies may vary across cultural contexts and conflict types. Future work could expand the range of scenarios to address a wider variety of cultural settings and conflict situations through enhanced prompt engineering and scenario design.

Despite ongoing advances, LLMs still face challenges in maintaining perfect coherence across extended dialogues and may occasionally generate inappropriate responses. More sophisticated filtering and safety mechanisms could be implemented to address these issues, particularly important when dealing with sensitive conflict scenarios involving trauma. Advanced prompt chaining techniques could potentially improve narrative coherence across extended mediation sessions.

While our quantitative metrics provide valuable insights, they are based on the LLM's assessment rather than external validation from trained mediators. Future studies could incorporate expert evaluations or real-world outcome correlations to further validate the educational effectiveness of the training system.

## 6. Conclusion

This paper has presented an innovative educational game for teaching mediation skills using LLM-generated dialogues specifically designed for wartime conditions in Ukraine. The system leverages the capabilities of the Gemini 1.5 Flash LLM to create responsive characters engaged in realistic conflict

scenarios reflective of current challenges. We have created an engaging learning environment that provides immediate feedback on mediation effectiveness through quantitative metrics.

Our experimental evaluation of different mediation strategies revealed that the compensation approach, which focuses on expanding possible agreement options, was most effective in our AI-generated conflict scenarios. This finding provides quantitative support for theoretical perspectives on mediation strategy.

The game addresses a critical need for accessible mediation training, particularly in war-affected regions where interpersonal conflicts have increased dramatically due to wartime conditions.

Future research will focus on expanding the range of conflict scenarios, implementing more sophisticated feedback mechanisms, and validating the effectiveness of the training through longitudinal studies tracking skill transfer. These enhancements will further strengthen the system's value as an educational tool and contribute to the growing body of knowledge on both mediation practice and LLM applications in education for conflict resolution.

## Declaration on Generative AI

During the preparation of this work, the authors used Claude 3.7 Sonnet to enhance content and improve writing style. After using this tool, the authors reviewed and edited the content as needed and took full responsibility for the publication's content.

## References


[1] V. Palii, M. Velykodna, M. Pereira, R. McElvaney, S. Bernard, V. Klymchuk, O. Burlachuk, A. A. Lupis, N. Diatel, J. L. Ireland, K. McNeill, J. L. Scarlet, A. L. Jaramillo-Sierra, B. Khoury, D. R. Sánchez Munar, S. L. Hedlund, T. Flanagan, J. LeBlanc, D. M. Agudelo Velez, Y. Gómez-Maquet, The experience of launching a psychological hotline across 21 countries to support Ukrainians in wartime, Mental Health and Social Inclusion 28 (2024) 321–325. doi:10.1108/MHSI-04-2023-0040.

[2] M. Velykodna, A Psychoanalyst's Experience of Working in Wartime: On Choosing Between Bad Options, Psychoanalytic Psychology 40 (2023) 238–242. doi:10.1037/pap0000480.

[3] M. Velykodna, N. Nalyvaiko, O. Pavlovska, O. Arshevska-Guérin, Y. Butsykin, Ethical challenges in psychoanalytic practice in wartime: conference report, Kyiv, Ukraine, 2023, Psychodynamic Practice 30 (2024) 49–66. URL: https://www.scopus.com/inward/record.uri?eid=2-s2.0-85171281364&doi=10.1080%2f14753634.2023.2258036&partnerID=40&md5=f05ca5f091b09256676272b59b726512. doi:10.1080/14753634.2023.2258036.

[4] M. Velykodna, V. Gorbunova, I. Frankova, V. Deputatov, B. Happell, Predictors of Satisfaction and Value of Advanced Training for Mental Health Professionals in Wartime Ukraine, Issues in Mental Health Nursing 44 (2023) 1096–1108. doi:10.1080/01612840.2023.2258217.

[5] M. Velykodna, Y. Butsykin, V. Dorozhkin, A. Lupis, T. Melnychuk, N. Nalyvaiko, O. Pavlovska, M. Pustovoyt, M. Tkalych, O. Yakushko, Inscribing a new page in the history of ukrainian psychoanalysis during the wartime: The call for contributions, International Journal of Applied Psychoanalytic Studies 21 (2024) e1861. doi:10.1002/aps.1861.

[6] M. Velykodna, O. Yakushko, Prologue: Psychoanalysis and Psychotherapy in Wartime: Ukraine — The Impossibilities and Possibilities of Psychoanalysis in Ukraine Facing War, Psychoanalytic Inquiry 45 (2025) 333–339. doi:10.1080/07351690.2025.2484993.

