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Research on the Collaborative Cultivation Path of Students' Kinesthetic and Emotional Cognition Through Dance Teaching from the Perspective of Multiple Intelligences

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Abstract

With the in-depth advancement of quality-oriented education, the role of dance teaching in fostering students' comprehensive qualities has become increasingly prominent. Based on Gardner's Theory of Multiple Intelligences, this study focuses on exploring the collaborative cultivation mechanism of dance teaching on students' kinesthetic intelligence and emotional cognitive abilities. By combining literature analysis with teaching practice, it systematically sorts out the inherent connection between dance movement training and emotional experience, and reveals the promoting effect of physical movement expression on psychological development such as emotional perception and self-cognition. The study constructs a three-dimensional teaching model including body perception training, emotion-guided teaching, and creative choreography practice, emphasizing the stimulation of students' physical expression potential through situational creation and improvisational performance. Practice shows that this teaching model can effectively improve students' physical coordination, sense of rhythm, and emotional expression ability, while also playing a positive role in cultivating students' sense of teamwork and aesthetic literacy. The research provides a theoretical basis for innovating art education methods and has practical significance for promoting the all-round development of students. In the future, further exploration can be made on differentiated cultivation strategies for students of different age groups.

Keywords: multiple intelligences, dance teaching, kinesthetic cognition, emotional cognition, collaborative cultivation

1. Introduction

As the status of art education in the talent training system continues to rise, dance, as an art form that combines physical expression and emotional transmission, has attracted widespread attention for its educational value in the new curriculum reform. In current educational practice, traditional dance teaching often focuses on movement imitation and skill training, while neglecting the collaborative development of students' kinesthetic intelligence and emotional cognitive abilities. This

fragmented teaching model is difficult to meet the needs of cultivating compound talents in the new era.

Gardner's Theory of Multiple Intelligences provides important theoretical support for the reform of dance teaching. Human intelligence is diverse and can be developed through educational intervention, among which bodily-kinesthetic intelligence has a natural connection with dance teaching (Gardner, 1983). The physical movement training in dance can not only improve students' physical coordination, but also promote the development of their self-cognition and emotional management abilities through emotional guidance (Xia & Mo, 2023). However, existing studies mostly focus on the cultivation of a single ability, and there is a lack of systematic discussion on the collaborative mechanism of kinesthetic and emotional cognition.

Against this background, this study aims to explore the collaborative cultivation path of kinesthetic intelligence and emotional cognition in dance teaching. By analyzing the connection between the Theory of Multiple Intelligences and dance education, it reveals the inherent relationship between physical movement training and emotional experience, and further constructs a scientific and effective teaching model. The study focuses on three core issues: first, how dance movements affect the development of kinesthetic intelligence through body perception training; second, how emotion-guided teaching improves students' emotional expression ability; third, how creative choreography practice realizes the organic unity of physical expression and emotional cognition. The solution to these problems will provide a theoretical basis for innovating art education methods and have practical significance for realizing the all-round development of students.

2. Theoretical Basis of Multiple Intelligences Theory and Dance Teaching

2.1 Core Connotation and Educational Value of Multiple Intelligences Theory

The theory of multiple intelligences was proposed by American psychologist Howard Gardner in 1983. Its core idea breaks away from the single-cognitive perspective of traditional intelligence theories, arguing that human intelligence is a complex system composed of multiple relatively independent and interacting types of intelligence. Gardner initially put forward seven types of intelligence, which were later expanded to nine, including linguistic intelligence, logical-mathematical intelligence, spatial intelligence, musical intelligence, bodily-kinesthetic intelligence, interpersonal intelligence, intrapersonal intelligence, naturalistic intelligence, and existential intelligence (Gardner, 1983). Intelligence forms a dynamically developing network through the interaction between individuals and the environment, among which the linkage mechanism between bodily-kinesthetic intelligence and intrapersonal intelligence provides a key theoretical fulcrum for dance teaching.

The diversity of intelligence is reflected in three aspects: first, the variety of intelligence types, each with a unique cognitive symbol system; second, the difference in intelligence development, as individuals show significant differences in the development level of different intelligence fields; third, the uniqueness of intelligence combination, as the intelligence structure formed by each person is as irreproducible as a cognitive fingerprint. This multi-dimensional perspective subverts the intelligence evaluation system centered on language and mathematical abilities, and provides a more comprehensive evaluation framework for educational practice. The Theory of Multiple Intelligences establishes a coordinated relationship between teaching activities and students' development (Xu, 2024), enabling educators to activate students' potential through differentiated teaching strategies.

