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Interdisciplinary Research on the Integration of Stanney Action Analysis and AI Technology

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Abstract: Since the 1980s, various theatrical performance schools have been introduced to China, opening another window for domestic art institutions that adhere solely to the Stanislavski system. People began to understand the characteristics of more performance schools. Although the traditional Stanislavski system still holds a dominant position, with the development of artistic diversity, its dominance has gradually diminished. Schools like Absurdism, Surrealism, Symbolism, and Expressionism have gained widespread recognition and development in China. The application of artificial intelligence in the theater industry has led to new directions for its rejuvenation. Traditional arts are facing various survival crises, and after the emergence of industries equipped with modern technology, practitioners who stick to old ways must adapt to the changing times and seek solutions for their industry's future. As a system that has trained actors for over a century, the Stanislavski system must also integrate with digital technology in this rapidly evolving era, paving a bright path for theater.

Keywords: Action Analytics; Interdisciplinarity; Integration; Theater Genres.

1. Problems Facing the Current Stieff Method

The Stanislavski system is the "first teacher" for every learner and practitioner in the performing arts. Even those not majoring in performance have heard of Stanislavski. In China, the Stanislavski system is considered the "supreme" presence. For nearly half a century, almost all art colleges across the country have used the Stanislavski system to teach and nurture students. It is even regarded as the only orthodox "golden key" to open the door to professional performance studies.

Since the 1980s, various theatrical performance schools have been introduced to China, seemingly opening another window for domestic art institutions that adhered solely to the Stanislavski system. People began to understand more about the characteristics of different performance schools. Although the traditional Stanislavski system still held a dominant position, with the development of artistic diversity, its dominance gradually waned. Schools such as Absurdism, Surrealism, Symbolism, and Expressionism became widely recognized and developed in China. Theater performances also began to break free from the constraints of realism alone, and the limitations of the Stanislavski system became apparent. Many artists and scholars started to reflect on whether some methods within the Stanislavski system still align with modern art education practices.

As artificial intelligence is applied in the field of theater, it has led to new directions for the rejuvenation of the industry. Traditional arts are facing various survival crises. After the emergence of industries equipped with modern technology, conventional practitioners have no choice but to adapt to the changing times and seek solutions for their industrys future. The Stanislavski system, which has trained actors for over a century, must also integrate with digital technology to navigate the turbulent era and pave a bright path for theater.

The successful dissemination and development of the Stanislavski system in China owe much to the contributions made by artists over nearly a century. Especially, the Sinicization of the Stanislavski system has turned it into a "golden rule" for nurturing Chinese performing artists. Literature, books, and manuscripts on the study of the Stanislavski system have flourished, contributing to its refinement in China.

Times have changed, and the rapid development of technology over the past decade has brought about significant changes in peoples lifestyles. In the past, people could only gather around to watch black-and-white films on screens; now, they can enjoy their favorite movies with just a smartphone. Classic plays that have been performed for half a century, such as "Thunderstorm," "Sunrise," "Teahouse," and "The Wilderness," have lost many of their audiences due to social changes. Two-hour-long plays are no longer the preferred choice for contemporary audiences. "Fast consumption" has become the norm, and the transformation of art is imminent.

2. Practice and Deficiencies of Action Analysis Method

The "Action Analysis Method" is an essential component of Stanislavskis system and represents its essence. The term "action" is used in a broad sense; any movement that propels an event forward can be called an action. In the later stages of his artistic career, Stanislavski often used this method to train actors. However, there was no fixed pattern in practice; instead, there was more improvisation and emotional experience. Therefore, Stanislavski never defined this method. After his death, two of his disciples inherited and named the training method. In China, this method has a more specific name: "The Method of Sketches."

The training method of action analysis focuses more on the actors imagination in performing actions. For example, Tropkovs memoirs contain many articles about Stanislavskis training methods. "In the rehearsal of *The Hypocrite*, Stanislavski first thoroughly applied a new method for actors to create characters and perform --what is known as the physical movement method." He continued to develop and refine this method in his later years, summarizing his artistic career. This method remains a fundamental approach for training actors today. Through such training, students can play

a significant role in releasing their natural talents. It helps actors shed their timidity and anxiety, focusing intently on entering the prescribed situation on stage. For actors who struggle to find their role, Stanislavski also provided his own methods. The book *Stanislavski in Rehearsal* contains many similar accounts: when guiding actor Urazhov in rehearsing the role of the mayor in *The Government Inspector*, Stanislavski staged a scene that was not in the script and not even in any draft, where the mayor is on the market. To inspire and help actors find their role, Stanislavski maximized the use of action analysis.[1]

In the last few years of his life, he was also reflecting on his training methods. In a lot of practice, he found problems. Because action analysis does not solve all problems. And there are problems with this method itself.