[7] M. Velykodna, V. Deputatov, O. Horbachova, Z. Miroshnyk, N. Mishaka, Providing Inclusive Primary School Education for Children with Special Educational Needs in Wartime Ukraine: Challenges and Current Solutions, Journal of Intellectual Disability - Diagnosis and Treatment 11 (2023) 109–123. doi:10.6000/2292-2598.2023.11.02.5.

[8] I. Bondarevskaya, B. Krzywosz-Rynkiewicz, E. Bondar, Young people's citizenship activity in times of war threat: Case of Ukraine, Citizenship Teaching and Learning 12 (2017) 189–206. doi:10.1386/ctl.12.2.189_1.

[9] O. Mishalova, O. Hordiichuk, O. Sokolovskyi, Russia's War in Ukraine as a "War for Identity" and Appropriation of Cultural Tradition, Ethics in Progress 15 (2024) 73–94. doi:10.14746/eip.2024.1.4.

[10] K. Bondar, O. Shestopalova, V. A. Hamaniuk, Evaluating transactional distance and student engagement in HyFlex art therapy education amidst the war in Ukraine, in: S. Papadakis (Ed.), Proceedings of the 11th Workshop on Cloud Technologies in Education (CTE 2023), Kryvyi Rih, Ukraine, December 22, 2023, volume 3679 of *CEUR Workshop Proceedings*, CEUR-WS.org, 2023, pp. 164–177. URL: https://ceur-ws.org/Vol-3679/paper02.pdf.

[11] O. M. Basenko, Peculiarities of Adolescents' Experience of the Armed Conflict Stressful Events, Dissertation to obtain the scientific degree of Doctor of Philosophy in the Field 05 "Social and Behavioral Sciences", specialty 053 "Psychology", National University of Kyiv-Mohyla Academy, Kyiv, 2023. URL: https://ekmair.ukma.edu.ua/items/c3dcb0ff-4eef-4794-993a-761b69a7ba2b.

[12] J. D. Ford, Responding to the Need for Psychotherapeutic Respite by War-Exposed Ukrainian Children, JAMA Network Open 8 (2025) e253060–e253060. doi:10.1001/jamanetworkopen.2025.3060.

[13] E. Kasneci, K. Sessler, S. Küchemann, M. Bannert, D. Dementieva, F. Fischer, U. Gasser, G. Groh, S. Günnemann, E. Hüllermeier, S. Krusche, G. Kutyniok, T. Michaeli, C. Nerdel, J. Pfeffer, O. Poquet, M. Sailer, A. Schmidt, T. Seidel, M. Stadler, J. Weller, J. Kuhn, G. Kasneci, ChatGPT for good? On opportunities and challenges of large language models for education, Learning and Individual Differences 103 (2023) 102274. doi:10.1016/j.lindif.2023.102274.

[14] O. V. Talaver, T. A. Vakaliuk, A model for improving the accuracy of educational content created by generative AI, in: S. O. Semerikov, A. M. Striuk, M. V. Marienko, O. P. Pinchuk (Eds.), Proceedings of the 7th International Workshop on Augmented Reality in Education (AREdu 2024), Kryvyi Rih, Ukraine, May 14, 2024, volume 3918 of *CEUR Workshop Proceedings*, CEUR-WS.org, 2024, pp. 149–158. URL: https://ceur-ws.org/Vol-3918/paper372.pdf.

[15] L. Brulin, D. Brulin-Solignac, J.-P. Bouchard, L'impact psychotraumatique de la guerre en Ukraine [The psychotraumatic impact of the war in Ukraine], La Revue de l'Infirmiere 71 (2022) 45–47. doi:10.1016/j.revinf.2022.12.015.

[16] T. Semigina, Frustrations or moving forward? Ukrainian social work within the 'hybrid war' context [Rozcharuvannia chy rukh upered? Ukrainska sotsialna robota v umovakh «hibrydnoi viiny»], European Journal of Social Work 22 (2019) 446–457. doi:10.1080/13691457.2017.1366432.

[17] Verkhovna Rada of Ukraine, Law of Ukraine "On Mediation", 2021. URL: https://zakon.rada.gov.ua/laws/show/1875-20#Text.