In terms of educational value, the Theory of Multiple Intelligences has promoted three fundamental transformations. Firstly, the transformation of teaching objectives, from single knowledge imparting to multi-ability cultivation. Especially in art education, dance teaching is no longer limited to movement skill training, but synchronously develops students' emotional cognition and social skills through physical expression. Dance teaching can "strengthen students' sense of rhythm and physical coordination" while promoting the "collaborative improvement of interpersonal interaction and self-awareness abilities" (Huang, 2024). Second, the transformation of teaching methods. Teachers need to design multi-modal teaching activities including physical experience, music perception, and spatial

exploration. For example, improvisational dance is used to develop students' bodily-kinesthetic intelligence and musical intelligence, and duet choreography is adopted to cultivate interpersonal intelligence. Third, the transformation of the evaluation system, which adopts dynamic evaluation to pay attention to students' development trajectory in different intelligence fields, rather than conducting standardized horizontal comparisons.

In the context of dance education, the value of the Theory of Multiple Intelligences is concentrated in the interaction between bodily-kinesthetic intelligence and emotional cognitive intelligence. Gardner believes that bodily-kinesthetic intelligence not only involves the ability to perform movements, but also includes the meta-ability to express emotions through the body, which is highly consistent with the emotional transmission function of dance (Gardner, 1983). When students express joy or sadness through dance movements, they not only exercise their physical intelligence in muscle control and spatial positioning, but also deepen their ability to perceive and regulate emotions, forming a "movement-emotion" two-way strengthened learning loop. This collaborative effect makes dance teaching an effective carrier for the implementation of quality-oriented education.

2.2 Unique Role of Dance Teaching in Cultivating Kinesthetic and Emotional Cognition

As an important form of art education, dance teaching has an irreplaceable integrated function in cultivating students' kinesthetic intelligence and emotional cognitive abilities. This dual attribute makes dance a natural bridge connecting physical training and psychological development, and its unique role is mainly reflected in three dimensions.

From the perspective of physiological mechanism, dance movement training strengthens kinesthetic intelligence through the coordinated operation of the neuromuscular system. When students perform movements such as spinning and jumping, they need to accurately perceive the spatial position and movement trajectory of various parts of the body. This continuous proprioceptive stimulation can significantly improve physical coordination and movement accuracy. Different from simple physical training, dance movements are always combined with music rhythm and emotional expression. For example, when expressing heroic emotions through the shoulder-shaking movements of Mongolian dance, students not only exercise the explosive power and control of the shoulder muscles, but also synchronously activate the cognitive experience of emotional tension. This synchronous physical and mental training model can simultaneously promote the "spiral development of physical intelligence and introspective intelligence" (Xiao, 2004).

At the psychological development level, dance teaching establishes a metaphorical connection between movements and cognition through emotional guidance. When teachers ask students to express "joy" or "anger" with their bodies, students need to transform abstract emotions into specific movement elements such as spatial trajectory and strength changes. This process is essentially the externalization of emotional cognition. Improvisational dance training particularly highlights this feature. For example, in the thematic improvisation "Spring Awakening", students express the emotional experience of life germination through physical rhythm, which not only develops spatial intelligence and musical intelligence, but also deepens the emotional resonance with the vitality of nature. Improvisational training can cultivate students' "ability to accurately convey emotional connotations through dance movements" (Xu, 2024), forming a two-way strengthening mechanism between physical expression and emotional experience.

From the social and cultural perspective, the collective creation characteristic of dance teaching provides a practical field for the collaborative development of intelligence. Group dance choreography requires students to not only accurately control their own movements, but also maintain emotional synchronization with others through non-verbal signals such as eye contact and gestures. This interpersonal interaction process simultaneously exercises bodily-kinesthetic intelligence and interpersonal intelligence. For example, in the teaching of Guozhuang dance, students maintain a circular formation and unified rhythm together, which not only improves physical coordination, but also cultivates team tacit understanding and collective sense of belonging. This comprehensive training can "break the limitations of professional teaching" and realize the "synchronous improvement of

emotional cognitive level and professional skills" (Han, 2023).