During his rehearsal of "The Embezzler," he had this conversation with an actor: "It doesnt matter. For example, suppose theres a mouse in that corner. Please take a stick and keep it there, ready to strike as soon as it jumps out... No, it will run away. Watch more carefully. When I clap my hands, you hit with the stick... Look, youre too late! Try again... Try again. Focus your attention as much as possible, trying to make the stick land at about the same time as the applause... Look, your rhythm is completely different now. Can you feel the difference? Stand there waiting for the mouse --This is one rhythm, watching a tiger quietly approaching you --Another rhythm. Pay attention to Tarhanov, consider every move he makes. Now he has forgotten about the train and is enjoying himself. This is good for you --You can calm down a bit and see how the train is doing. You can even run to the platform, but you must return immediately and refocus all your attention on the chief accountant --Tarhanov. Try to guess his intentions, figure out what hes thinking. Now he thinks about the train, fumbling in his pocket for the money to buy vodka. At this moment, you need to act, divert his attention, whateverHow to keep him in the canteen. This way, you will be determined to move, which will make your pace of movement and standing different from what it was just now. Come on, give it a try!" [2]

The above is a classic dialogue between Stanislavski and his actors. The practice of Stanislavskis system is very intuitive in this dialogue. Although actors can enhance their sense of belief through such training, there are still many shortcomings in this way of acting by imagining the picture in their own mind:

1. Not applicable to all styles;

Action analysis is more applicable in realistic drama (such as Chekhov and Ibsens works) and naturalistic drama, but for plays that are biased towards symbolism, expressionism or traditional opera, relying solely on physical action to analyze the role may have limitations and cannot fully meet the requirements of performance style for these dramatic forms.

2. Weak training in language expression;

This method primarily relies on action-driven performance, with relatively less emphasis on crucial aspects of dramatic acting such as line delivery, voice modulation, and language rhythm. The speaking style and linguistic characteristics of characters require actors to train accordingly through their understanding of the script and character. However, overemphasizing physical movement training may result in some actors appearing less nuanced in their verbal expression.

3. Lack of attention to psychological activities;

Action analysis emphasizes the introduction of actors into their roles from external actions, but may relatively ignore the complexity of psychological activities. Some characters with profound psychological aspects may not be able to fully explore their inner motivation by relying only on physical actions.

The above shortcomings will cause some limitations for actors to shape the role:

1. Limited character shaping;

Since action analysis pays less attention to the psychological activities of characters directly, if actors only rely on external actions without deeply exploring the inner emotions and thoughts of characters, it may lead to superficial performance, lack of real psychological layers, and make it difficult for the audience to empathize or feel the complexity of characters.

2. Reduced expressive power of lines:

Dramatic performance is not just about the expression of actions; language is also a crucial tool for character development. If training overemphasizes physical movements while neglecting the delivery of lines, such as tone, rhythm, and emphasis, it can lead to a lack of emotional impact in an actors speech, affecting the effectiveness of the plots transmission, especially in plays with dense dialogue.

3. Increased difficulty of actor analysis;

Action analysis requires actors to understand the logic of their characters actions through personal practice and observation, rather than relying on direct emotional guidance. This can be an effective method for experienced actors, but it may be challenging for beginners to independently conduct in-depth character analysis. Without sufficient guidance, actors might lose their way in performance, making it difficult to accurately convey the characters emotions and action objectives.

3. Integrate Intelligence into Action

Artificial Intelligence (AI) technology is increasingly being applied in the field of theatrical performance, covering areas such as scriptwriting, performance training, and stage presentation. In the realm of theater, AI still has great potential. Imagine if various sensors were installed in theaters; when audiences enter, their moods, even physical conditions and preferences could be measured. Through this data, AI can recommend plays that audiences want to see and those suitable for different groups. Moreover, this data can help actors understand audience preferences, which is beneficial for their creative work.

A few years ago, the first AI-generated play was released, marking the beginning of AIs solo creative endeavors. All it takes is inputting a prompt to the system, which then extracts keywords and generates content. After several years of updates, AI technology has become more stable and mature. Today, this technology is not only used for text creation but also serves as an excellent tool to assist actors in training and character development.

