

## RESEARCH ARTICLE

# The impact of breathing, perceptivity, imagination and creativity on oneness of mind and body in dance performance

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### ABSTRACT

Interest in the immersive expression of dancers in contemporary performances is growing, often relying on body knowledge and awareness. However, a noticeable gap exists in empirical research aimed at enhancing body awareness within the modern dance education system. The aim of this study is to investigate on the oneness of mind and body the influences of breathing, perceptivity, imagination, and creativity. Employing a quantitative research methodology, this study administered a questionnaire to 47 dance students at Hunan Women's University in Hunan Province, China. Regression studies carried out reveal a comparable positive and substantial association between creativity and the harmonization of mind and body as well as a positive and significant link between breathing and oneness of mind and body. Interestingly, the relationship between perceptivity, imagination, and the oneness of mind and body did not exhibit statistical significance. We posit that the lack of a significant relationship may be influenced by variables extending beyond the scope of dance, suggesting the need for deeper investigation in the future. These findings not only contribute to our knowledge of dance but also have practical implications for dancers, educators, and researchers in the field.

**Keywords:** breathing; perceptivity; imagination; creativity; oneness of mind and body; dance performance

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## 1. Introduction

Dance is seen as an indispensable cultural bridge and a key to unlocking the doors of wisdom, as well as having the role of transmitting knowledge of the past and present. In a dance performance, dancers create and transmit knowledge through their bodies. Isadora Duncan, a pioneer of modern dance in the United States, combines the living body with artistic thought. As we can see from Duncan's choreography, the autonomous movement of the living body is integrated into the dance, a turn from the outside to the inside that makes possible the body's "unconscious response"<sup>[1]</sup>. Philosophers have also focused on this topic since more than twenty years ago, arguing that dance performance is a cognitive exercise and that one needs to value the importance of knowledge, culture and thought when dancing. This idea was born to give us a

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deeper understanding of dance performance<sup>[2]</sup>.

The human body is like a party, a delicious party loaded with senses and feelings. Our innate pleasure, joy, happiness and even compassion and pain are all present in the body and mind when we are fully engaged<sup>[3]</sup>. In the field of dance, the concept of the body based on Thomas Hanna's definition of "oneness of mind and body" has become a choreographic idea. The entry of this idea into dance not only provides ideas for the sensory-motor subjectivity of dancers, but also offers new pathways for pedagogical research as well as choreographic practice<sup>[4]</sup>. In other words, the timely resonance of the body and mind shifts the external technical exercises of traditional dance education onto the internal experience of the body. This concept is a positive understanding of the body<sup>[5]</sup>.

In dance movement, breathing improves the quality of movement and mental vigor of the dancer, and good breathing greatly influences the expression of the dancer's thoughts. Breathing difficulties can cause tension in the shoulders and torso, leading to stiffness that negatively affects movement fluidity and the dance's flow. Conscious control of the dancer's breathing can provide oxygen to the brain and muscles and help the body get into optimal shape<sup>[6]</sup>.

The fact that perceptivity is rooted in the material body means that the dancer's movements in motion are valid. It does not emphasize the need for the dancer to understand, to control something that is intended to be expressed, but precisely just to receive the physical and mental sensations that come with awareness<sup>[7]</sup>. When we are immersed in dance, forgetting about time and focusing only on our moving bodies, merging the self with nature, in this state of good perception, the dancer develops the feeling that the body is connected to life<sup>[8]</sup>.

While dancing, imagination brings conceptual things that are unseen and untouchable by the dancer into the senses of the self, resulting in physically active sensations, i.e., the experience of movement in the body and emotional feelings in the psyche. Good imagination is an interaction between the mind and the world as the dancer associates the external body from within and materializes feelings into images of physical movement. Imagination plays a fundamental role in cognitive abilities<sup>[9]</sup>.

When the audience enjoys a dance performance, they typically perceive the dance through its expressed meaning. Infusing creativity into the action of dance enables the dancer to connect with the unknown, facilitating a co-connection between the inside of the body and the outside of the body, thus becoming aware of the body's connection to life. This connection gives the dance expression a superficial meaning that is not just outwardly playful, but a deeper meaning that is the meaning and reflection behind the story of the dance<sup>[1]</sup>.

Therefore, good body awareness is needed for dance students. Provide training methods according to the body's breathing, perceptivity, imagination and creativity, in order to achieve a state of oneness of mind and body in dance performance. The aim of this study is to analyse the relationship between breathing and oneness of mind and body, perceptivity and oneness of mind and body, imagination and oneness of mind and body, creativity and oneness of mind and body, as well as the effects of breathing, perceptivity, imagination and creativity on oneness of mind and body through dance training.