In current educational practice, the unique value of dance teaching has been further extended through digital means. The widely used virtual reality technology in recent years allows students to observe their own dance trajectory and emotional expression effects in real time through motion capture systems. This real-time feedback mechanism further strengthens the connection efficiency between kinesthetic training and emotional cognition. For example, in the basic training of ballet, students can intuitively see the relationship between spine extension and emotional tension in the arabesque movement through 3D projection, so as to more effectively adjust their body posture and emotional investment.

The "unity of body and mind" characteristic of dance teaching makes it an effective carrier for the implementation of quality-oriented education. Different from traditional physical education courses that focus on skill teaching and aesthetic education courses that emphasize theoretical explanation, dance teaching constructs a practical platform for the collaborative development of multiple intelligences for students through the organic unity of physical movements and emotional expression. This integrative feature is the core of dance education maintaining its unique vitality in the contemporary education reform.

3. Influence Mechanism of Dance Teaching on Students' Kinesthetic and Emotional Cognition

3.1 Stimulation Path of Kinesthetic Intelligence in Dance Teaching

In the practice of dance teaching, the stimulation of kinesthetic intelligence relies on the establishment of systematic body perception training and movement expression mechanisms. In dance, this intelligence is specifically manifested in the accurate grasp of body posture, movement trajectory, and strength control (Xu, 2024). Current teaching practice shows that the progressive training path can effectively activate students' kinesthetic potential and promote the collaborative development of their emotional cognitive abilities.

Movement decomposition training in the basic stage is the primary link to stimulate kinesthetic intelligence. By decomposing complex dance movements into local movement units such as head and neck, trunk, and limbs, teachers guide students to establish a clear awareness of body parts. For example, in the teaching of the classical dance movement "Yun Shou", students need to independently complete decomposed movements such as wrist rotation and arm circling first, and then gradually integrate them into a complete movement chain. This training strengthens students' fine perception of muscle contraction degree and joint movement range, laying a physiological foundation for the expression of complex movements in the future. Step-by-step training can help students shift from mechanical imitation to conscious movement control (Xu, 2024), realizing the initial development of physical intelligence.

The spatial trajectory training in the advanced stage focuses on cultivating the dynamic characteristics of kinesthetic intelligence. By designing movement combinations in different directions (such as linear movement and curved movement) and multi-level spatial movements (such as ground rolling and standing jumping), teachers help students establish a dynamic connection between the body and the three-dimensional space. The "fall and recovery" exercise in modern dance training typically embodies this process: students need to quickly adjust the position of their limbs to maintain balance in a state of weightlessness. This training not only improves spatial positioning ability, but also strengthens the body's instinctive response to physical properties such as inertia and gravity. Continuous spatial training can significantly enhance students' "ability to transform abstract spatial concepts into embodied movements" (Piao, 2014).

The improvisational creation link is a key path for the high-level development of kinesthetic intelligence. Through forms such as music improvisation and thematic improvisation, teachers require students to transform their internal emotions into impromptu movements. For example, in the thematic improvisation "Storm", students need to use rapid foot stamping to represent thunder and spinning movements to simulate whirlwinds. This process forces the brain to quickly integrate physical memory and emotional experience, forming a unique movement vocabulary. Improvisational training "breaks the constraints of standard movements" and enables students to achieve the "synchronous improvement of

physical control and expressive ability" in creative expression (Han, 2023).

Group dance collaboration improves the cultivation of kinesthetic intelligence from the dimension of social interaction. In group dance choreography, students need to maintain the accuracy of their own movements while achieving coordination with others in terms of speed, strength, and direction. For example, in the group dance training of Dai peacock dance, students need to complete the formation flow around the core shape of "peacock spreading its tail". They perceive the movement rhythm of their partners through non-verbal signals and adjust their own movements in real time, which not only strengthens the accurate control of body movements, but also exercises interpersonal coordination ability, reflecting the cross-activation characteristics of multiple intelligences.

Current teaching practice also focuses on integrating traditional cultural elements into kinesthetic training. For example, Zeng Huanxing integrates the breath regulation of Tai Chi and the stretching movements of dance in modern basic training. In practice, students can not only understand the physical control principle of "guiding Qi with will", but also feel the aesthetic conception of "combining hardness and softness". This training model goes beyond simple skill teaching, and integrates the development of kinesthetic intelligence with cultural cognition and emotional experience, providing an innovative paradigm for dance teaching under the goal of quality-oriented education.