"New technologies will revolutionize the production of art, bringing magic to theater and creating a more diverse and inclusive world of art. Just as conceptual art redefined the content and meaning of artistic practice in the 1960s and 1970s, you will see how technology is challenging similar transformations in todays art production. Due to the extensive technical knowledge required, using these artistic tools will require more collaboration, bringing together artists, scholars, and technicians --Charles White, Dean of the University of Carnegie Mellon School of Art." [3]

The integration of new technologies can inject fresh vitality

into Stanislavskis method of action analysis, breaking the limitations of traditional training methods. If artificial intelligence (AI) is introduced into the training of actors by Stanislavski during rehearsals for "The Stolen Money," it can assist and enhance performance on multiple levels. Here are some specific application scenarios:

1. AI-assisted action and rhythm control

• Motion capture and analysis

•AI can use motion capture technology (such as MoCap or OpenPose) to accurately analyze the actors movements, and provide real-time feedback on the timing and rhythm of each movement, helping the actor keep in sync with the applause when hitting the "mouse" to avoid hitting too late.

• The data provided by AI can quantify the actors movements, point out specific time differences, such as "applause and action are 0.3 seconds apart," and help actors adjust the timing and rhythm of their movements to make them more accurate.

•AI real-time prompts: Actors can receive real-time voice prompts from AI through headphones or wearable devices to guide them in adjusting the rhythm of their movements during performance.

• **Example:** During the action of hitting the "mouse", the AI can prompt in real time: "The synchronization of the action with the clap is below the standard, please try again."

2. AI-assisted situational perception and role focus

• AI scenario simulation

•AI can simulate different scenes and situations, such as through virtual reality (VR) and augmented reality (AR) technology, to create the environment in which the actor is in. Actors can better perceive changes in their surroundings through these technologies and experience every movement and psychological change of Talhanov.

For example, during rehearsals, AI can generate a virtual platform and cafeteria scene, and provide real-time data feedback on the actors "departure from the cafeteria to the platform" action to help him understand how to react to different situations when he is not paying attention in "Talhanov".

•AI infers the emotions of characters

•AI can use sentiment analysis technology to analyze subtle changes in an actors expressions, tone and movements to help actors better focus on Talhanovs mental activity.

For example, when an actor starts to "forget the train and eat with enthusiasm," the AI will remind the actor to stay focused and observe subtle psychological fluctuations of the character. The AI can analyze Talhanovs behavioral data in real-time (such as lines, movement patterns, eye direction, etc.), predict his possible mental state in a given situation, and provide this information to the actor through a voice assistant, allowing the actor to more accurately infer the others psychology and behavior during performance.

3. AI-assisted role goal setting and interaction

•AI script analysis and dynamic target suggestions

•AI can analyze every line and action of a character in a script based on natural language processing (NLP) technology to help actors clarify changes in their character goals.

For example, when an actor is trying to "divert Talhanovs attention," AI can offer some intelligent suggestions, such as "swinging your left hand to distract him" or "increase eye contact to mask your intentions." AI can provide real-time feedback during rehearsals, helping actors adjust their goals and action strategies based on the characters reactions.

For example, if Talhanov starts focusing on preparing to pay for vodka, the AI can remind the actor: his attention is already focused on paying, and you now have more opportunities to divert his attention.

4. AI-assisted performance feedback and progress tracking

• Performance feedback system

•AI can combine data analysis to provide actors with personalized performance feedback. For example, AI will generate quantitative reports based on the actors performance in each rehearsal, such as "the accuracy of striking movements improved by 10%" or "the depth of emotional expression increased by 20%." This feedback helps actors track their progress and optimize their performance strategies.

For example, AI can help actors identify emotional biases in their performance by tracking their performance data over time, such as being too intense or too reserved at certain moments, and provide adjustment suggestions.

5. Interaction training between AI and actors

• AI virtual character training

•AI can serve as a virtual character for interactive training with actors. During rehearsals, actors can converse with AI-driven virtual Talhanov, simulating real-life scenarios. The AI responds in real-time based on the actors performance and adjusts the virtual characters behavior according to sentiment analysis, making it more in line with script requirements.

For example, if the actor fails to successfully distract Talhanov, the AI virtual character can adjust its response and give feedback based on the plot prompts, helping the actor practice more different responses in the virtual scene.

Through these AI-assisted methods, actors can more accurately grasp the rhythm of movements, emotional transitions, and interactions between characters, improving rehearsal efficiency and optimizing performance outcomes. At the same time, AI can tailor personalized training plans based on each actors unique performance, promoting growth in character goal setting, psychological analysis, and emotional expression within the script.