## **2. Literature review**

Breathing refers to the intersection of conscious and unconscious control of movement<sup>[10]</sup>. European dancers, represented by Ilse Middendorf, believe that breathing should come and go in movement and be self-contained, and that breathing should be rooted in rhythm and movement. Indicators of breathing are (a) control of movement, (b) laxity of movement, (c) matching of breath to rhythm, and (d) rhythmic fluency<sup>[11]</sup>.

Perceptivity is a process that involves feeling, interpreting and reacting. The receptors involved in perception include "exteroceptors that respond to touch" and "proprioceptors that register movement, balance, and the body's position in space"<sup>[12]</sup>. The end result is a similar, fluid, and seemingly effortless dance. Indicators of perceptivity are (a) perceptivity of smooth objects, (b) perceptivity of soft objects, (c) perceptivity of skeletal connections, and (d) perceptivity of body balance<sup>[13]</sup>.

Imagination is the use of intuition, perception, thinking and feeling for the activities of human consciousness<sup>[14]</sup>. Indicators of imagination are (a) imaginative initiation; (b) imaginative construction (c) imaginative transformation (d) match between imagination and bodily sensations<sup>[15]</sup>.

According to Guilford, flexibility, originality, and fluidity are the main components of creativity<sup>[16]</sup> and are used as scales to construct measures of creative movement performance in dance<sup>[17]</sup>. Indicators of creativity are (a) flexibility of movement (b) continuity of movement (c) variety of movement (d) language of movement.

The oneness of body and mind is one of the ideas of Hanna's somatics theory and refers to the process that encompasses the entirety of existence - body, mind, spirit, and the environment in which they co-exist<sup>[10]</sup>. Three American scholars, Joel Goldsmith (1892-1964), Ed Carlson (b. 1941) and Gabrielle Roth (1941-2012), suggested that it was possible to see oneself and the world anew through consciousness, emotion and the body, to achieve celestial unity. Indicators of oneness of mind and body are (a) temporality of movement, (b) intensity of movement, (c) space of movement, and (d) freedom of movement<sup>[18]</sup>.

## **2.1. Hypothesis development**

Beining suggests that real breathing, when applied to the dancing body, can continually provide the brain with emotion<sup>[19]</sup>. In addition, in teaching dance performance, dance teachers train their students in the fluidity of dance movements through breathing exercises<sup>[20]</sup>. Hence, in dance performance, fluid breathing may affect the performance state of dance students who are physically and mentally united. Therefore, the following research hypothesis is proposed in this study:

**Hypothesis 1:** *Breathing and oneness of mind and body are positively correlated.*

Kieft suggests that good dance perception is one of the factors essential to bodily kinesthetic awareness<sup>[8]</sup>. James emphasises the presence of perceptivity in the body that can be beneficial to dancers in realising their personal emotional experiences and sensations during the dance process<sup>[21]</sup>. Thus, in dance performance, good body perception may affect the performance state of dance students who are physically and mentally united. Therefore, the following hypothesis is proposed:

**Hypothesis 2:** *Perceptivity and oneness of mind and body are positively correlated.*

Simone Weil in *THE PHILOSOPHY OF PERCEPTION* suggests that in dance performance, the imagination brings unseen and untouchable conceptual things into the senses of the self, resulting in the experience of movement in the body and emotional feelings in the psyche<sup>[9]</sup>. In addition, a rich imagination can enliven a dancer's emotions<sup>[22]</sup>. Consequently, in dance performance, rich imagination may affect the performance state of dance students who are physically and mentally united. Therefore, the following hypothesis emerged from this study:

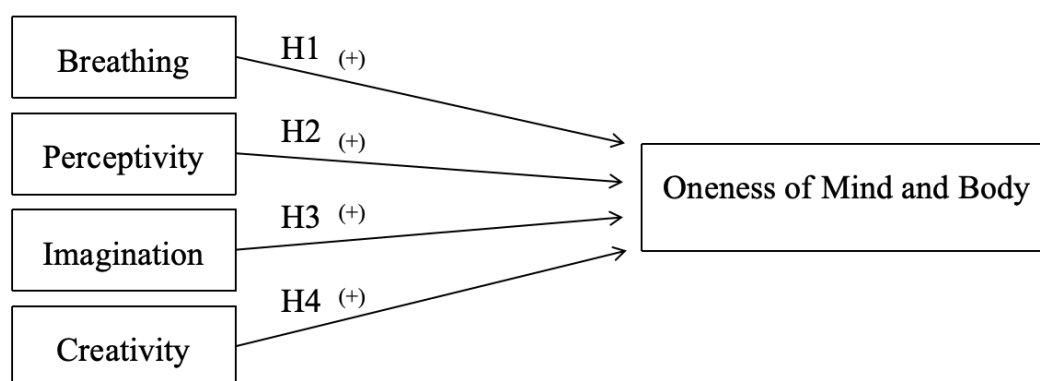
**Hypothesis 3:** *A positive correlation exists between imagination and oneness of mind and body.*