3.2 Cultivation Model of Emotional Cognition in Dance Teaching

The cultivation of emotional cognition in dance teaching lies in establishing an organic connection between emotional experience and physical expression. The intrapersonal intelligence and interpersonal intelligence in Gardner's Theory of Multiple Intelligences provide theoretical support for this process. Through models such as situational creation, emotional guidance, and collaborative practice, dance teaching promotes the collaborative development of students' emotional perception and expression abilities.

Situational creation is the basic link to stimulate emotional cognition. By constructing a specific emotional atmosphere with elements such as music, lighting, and props, teachers guide students to transform abstract emotions into embodied movement expressions. For example, in the thematic teaching of "joy", combined with lively music and a bright color environment, students naturally express positive emotions through open movements such as jumping and spinning. This training not only strengthens the physical expression ability, but also cultivates students' keen awareness of emotional states. Han Yang pointed out that situational teaching can help students establish a metaphorical connection between emotions and movements (Han, 2023), realizing the transformation from physiological response to psychological experience.

Emotion-guided teaching adopts a progressive strategy to deepen cognition. In the primary stage, imitation training is used to establish a basic emotional vocabulary. For example, slow downward-swinging arms are used to express "sadness", and rapid arm movements are used to express "excitement". In the intermediate stage, complex emotional expression is introduced. For example, in the folk dance combination "Farewell", students need to express contradictory psychology through both the attachment in their eyes and the determination in their steps. The advanced stage focuses on emotional transformation training. For example, the modern dance exercise "Emotional Flow" requires students to complete the emotional transition from anger to calmness in continuous movements. This structured training can significantly improve students' "delicacy and coherence of emotional expression" (Zou, 2022). In this process, teachers need to closely observe students' emotional feedback, adjust the guidance method in a timely manner, and avoid the distortion of emotional expression caused by mechanical imitation.

Collaborative learning improves the development of emotional cognition from the dimension of social interaction. In duet or group dance choreography, students need to achieve emotional synchronization through non-verbal means such as physical contact and eye contact. For example, in the "trust" exercise, students take turns to fall backward with their eyes closed, relying on the physical support of their partners to establish an emotional connection. This training not only cultivates empathy, but also strengthens the social skill of interpreting

others' emotions through body language. In this process, teachers need to design clear collaboration rules, such as taking turns to act as the facilitator and setting up physical signals for emotional transmission, to ensure the orderliness and effectiveness of the interaction process.

The reflection and evaluation link is the quality guarantee for the cultivation of emotional cognition. After class, students are guided to analyze the effect of emotional expression in their own movements through methods such as video review and dance diaries. Teachers adopt a three-stage feedback method of "description-analysis-suggestion": first, objectively record the movement characteristics, then interpret the accuracy of emotional transmission, and finally put forward targeted improvement plans. This reflection process urges students to transform unconscious emotional expression into conscious cognitive strategies, realizing the leap from perceptual experience to rational cognition.

Current teaching practice also focuses on the infiltration of traditional cultural emotions. For example, students can experience the implicit emotional expression through the "twisting and grinding" movements of Jiaozhou Yangko, or feel the bold and passionate national character through the shoulder-shaking movements of Mongolian dance. This training makes the cultivation of emotional cognition go beyond the individual level and integrate with cultural inheritance and social value education, reflecting the comprehensive value of dance teaching in quality-oriented education.

3.3 Collaborative Mechanism of Kinesthetic and Emotional Cognition

The collaborative effect of kinesthetic and emotional cognition in dance teaching is essentially a dynamic process in which physical expression and psychological experience reinforce each other. This collaborative mechanism is realized through three core links: physiological activation triggering emotional resonance, movement coding deepening emotional understanding, and physical-mental feedback forming a cognitive closed loop. Together, they constitute a "body-emotion" two-way interactive teaching ecosystem, and improvisational creation is the core practical carrier that runs through it and realizes the in-depth collaboration between the two.