[18] Borysfen School, Sluzhba porozuminnia "Dovira" [Reconciliation Service "Trust"], 2018. URL: https://www.borysfen.dp.ua/%D0%BC%D0%BB%D1%83%D0%B6%D0%B1%D0%B0-%D0%BF%D0%BE%D1%80%D0%BE%D0%B7%D1%83%D0%BC%D1%96%D0%BD%D0%BD%D1%8F-%D0%B4%D0%BE%D0%B2%D1%96%D1%80%D0%B0/.

[19] Ministry of Education and Science of Ukraine, "Mystetstvo perehovoriv i vyrishennia konfliktiv (mediatsiia)/ ArtNoConflict" — novyi proiekt vid Erazmus + "The Art of Negotiation and Conflict Resolution (Mediation)/ArtNoConflict" – a new project from Erasmus+], 2024. URL: https://tinyurl.com/7jh4vbjx.

[20] Ministry of Education and Science of Ukraine, Travmooriientovanyi pidkhid ta mediatsiia: KhNU imeni V.N. Karazina ta YuNISEF rozpochaly novyi proiekt [Trauma-oriented approach and mediation: KhNU named after V.N. Karazin and UNICEF have started a new project], 2024. URL: https://tinyurl.com/49vjx4sv.

[21] A. Bewersdorff, C. Hartmann, M. Hornberger, K. Seßler, M. Bannert, E. Kasneci, G. Kasneci, X. Zhai, C. Nerdel, Taking the next step with generative artificial intelligence: The transformative role of multimodal large language models in science education, Learning and Individual Differences 118 (2025) 102601. doi:10.1016/j.lindif.2024.102601.

[22] W. Gatti Junior, E. Marasco, B. Kim, L. Behjat, M. Eggermont, How ChatGPT can inspire and improve serious board game design, International Journal of Serious Games 10 (2023) 33–54.

doi:10.17083/ijsg.v10i4.645.

[23] G. Todd, S. Earle, M. U. Nasir, M. C. Green, J. Togelius, Level Generation Through Large Language Models, in: Proceedings of the 18th International Conference on the Foundations of Digital Games, FDG '23, Association for Computing Machinery, New York, NY, USA, 2023, p. 70. doi:10.1145/3582437.3587211.

[24] A. Goslen, Y. J. Kim, J. P. Rowe, J. C. Lester, Language Modeling for Plan Generation in Game-Base Learning Environments, in: S. Moore, J. C. Stamper, R. J. Tong, C. Cao, Z. Liu, X. Hu, Y. Lu, J. Liang, H. Khosravi, P. Denny, A. Singh, C. Brooks (Eds.), Proceedings of the Workshop on Empowering Education with LLMs - the Next-Gen Interface and Content Generation 2023 co-located with 24th International Conference on Artificial Intelligence in Education (AIED 2023), Tokyo, Japan, July 7, 2023, volume 3487 of *CEUR Workshop Proceedings*, CEUR-WS.org, 2023, pp. 129–138. URL: https://ceur-ws.org/Vol-3487/paper8.pdf.

[25] S. E. Huber, K. Kiili, S. Nebel, R. M. Ryan, M. Sailer, M. Ninaus, Leveraging the Potential of Large Language Models in Education Through Playful and Game-Based Learning, Educational Psychology Review 36 (2024) 25. doi:10.1007/s10648-024-09868-z.

[26] F. Bianchi, P. J. Chia, M. Yüksekgönül, J. Tagliabue, D. Jurafsky, J. Zou, How Well Can LLMs Negotiate? NegotiationArena Platform and Analysis, in: Forty-first International Conference on Machine Learning, ICML 2024, Vienna, Austria, July 21-27, 2024, OpenReview.net, 2024. URL: https://openreview.net/forum?id=CmOmaxkt8p.

[27] O. Shaikh, V. E. Chai, M. Gelfand, D. Yang, M. S. Bernstein, Rehearsal: Simulating Conflict to Teach Conflict Resolution, in: Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems, CHI '24, Association for Computing Machinery, New York, NY, USA, 2024, p. 920. doi:10.1145/3613904.3642159.

[28] G. Mondillo, V. Frattolillo, S. Colosimo, A. Perrotta, A. Di Sessa, S. Guarino, E. Miraglia del Giudice, P. Marzuillo, Basal knowledge in the field of pediatric nephrology and its enhancement following specific training of ChatGPT-4 "omni" and Gemini 1.5 Flash, Pediatric Nephrology 40 (2025) 151–157. doi:10.1007/s00467-024-06486-3.

[29] P. J. D. Carnevale, Strategic Choice in Mediation, Negotiation Journal 2 (1986) 41–56. doi:10.1111/j.1571-9979.1986.tb00337.x.