Infusing creativity into the action of dance can facilitate a co-connection between the inside and outside of the dancer's body<sup>[8]</sup>. At the same time, Chappell proposes that research on enhancing creativity as a key issue is essential for dance performance education<sup>[23]</sup>. As such, good creativity in dance performance may

affect the performance state of dance students who are physically and mentally united. Therefore, it would be meaningful to explore the following hypothesis:

**Hypothesis 4:** *There exists a direct correlation between creativity and oneness of mind and body.*

Based on the existing literature and analyses, we developed hypothetical models to investigate the relationship between breathing, perceptivity, imagination, creativity and oneness of mind and body (**Figure 1**).



**Figure 1.** Hypothetical model diagram.

### 3. Methodology

This study uses quantitative research methods, and the research subjects are dance majors at Hunan Women's University, Changsha City, Hunan Province, China. Currently, there are 123 dance majors in the school. The research used an incidental sampling strategy, whereby a questionnaire survey was administered to 47 female respondents. The questionnaire used a likert five-point scale from 1 to 5, ranging from 1 "strongly disagree" to 2 "disagree", to 3 "neutral", to 4 "agree", and to 5 "strongly agree", to assess the five variables of respiration, perception, imagination, creativity, and oneness of mind and body. The breathing variable questions are designed from Howard's (2009) article, the perceptivity variable questions are designed from Good's (2015) and Celichowska's (2000) articles, the imagination variable questions are designed from Hsu & Wang's (2014) article, the creativity variable questions are designed from Brennan's (1983) article, and the design of the oneness of mind and body variable questions are from Morita & Moritsu (2013) article. To derive meaningful insights and hypotheses testing, the collected data underwent regression analysis using SPSS 26.0, yielding the study's results.

### 4. Reliability test

Reliability testing is used to ascertain the degree of consistency shown by a measurement device. This research used Cronbach's alpha coefficient to assess the internal consistency of a set of 20 questions that examined five distinct variables. Alpha, which is a number between 0 and 1, is the most common objective measure of stability. It was created by Lee Cronbach in 1951. Between 0.7 and 0.95 is a good range for Alpha ( $\alpha$ )<sup>[24]</sup>.

Based on the results of the reliability analysis, the Alpha Cronbach values of the variables in the questionnaire consisting of 20 items are: breathing 0.828, perceptivity 0.752, imagination 0.769, creativity 0.831, and oneness of mind and body 0.792, as shown in **Table 1**. All of the variables are dependable and satisfy the test conditions, and the questionnaire has the necessary internal consistency, as shown by the

Alpha value, which demonstrates that all of the reliability values are more than 0.7. In **Table 1** you can see the results of the dependability tests.

**Table 1.** Reliability testing result.

<b>Variables</b>	<b>Cronbach's alpha</b>	<b>Status</b>
<b>Breathing</b>	<b>0.828</b>	Reliable
When I'm dancing, my movements are light.	0.755	
When I'm dancing, my movements are relaxed.	0.769	
When I'm dancing, my breath can come and go in rhythm.	0.783	
When I'm dancing, my rhythmic articulation is smooth.	0.822	
<b>Perceptivity</b>	<b>0.752</b>	Reliable
When I'm dancing, my body is like a spinning slide.	0.619	
When I'm dancing, my body is like soft sponges.	0.642	
When I'm dancing, my bones can connect with each other.	0.686	
When I'm dancing, I can keep my balance.	0.800	
<b>Imagination</b>	<b>0.769</b>	Reliable
When I'm dancing, I can forget everything around me.	0.723	
When I'm dancing, I've often had a wealth of diverse ideas.	0.750	
When I'm dancing, I can explain difficult concepts through my body.	0.775	
When I'm dancing, I can perceive the world through all my senses.	0.734	
<b>Creativity</b>	<b>0.831</b>	Reliable
When I'm dancing, I can change the direction of my body quickly.	0.750	
When I'm dancing, I can move without interruption.	0.772	
When I'm dancing, I can use every part of my body.	0.799	
When I'm dancing, I can produce different emotions.	0.821	
<b>Oneness of Mind and Body</b>	<b>0.792</b>	Reliable
When I'm dancing, my movements can be continuous.	0.739	
When I'm dancing, my movements can be eager.	0.771	
When I'm dancing, I can use different spaces.	0.704	
When I'm dancing, my movements can be fluid.	0.750	