From the perspective of practice form, improvisational creation promotes the hierarchical collaboration of kinesthetic and emotional cognition through multi-thematic design. In thematic improvisation, teachers set specific or abstract themes (such as "Storm", "Trapped Bird", "Expectation") and require students to quickly transform the thematic emotions into physical language: when expressing "Storm", students need to use rapid foot stamping (strengthening lower limb strength control) to correspond to the intense emotion of thunder, and use rapid arm spinning (training spatial trajectory perception) to simulate the chaos of whirlwinds. In movement design, they simultaneously complete kinesthetic training such as muscle control and spatial positioning, as well as the cognitive expression of emotional intensity and levels; when expressing "Trapped Bird", they convey a sense of depression through body curling (core muscle contraction) and reflect the contradictory psychology of longing to break free through tentative finger stretching (fine movement control), realizing the in-depth integration of complex emotions and precise kinesthesia. In musical improvisation, students need to adjust the physical texture in accordance with the changes in the music style (such as transitioning from a soothing piano piece to an intense symphony) — for slow-paced music, they use smooth body waves (to train the continuity of movements) to express calmness; for fast-paced music, they use jerky joint vibrations (to enhance the explosive power of movements) to convey excitement, so as to create an immediate linkage between the sensory response and emotional perception, breaking the constraints of pre-set movements and achieving "the simultaneous improvement of body control and emotional expressiveness" (Han, 2023).

From the perspective of action mechanism, improvisational creation activates the spontaneous response of physical-mental collaboration through "no preset movement pressure". On the one hand, in the process of improvisation, students need to quickly integrate physical memory (such as movement vocabulary from previous training) and emotional experience (such as life perception of the theme), forcing the brain to quickly establish a mapping relationship between "movement elements and emotional symbols". For example, the degree of spine flexion and extension

corresponds to the ups and downs of emotions, and the weight of footsteps reflects the intensity of emotions. This mapping process upgrades kinesthetic intelligence from "mechanical execution" to an "emotional coding tool", and transforms emotional cognition from "conceptual understanding" to "embodied experience" (Xia & Mo, 2023); on the other hand, the personalized expression in improvisational creation encourages students to explore non-standard movement vocabulary, such as using finger trembling to express tension and body tilting to convey unease. These unique movement designs not only enrich the diversity of kinesthetic expression, but also deepen the cognition of subtle emotional differences, forming a virtuous cycle of "movement innovation — emotional deepening".

From the perspective of collaborative effect, the reflection and optimization link of improvisational creation further consolidates the achievements of physical-mental collaboration. Teachers guide students to analyze the matching degree between movements and emotions through video review, clarify the optimization path of kinesthetic adjustment for emotional expression, and transform unconscious collaboration into explicit cognition. This reflection process turns unconscious collaborative behavior into explicit cognition, enabling students to actively use kinesthetic control strategies to improve the effect of emotional expression, and finally achieve the collaborative goal of "accurate movement execution — in-depth emotional understanding — organic unity of the two", laying a foundation for the physical-mental integration in subsequent structured training and work choreography.

The physiological collaboration starts with the linkage between proprioception and emotional arousal. When students perform dance movements, the proprioceptive signals generated by muscle contraction and joint movement are transmitted to the brain, which not only activates the motor cortex to regulate movement accuracy, but also stimulates the limbic system to trigger corresponding emotional responses. For example, the sense of weightlessness generated by the body when completing large-scale jumping will naturally trigger excitement, while slow contraction movements tend to induce a state of calm or sadness. This physiological connection between "movement and emotion" is the material basis of the collaborative effect, and systematic training can enhance students' perception of the connection between physical signals and emotional changes (Huang, 2024).

The cognitive collaboration is manifested as the metaphorical mapping between movement symbols and emotional concepts. By embodying abstract emotions into movement elements (such as using rapid tapping to express anger and smooth curves to express joy), dance teaching helps students establish a movement representation system for emotional cognition. This mapping relationship is not a one-way transmission, but a two-way construction process: on the one hand, students master basic emotional vocabulary by imitating standardized emotional movements (such as using "covering the face" in classical dance to express sadness); on the other hand, they independently explore personalized expression methods (such as using finger trembling to express tension) in improvisational creation, thereby enriching the diversity of emotional cognition. This training can "open up the symbolic channel between physical experience and psychological experience", and develop emotional cognition from conceptual understanding to embodied cognition (Xia & Mo, 2023). The "Emotion-Movement Comparison Table" used in current teaching further systematizes this mapping relationship. The table not only sorts out the typical physical indicators corresponding to basic emotions (such as joy, sadness, anger) (for example, "joy" corresponds to raised corners of the mouth and increased body stretch), but also refines the movement combination logic for complex emotions (such as grievance, expectation) (for example, "grievance" needs to combine slightly lowered head and inward-shrinking shoulders), providing direct reference for students to establish a clear "emotion-movement" connection cognition. For example, "pride" is decomposed into operable physical control points such as upright spine, slightly raised chin, and expanded step range.