In the process of rehearsing The Stolen Money, there is also a record of doing exercises:

Alright, let me give it another try, completely and truly. There is a table in front of me. Now I will really make it very neat. Here theres some dust... here is a spot that needs to be wiped clean. I tried to do all this with great care, aiming to achieve some results. Lets keep going. The table is a bit wobbly, so I need to stabilize it. After much effort, I still cant get it right, so I find something to prop up. I found a small piece of wood and placed it under the table. The table no longer wobbles, and its wiped clean. Now everything should be put back in place.

I found myself completely absorbed in these matters. I was doing it with great pleasure and interest: there was a pencil and a small knife--for me to sharpen them well. I was so engrossed and delighted when suddenly... what was going on? The surroundings became chaotic, with people bustling about... Oh, the rehearsal was about to start. It was my turn, the end of the line had been called, I opened the cashiers window, and began my scene. [4]

Stanislavskis goal in this exercise is to help actors enter their roles by focusing entirely on details and the environment, while reinforcing their experience of the authenticity and awareness of everyday actions. The core of this exercise lies in "full concentration on the task," liberating actors from mental clutter through unconscious physical and emotional

investment, thus guiding them to achieve a deep perception and expression of their characters.

The significance of this training is even more pronounced if AI assistance is added.

1. Improve the actors concentration;

AI can analyze actors body language through real-time motion capture systems (such as MoCap technology) and provide feedback on their focus and emotional expression. For example, AI can detect whether an actors body is too stiff or if they have lost rhythm in certain movements, promptly reminding them to adjust their posture and ensure they remain "focused."

2. Emotional simulation;

•AI Emotional Feedback: AI can help actors judge whether their emotional fluctuations during practice align with the needs of the moment through facial expression recognition and voice emotion analysis technology. For example, the emotional changes (such as anxiety or satisfaction) an actor experiences while wiping the table can be detected and fed back by AI, aiding in a deeper analysis of the connection between emotional state and behavior.

3. Immersion improvement;

• Combined with virtual reality (VR) or augmented reality (AR) technology, AI can create more realistic rehearsal environments. Actors can practice in a virtual setting, and AI can provide real-time feedback based on environmental changes (such as sudden crowds or objects), helping them better adapt to transitions and situational shifts in the play.

4. Diversified training;

• AI Adaptive Learning: By analyzing data on actors movements, emotions, and performance rhythms, AI can provide personalized training suggestions. For example, if an actor experiences anxiety during practice, AI can offer advice to adjust focus, such as adding deep breathing exercises or adjusting body posture, helping the actor maintain sincere and stable emotions.

5. Tracking and adjustment;

• Intelligent Progress Tracking: AI can record an actors performance during each practice session and provide quantified feedback through data analysis. For example, when an actor practices organizing their desk, AI can track the time it takes them to complete the task, the fluidity of their movements, and the degree of emotional expression, helping the actor track their progress as they continue to practice.

6. Immediate response;

•AI virtual characters: AI can simulate the role of other actors or opponents and interact with actors in real time during rehearsals. This virtual opponent can adjust its own behavior according to the actors performance, helping actors better cope with sudden changes during practice and improve their on-the-spot response ability.

4. Conclusion

In this study, we conducted an in-depth analysis of Stanislavskis practical methods combined with artificial intelligence and made predictions about its future development. Stanislavskis action analysis emphasizes the actors profound understanding of the characters inner world and emotional motivations, while AI technology provides precise assistance through data analysis, pattern recognition, and emotional simulation. In this integration, AI can offer real-time feedback to actors, helping them understand the multi-dimensional aspects of character motivation, and even predict the best way to express emotional changes during rehearsals.

In the future, with advancements in AI for emotion recognition, natural language processing, and virtual reality, the Stanislavski method may generate real-time character behavior analysis through intelligent systems, enabling actors to more efficiently self-regulate and deeply shape their roles. Moreover, AI can bring about a revolutionary transformation in drama education by providing personalized guidance and support through virtual mentors and intelligent training. This interdisciplinary integration will not only expand the creation and expression methods of performing arts but also provide more precise and flexible tools for teaching and performance practice.

In general, the combination of Stanis Action analysis and artificial intelligence will promote the development of dramatic art to a higher level, cultivate more diversified composite performance talents. It will bring more creative and profound performance, and open up new prospects for future art education and practice.

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