#### **4.1. Validity test**

In terms of content validity, experts examined the number and quality of questions. To this end, questionnaires were provided to a number of university professors with suggestions for changes. The items of the measurement scale were developed on the basis of an extensive literature review and the expression of the items was corrected appropriately during the pre-survey phase, resulting in a relatively reliable validity in terms of content. In conclusion, the sample data obtained from the pre-survey performed relatively well with good reliability and validity.

## 5. Results and discussion

### 5.1. Respondent profile

Descriptive analysis revealed that 47 females filled out the survey. Fifteen respondents were between the ages of 17-19, as many as 30 were between the ages of 20-22, and only two are 23 and older. Based on academic level, there were 0 respondent in Year 1, 15 respondents in both Year 2 and Year 3, and 16 respondents in Year 4. According to the learning experience, 23 respondents had 2-4 years of dance learning experience, and 12 respondents had 5-7 years and 8 and more years of dance learning experience. As shown in **Table 2**.

**Table 2.** Descriptive statistics.

Item		Frequency	Valid Percent
Gender	Male	0	
	Female	47	100
Age	17-19	15	31.9
	20-22	30	63.8
	23 and above	2	4.3
Academic level	Undergraduate year 1	0	0
	Undergraduate year 2	16	34.1
	Undergraduate year 3	15	31.9
	Undergraduate year 4	16	34
Year of dance experience	2-4 year	23	48.9
	5-7 years	12	25.5
	8 years and above	12	25.5

### 5.2. Hypothesis testing

The following subsections discuss testing our proposed hypotheses, and Table 3 summarizes the results of the hypothesis testing. For hypothesis testing, researcher investigators set the test by selecting the significance level of the test, with the significance level selected at a standard value of less than 0.05 or 5%<sup>[25]</sup>. The hypothesis is deemed valid if the level of significance is below 0.05 or if the t-value is above the crucial value<sup>[26]</sup>. The t-statistic value at a significant level of 5% is 1.96.

### 5.3. Relationship between breathing and oneness of mind and body

The results of the hypothesis testing indicate that the T-value is 2.082, which is more than the critical value of 1.96. Additionally, the P-value is 0.043, which is less than the significance level of 0.05. Thus, it may be inferred that there exists a strong and meaningful link between respiration and the state of unity between the mind and body. The dancer's breathing method has a great influence on the state of oneness of mind and body in dance performance.

Marintan dialogues with the viewer in her artwork *Kami Sedang Membangun Rumah* by building a house out of coconut ash, where she draws the beginning and the end of each circle (movement) in the same rhythm as the inhalation and exhalation (breathing), believing that the coordinated fit of the inhalation and exhalation, the beginning and the end, can be symbolic of a state of never-ending performances of growth and death in life<sup>[27]</sup>. In another workshop, researchers tested the effects of breathing and self-regulation on

oneness of mind and body. He believes that when dancers are physically relaxed and have achieved a certain level of trust in their breathing and movement, they are more likely to listen to their inner voices and express them in front of others. At the same time, this relaxation is also related to the other members of the group, such as the level of familiarity and the degree of co-operation<sup>[28]</sup>.

#### **5.4. Relationship between perceptivity and oneness of mind and body**

The results of hypothesis testing indicate that the T-value is -0.588 and the P-value is 0.559, which is more than the significance level of 0.05. It is therefore concluded that the relationship between perceptivity and oneness of mind and body is not significant. It is suggested that, according to the *r* findings, there is minimal or negligible evidence to support a significant relationship between a dancer's perceptivity and their ability to achieve a sense of oneness of mind and body during dance performances. In other words, the level of perceptivity does not appear to be a strong determining factor in the dancer's experience of unity between their mental and physical aspects while dancing.