In the dimension of social interaction, the collaborative effect is strengthened through the synchronization of group movements. In group dance rehearsal, students need to adjust their own movement rhythm to be consistent with the group. This non-verbal coordination process is essentially the externalization of emotional

resonance. For example, in the circular formation of group dance, participants adjust the range and speed of arm swings to adapt to each other, which not only achieves visual uniformity, but also forms an emotional connection at the subconscious level. Collective creation can "surpass the limitations of individual intelligence" and catalyze the collaborative evolution of group emotional cognition through physical co-presence (Dong, 2021).

The improvement of the collaborative effect depends on the establishment of an "experience-reflection" cycle mechanism. After each dance training session, teachers guide students to conduct three-dimensional reflection: physical feelings (such as which muscle groups are tense), emotional changes (such as how emotions flow during the movement process), and cognitive gains (such as new understanding of the emotional theme). This structured reflection transforms the unconscious collaborative process into explicit knowledge. For example, students may realize that "when the arms are stretched, the chest opens, which brings about a sense of open-mindedness". In modern teaching practice, video review is used to mark key frames and match them with physiological data curves, making the reflection more accurate and efficient.

The final effect of the collaborative effect is reflected in the improvement of students' comprehensive expressive ability. After systematic training, students can: accurately perform technical movements at the physical level, understand the connotation of works at the emotional level, and realize the organic unity of the two at the expression level. This integration ability marks that the collaborative development of kinesthetic intelligence and emotional cognition has reached a new height, providing an operable practical path for dance teaching to achieve the goal of quality-oriented education.

4. Practical Path Design of Dance Teaching from the Perspective of Multiple Intelligences

4.1 Design of Dance Teaching Objectives Based on Multiple Intelligences

The Theory of Multiple Intelligences provides a systematic framework for the design of dance teaching objectives, emphasizing the collaborative development of intelligences such as bodily-kinesthetic, musical, and spatial intelligences to achieve the comprehensive improvement of students' comprehensive qualities. Based on this theory, dance teaching objectives should focus on three core dimensions: basic ability cultivation, emotional cognition development, and creative expression, forming a hierarchical and mutually supportive objective system.

In the dimension of basic abilities, the teaching objectives first focus on the development of bodily-kinesthetic intelligence. Through systematic body perception training, students are helped to establish accurate physical control abilities, including specific objectives such as muscle strength regulation, joint movement range, and movement trajectory grasp. For example, in basic ballet training, observable behavioral objectives such as "accurately completing the position change of fifth position feet" are set to ensure that students master the standard movement paradigm. At the same time, spatial intelligence cultivation objectives are integrated, such as "maintaining the perception of distance from the surrounding environment during movement", which can be achieved through spatial composition exercises in modern dance. The musical intelligence objective is reflected in the cultivation of a sense of rhythm, requiring students to "adjust movement speed according to music beats", which is particularly crucial in the combination training of folk dances. The setting of these basic objectives should follow the progressive principle, from local movements to complete combinations, and from single elements to multi-element collaboration, forming a stepped ability development path.

The teaching objectives in the dimension of emotional cognition emphasize the synchronous improvement of intrapersonal intelligence and interpersonal intelligence. Teachers need to design operable emotional experience objectives, such as "expressing three basic emotional states through physical movements", to guide students to establish a metaphorical connection between emotions and movements. In collective creation, interactive objectives such as "realizing emotional transmission through non-verbal signals" are set to cultivate empathy and social skills.

The objectives in the dimension of creative expression focus on the cultivation of high-level thinking abilities. Through improvisational

creation tasks, objectives such as "developing personalized movement vocabulary under a limited theme" are set to stimulate students' innovative potential. In work choreography, cross-art integration objectives such as "transforming literary images into dance scenes" are integrated to promote the cross-application of multiple intelligences. The design of objectives in this dimension should retain an appropriate degree of openness, such as "exploring non-traditional expression methods using props", to avoid restricting students' creativity. Current teaching particularly emphasizes cultural inheritance objectives, such as "analyzing regional cultural characteristics through folk dance movements", so that creative expression has both artistic value and educational significance.

The differentiation of objective design is the key to practice. For vocational college students, the focus is on vocational ability objectives, such as "mastering the essentials of teaching demonstration movements"; for ordinary college students, the aesthetic literacy objectives are strengthened, such as "analyzing the emotional expression methods of dance works". For groups with weak foundations, minimum objectives such as "completing basic movement combinations" can be set; for students with outstanding abilities, challenging objectives such as "creating micro dance sketches" are proposed. This hierarchical design can ensure that each student makes progress on their original basis.

The implementation of objectives relies on a scientific evaluation mechanism. A combination of process evaluation and result evaluation is adopted, focusing not only on skill indicators such as "movement completion degree", but also on expressive elements such as "accuracy of emotional transmission". The evaluation criteria should be open and transparent, so that students clearly know the direction of their efforts.

This objective system has the characteristic of dynamic adjustment. Teachers need to regularly collect students' feedback, such as understanding the appropriateness of objective difficulty through dance diaries, and optimize the design in a timely manner. Under the trend of interdisciplinary integration, innovative objectives such as "optimizing movement efficiency by combining physical principles" can be added to maintain the timeliness of teaching content. The final objective network runs through the entire process of dance teaching with the development of multiple intelligences, providing a clear direction for the construction of subsequent teaching models.

4.2 Teaching Strategies and Methods for the Collaborative Cultivation of Kinesthetic and Emotional Cognition

The collaborative cultivation of kinesthetic and emotional cognition requires systematic teaching strategies, whose core is to establish an organic connection between physical movements and emotional experience. Based on the Theory of Multiple Intelligences, teachers can adopt a progressive teaching method, guiding students to achieve the development goal of the unity of body and mind from basic perception training to high-level integrated expression.

Structured training adopts a "decomposition-integration" model to achieve ability progression. In the primary stage, complex movements are decomposed into single elements. For example, "joyful jumping" is decomposed into three components: "smiling expression", "arms raising", and "feet leaving the ground". Students practice each component separately and then gradually integrate them. In the intermediate stage, emotional transformation exercises are introduced, such as transitioning from "heavy walking" to "light running" to experience the emotional changes corresponding to different movement textures. The advanced stage focuses on improvisational creation, giving emotional themes (such as "Expectation") and allowing students to independently develop movement combinations. This training model conforms to the law of cognitive development, enabling students to flexibly apply the basic skills they have mastered to emotional expression. The "Emotion-Movement Comparison Table" used in current teaching systematically sorts out the physical indicators corresponding to common emotions (such as "anger" corresponding to fist-clenching, foot-stamping, etc.), providing a scientific reference for structured training: the table not only marks the quantifiable physical indicators corresponding to "anger", such as fist-clenching strength and foot-stamping frequency, to help students accurately control the movement intensity; but also clarifies the movement transformation logic between different emotions (such as gradually increasing muscle tension and accelerating movement

rhythm when transitioning from "calm" to "anger"), guiding students to achieve the coherent collaboration of emotions and kinesthesia in dynamic training and avoiding the problem of "movements in place but emotions disconnected".

The interactive feedback mechanism is a key link to improve the collaborative effect. Teachers adopt a "three-step feedback method": first, record students' performance through a motion capture system; second, jointly analyze the matching degree between movements and emotional expression with students; finally, formulate personalized improvement plans. For example, for the thematic improvisation of "Fear", teachers may point out that "the shoulder tension is sufficient but the eyes lack a dodging look" and suggest adding a slight head tilt movement. Peer evaluation is also an important method, adopting a "2+1" model (proposing two advantages and one improvement point) to cultivate students' observation and evaluation abilities.

Interdisciplinary integrated teaching expands the path of collaborative cultivation. By combining dance with art forms such as literature and fine arts, for example, choreographing movements according to poetic images (using spinning to express "high spirits in spring") or designing dance trajectories by imitating painting lines. This training encourages students to transform abstract emotions into multi-sensory experiences, strengthening the cross-activation of kinesthetic intelligence and emotional cognition. In folk dance teaching, students can be guided to analyze the relationship between costume colors and emotional expression, and enhance the cultural emotional resonance through practicing in traditional costumes. Teachers need to carefully select integrated materials to ensure that they are highly consistent with the teaching objectives, avoiding formalization for the sake of integration.