Such a result may be due to the fact that the dancer's perceptual state is related to the dancer's age and experience. The dance perceptual experience is via either a physical brain-body process or a cultural process in society, which can be partly explained by social, cultural, and historical influences, and partly by purely physical bodily actions, but it cannot be empirically attributed to any single cause. In phenomenology, perceptivity favours dancers reflecting on their experience of 'life', on what has been experienced or happened. Similarly, in dance performance, the performance itself requires a continuous interaction with what is involved in life. Then, over time, make perceptivity a good conversation partner for physical behaviour<sup>[29]</sup>. It is particularly important for young dancers to reflect on their lives and experiences. The average age of the sample in this study was between 17-22 years old, with only two students aged 23 and over, and most of the students had only been studying dance for 2-4 years. It is therefore possible that good perceptivity is influenced by age and experience of learning dance, and that this may be one of the factors by which perception influences the state of oneness of mind and body in performance.

#### **5.5. Relationship between imagination and oneness of mind and body**

According to the results of hypothesis testing, the T-value is -0.254 and the P-value is 0.8 > 0.05. Therefore, it is concluded that the relationship between imagination and oneness of mind and body is not significant. In dance performance, dancer's imagination has little effect on the state of oneness of mind and body in dance performance.

According to Katy Carey et al, the results of the study illustrate that one of the factors affecting imagination is attentional effort. Research through imaginative movement has found that novice dancers are less imaginative than intermediate dancers due to the fact that novice dancers are influenced by the cognitive demands of assessing the dance task at the beginning of a performance. It is further shown that attention is an important factor influencing imaginative play. Furthermore, it has been shown that proficient dancers had enhanced imaging and creative capacities compared to beginners. This suggests that the connection between actual and imagined movement is influenced by either the amount of familiarity with the specific movement or the cognitive ability of the person<sup>[30]</sup>. Finally, the teacher's teaching style in traditional teaching methods may inhibit dancers from developing a good imagination. Due to the fact that dancers are required to achieve certain prescribed physical skills or accomplishments, a number of formulaic styles of teaching are prevalent in dance education, and unfortunately, these traditional teachings do not significantly contribute to the enhancement of a dancer's imagination<sup>[31]</sup>.

### 5.6. Relationship between creativity and oneness of mind and body

According to the results of hypothesis testing, the T-value is  $3.684 > 1.96$  and the P-value is  $0.001 < 0.05$ . Thus, it may be inferred that there is a notable and favorable correlation between creativity and the unity of mind and body. Dancers' creativity has a significant effect on the state of oneness of mind and body in dance performance. Evidence suggests that experienced modern contemporary dancers have a higher level of choreographic creativity compared to traditional dance genres (e.g., Ballet, Classical Chinese Dance, Chinese Folk Dance) and non-dancers, and that much of this creativity is reflected in movement imagery and movement language<sup>[30]</sup>. The sample in this study had experience of studying choreography for between one and four years; therefore, students with relevant experience and specialising in modern contemporary dance had a higher state of mind-body unity in performance, in line with the findings of Katy Carey et al. It is worth noting that the imaginative, attentional and imaginative processes of dance learners can likewise contribute to creative processes, with those possessing a high sense of concentration and sensitivity being more creative.

As **Table 3** shows, creativity has the largest impact on oneness of mind and body with a  $\beta$  value of .623 ( $p = .001$ ) while breathing has the second largest impact with a  $\beta$  value of .323 ( $p = .043$ ). Perceptivity and imagination have less impact on achieving oneness of mind and body in dance performance. Consequently, hypotheses 1 and 4 are substantiated, while hypotheses 2 and 3 are not. Table 3 displays the results of the hypothesis test.

**Table 3.** Multiple regression analysis results  $T > 1.96$ ,  $P < 0.05^*$ ,  $P < 0.01^{**}$ ,  $P < 0.001^{***}$ .

Correlation	Beta	T Statistics	P Values	Effect	Hypothesis	
Breathing→Oneness of Mind and Body	0.323	2.082	0.043	Medium	Accepted	**
Perceptivity→Oneness of Mind and Body	-0.106	-0.588	0.559	Small	Not accepted	--
Imagination →Oneness of Mind and Body	-0.037	-0.254	0.8	Small	Not accepted	--
Creativity→Oneness of Mind and Body	0.632	3.684	0.001	Large	Accepted	**