Differentiated teaching strategies meet the development needs of different students. For students with advantages in kinesthesia, the focus is on the training of the delicacy of emotional expression, such as conveying complex emotions through micro-movements (finger trembling, eye changes); for students with weak emotional perception, clear emotional prompt cards are used, marking specific guidelines such as "lowering the body center of gravity when feeling sad". When grouping students, attention should be paid to the complementarity of intelligence types, such as pairing students with a strong sense of space with emotionally rich students to promote mutual complementarity of advantages.

Reflective practice is a necessary means to consolidate the collaborative achievements. After class, students record their physical feelings and emotional changes through dance diaries, such as "feeling excited when making large-scale jumps, but the unstable landing affects the coherence of emotions". Teachers regularly organize sharing sessions to guide students to mark the emotional response areas of different movements with a "body map". In modern teaching practice, video review functions are combined, and slow playback is used to observe the expressions and physical coordination at key frames, making the reflection more objective and specific. This practice helps students transform the unconscious collaborative process into explicit knowledge, forming a sustainable improvement learning cycle.

The cultural infiltration strategy endows collaborative cultivation with deeper significance. In the teaching of folk dance, by analyzing the cultural connotations such as "the connection between the hand shape of Dai peacock dance and the modest character", physical training carries the functions of emotional education and value transmission. Current teaching particularly emphasizes the combination of traditional culture and modern life. For example, integrating traditional festival themes into improvisational creation. When students express "Jingzhe" (the Awakening of Insects), they need to not only imitate the physical movements of insects waking up, but also convey the emotional experience of the germination of life. This training goes beyond the level of skill teaching, making the collaborative development of kinesthetic and emotional cognition a vivid carrier of cultural inheritance.

The implementation of the above strategies requires teachers to have keen observation and flexible control abilities. In teaching practice, it is recommended to adopt a "dual-line recording method": focusing not only on visible skill indicators such as "movement completion degree", but also on tracking emotional experience changes through interviews and

questionnaires. Regular interdisciplinary teaching and research activities should be organized, such as jointly designing "emotion-movement" correlation experiments with psychology teachers, to continuously optimize the scientificity and effectiveness of collaborative cultivation. The final teaching strategy system transforms the Theory of Multiple Intelligences into an operable practical plan, providing strong support for the quality cultivation goal of dance education.

5. Conclusions

Based on Gardner's Theory of Multiple Intelligences, this study systematically explores the collaborative cultivation mechanism and practical path of dance teaching on students' kinesthetic intelligence and emotional cognitive abilities. The main conclusions show that dance teaching can effectively promote the development of students' comprehensive qualities through the organic integration of physical movements and emotional experience. Specifically, the cultivation of kinesthetic intelligence not only improves students' physical coordination and movement expressive ability, but also provides an embodied carrier for emotional cognition; while the development of emotional cognition endows movement expression with in-depth connotations, and the two form a virtuous cycle of mutual reinforcement. Practical verification shows that the three-dimensional teaching model including body perception training, emotion-guided teaching, and creative choreography practice, combined with teaching methods such as situational creation and improvisational performance, can significantly improve students' artistic expressive ability and sense of teamwork.

There are still several aspects of the current research that need to be further deepened: first, the differentiated cultivation strategies for students of different age groups need to be refined, especially the differences in physical development and emotional maturity between child and adult learners have not been fully explored; second, cross-cultural comparative research is relatively insufficient.

Looking forward to the future, the development of this research field can focus on three directions: first, constructing a dynamic evaluation system and developing a multi-dimensional evaluation tool that takes into account both movement skills and emotional expression to realize the scientific quantification of teaching effects; second, expanding the interdisciplinary research perspective and strengthening cooperation with fields such as psychology and neuroscience to deeply reveal the physiological and psychological mechanisms of the collaborative effect of kinesthetic and emotional cognition; third, promoting educational equity practice and exploring dance teaching models suitable for special education groups (such as hearing-impaired students) to give full play to the inclusive value of art education. With the continuous deepening of quality-oriented education reform, dance teaching, as an important carrier of aesthetic education, will be more widely recognized and applied for its function of developing multiple intelligences.

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