## 6. Discussion

The findings of this study hold significance for our understanding of the factors influencing the oneness of mind and body in the context of dance. The significance of these factors in dance performance is underscored by the positive and significant relationship between respiration and the oneness of mind and body, as well as between creativity and the oneness of mind and body. This is consistent with the findings of Sally et al. (2022) that indicated breathing has a significant effect on oneness of mind and body because dancers must increase their body's awareness and skill in breathing so that movement connects with the breath as it moves, generating a deeper expression of content except beyond the act. Furthermore, the outcomes of this research align with Katy's (2019) findings, indicating a significant impact of the creativity variable on the oneness of mind and body. There are some interpretations to these findings. Breathing is a fundamental aspect of dance technique, and it is possible that the close connection between controlled breathing and the oneness of mind and body is well-established and emphasized in dance training. Similarly, creativity might be a more integral part of the dance experience, and its positive relationship with oneness of mind and body could reflect the improvisational nature of dance. These results could contribute to improving dance education programs in educational institutions. Dancers and dance educators can focus on cultivating



controlled breathing techniques and nurturing creativity to enhance the integration of mind and body in their performances. By emphasizing the role of breathing and fostering creativity, educators may better prepare dancers to achieve a deeper connection between their mental and physical aspects while dancing.

Interestingly, in this study, two variables namely Perceptivity and Imagination were found not significant towards oneness of mind and soul in dancing. The finding is consistent with previous research by Edward (2011) and Sherril and Katy (2019). This could happen because dance is a complex art form, and achieving oneness of mind and body involves various elements, including technical skill, emotional expression, and choreography. Perceptivity and imagination, while important, may not have been the sole determinants in dancing as compared to breathing and creativity. In addition, individual differences among participants, such as their age, study experience, learning styles, personal preferences, and psychological factors, might have influenced the results. For example, in this study, 30 students majoring in dance at Hunan Women's University are aged 20-22, accounting for 63.8% of the total number. 15 people are concentrated in the age group of 17-19 years old, accounting for 31.9% of the total number, while there are only 2 people aged 23 and above, accounting for 4.3% of the total number, and most of them are younger. This shows that age has a greater impact on dance students' perceptivity and imagination. The study subjects generally have study experience of 2-4 years, with a total of 23 people, accounting for 48.9%. Therefore, it can be seen that the length of a dancer's learning experience also has a greater impact on perception and imagination.

Dancer especially the Hunan Women's University dance students can respond to these findings by focusing on enhancing their observational skills and developing a deeper sense of introspection, not only regarding themselves but also in relation to animate and inanimate objects. By doing so, they can enhance their ability to feel more about life in order to maintain the transformation of their personal life experience in their dance performances. Additionally, teachers in the dance program may consider transitioning from traditional teaching methods. Instead of solely emphasizing technical aspects, there should be a greater emphasis on nurturing and encouraging the development of students' imaginative capacities. It is important to strike a balance between teaching dance techniques and fostering a creative and imaginative mindset. Encouraging dance students to explore their artistic expression and engage in imaginative exercises can enhance their overall performance.

## **7. Conclusion**

Based on the results of this study, it can be seen that breathing and creativity have a significant effect on oneness of mind and body. While perceptivity and imagination have no significant effect on oneness of mind and body. Dancers' breathing skills and creativity have a positive effect on the oneness of the mind and body performance state, which means that if the dancers' breathing skills and creativity are improved, the oneness of the mind and body performance state will also be improved accordingly. In contrast, the dancer's perceptivity and imagination had little effect on oneness of mind and body, which may be related to the level of the dancer's learning experience and the teacher's teaching style. The researchers' recommendations are, firstly, that dancers are advised to improve their ability to observe life and think deeply, while perceptivity improves accordingly with age and learning experience. Secondly, teachers improve the traditional dance teaching style appropriately, and bring the training style of modern contemporary dancers or other physical and mental training into the teaching, in order to improve the status quo of dance students who pay less attention to the body perceptivity and imagination during the dance movement, so as to enhance the body's awareness ability, and thus promote the choreography to achieve the performance state of physical and mental unity in a better way. The absence of a significant relationship between perceptivity and imagination towards oneness of mind and body prompts further inquiry. Future research can explore more aspects of

perceptivity and imagination or investigate additional variables that may influence the unity of mind and body in dance. Furthermore, it is worth noting that practices like Tai Chi could have a potential benefit in enhancing this unity of body and soul in dance performance. However, the sample size of this study was small, which may limit the generalisability of the findings. Therefore, future studies should consider using a wider sample group or increasing the sample size to enhance the generalisability and reliability of the findings. At the same time, future work could explore the potential impact of Tai Chi or other similar exercises on promoting a state of oneness of mind and body in dance performance.

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## Conflict of interest

The authors declare that they have no conflict of interest.

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