

Article

# A Study of the Orff Teaching Method on Interpersonal Skills, Self-Esteem, and Well-being of Music Education Undergraduates

Han Wei \* 

Sehan University, Yeongan-gun, 58447, Korea

\*Correspondence: 849440573@foxmail.com

**Citation:** Wei H. (2023). A Study of the Orff Teaching Method on Interpersonal Skills, Self-Esteem, and Well-being of Music Education Undergraduates. *Journal of Arts & Cultural Studies*, 2(1), 1-25. <https://doi.org/10.23112/acs02012501>



Received: December 23, 2022

Accepted: January 26, 2023

Published: February 06, 2023



**Publisher's Note:** KIHSS stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2022 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

**Abstract:** The Orff method is one of the most popular music teaching systems in the world. It was first created by the famous educator and child musician Carl Orff and has since been inherited and developed by many experts. With the reform and opening up of China and the introduction of Orff's music teaching method, the theoretical and practical aspects of music education in China have quietly changed. In this study, the effects of the Orff method and the traditional method on the interpersonal skills, self-esteem and well-being of music education undergraduates at GG University in China were investigated using an experimental control method. The results of the study showed that under both teaching methods, the interpersonal skills, self-esteem and happiness of the music education undergraduates in the experimental group were significantly higher than those in the control group after 12 weeks of the Orff teaching method intervention ( $p < 0.05$ ), therefore, it was concluded that the Orff teaching method could influence emotion regulation, strengthen positive emotions and regulate individuals' negative emotions, enhance interpersonal skills, self-esteem and happiness, guiding the university students to face future development and challenges with confidence, maintaining their mental health, and promoting the better development of education. In the past, the study of the Orff music teaching method was only limited to the musical initiation of children from kindergarten to primary school. However, as more and more people around the world study and practice the Orff education system, it has been extended to secondary schools, universities and colleges. It has now been extended to a wide range of areas such as secondary schools, music classes in colleges and universities, music therapy and health for the elderly, with people of all ages enjoying the benefits of Orff music education. This study demonstrates that the Orff method can influence emotion regulation, strengthen positive emotions and regulate negative emotions of individuals, and enhance interpersonal skills, self-esteem and well-being.

**Keywords:** Orff music teaching method; music education; interpersonal competence; self-respect; happiness

## 1. Introduction

The Orff method is developed by the famous musician and educator Carl Orff (Federal Republic of Germany) and is an original method that has overturned traditional thinking and models of music teaching and has had a profound impact on the teaching of music in many countries (Wen, 2022). After a hundred years of development, the Orff method has gradually become widespread around the world and has been combined with music from different regions to produce many research results (Yan, 2022). Austria, for example, has a highly developed music education and there are many music schools for students of all ages throughout the country. These schools use the Orff system of teaching at the initiation stage, with the aim of making the experience of music itself

easy and enjoyable (Hu, 2021). In Switzerland, the average learner of a musical instrument is given an initiation into music education, such as Orff, and only after completion does he or she learn to play a stressful instrument. The aim of the initiation phase is not to teach a particular instrument, but to allow students to experience the basic concepts of music on their own through rhythmic movements, storytelling, singing, small sitcom performances, rhythmic games, Orff percussion instruments, etc. They are not exposed to playing techniques that can be stressful to learn (Yao, 2021). In Germany, there are generally music schools in towns and villages that use an Orff-like approach to education, allowing children as young as two years old to begin free music group lessons with their parents. Teachers focus on teaching students to feel and understand music through physicality, play and rhythm, rather than requiring students to achieve a specific grade in a period of time (Peng, 2021). In the United States, there is a strong Orff Association system and many music teachers are members of the association themselves, so they have a wealth of experience in Orff education and naturally use these methods in their daily music teaching activities (Liu, 2020). At the International Conference on Orff Music Education in 2000, educational scholars from different countries summarised the practical experience of the Orff music teaching method and looked forward to its future development, providing a basis for the deeper integration of related educational ideas, teaching methods and music education (Zhanghan, 2020).

Overseas experts have explored and researched the Orff music education system from different perspectives and in different research areas. The research results have taken various forms, including treatises, textbooks, audio-visual materials and academic papers (Mastenak & Danhong, 2020). Since the 1920s, when Orff established music education colleges, research results on the integration of dance, music, body and psychology with Orff's teaching methods have been increasing, and the body of research has become richer, and it has been widely used in Italy and Belgium (Hang, 2020). In 1924, Orff and famous dancers established music and dance colleges, which objectively created conditions for the birth of Orff's music teaching method. In the process of education, Orff continued to sum up the experience of education, reflecting on the changes brought by the teaching method to students, and finally came up with the educational concept of "returning to human nature and appealing to emotions", encouraging students to express their emotions and feel the charm of music through singing, dancing and language, and improving students' music and artistic cultivation in practice (Lu, 2020). In 1926, the first collection of Orff's music teaching was published, laying the foundation for the widespread use of Orff's music teaching method (Liu, 2020). In 1931, Orff created a system of "originality exercises" to guide students to return to their true nature through music knowledge, culture and instrumental music (Luo & Yang, 2020). Orff said that originality education is the new beginning of all teaching behaviours, and that teaching behaviours that are "fashionable" will eventually be eliminated by the times. Only by pursuing originality in teaching can we avoid the temporality of teaching behaviours and give teaching methods feasibility. The schools founded by Orff was influenced by the Second World War. His teaching philosophy and pedagogy spread to countries such as Belgium and Italy in the form of lectures, which laid the foundation for the subsequent development of the Orff method (Guozhong, 2019). In 1975, the International Conference on Orff Music Education was successfully held. Orff wrote the "School Music Textbook" and its application was not limited to the German region, but could be widely used in the world, mainly because Orff's music education philosophy was people-oriented, innovated teaching methods according to students' learning status, and enriched the practical ways of Orff's music teaching method, so that the teaching method could go global (Xiaojun, 2014). In 1963, the influence of the Orff method was increased by the production of recordings of "music materials" such as "Poetical" and "Musical" (Xiaohuan, 2019). The first international conference on Orff music education was successfully held in 1975 to accumulate practical experience of the method and to provide a basis for optimising (Xin,

2018). In 2000, research-based conferences on Orff music teaching were held in Minchen, Traurn walchen, Germany and Rochester, USA. The research-based conferences on Orff music teaching method, although different in content and scale, all affirmed the feasibility of the method and laid the foundation for its application, with the aim of improving the quality of music teaching (Zhao, 2018).

Since the introduction of the Orff music teaching method in 1981, the theoretical and practical aspects of music education in China have quietly changed, setting off a boom in music education research and receiving the attention of many music education researchers to conduct in-depth research and exploration of the Orff music teaching method and related theories (Zhao, 2018). The content of music education is gradually no longer entirely focused on singing teaching but emphasises the richness and variety of content; the purpose of music education is no longer mainly focused on knowledge and skill development, but emphasises the importance of cultivating interest in music (Zailin & Hu, 2018). The centrality of the teacher in music education began to diminish, and the student became the main subject; music education gradually integrated singing, movement and language, and became more interesting and comprehensive (Yao, 2018). These changes are particularly evident in the more economically developed cities. However, there are many obstacles to the spread of the Orff music method in China. For example, most parents' disapproval of the concept, expensive Orff instruments, limited teachers, and shortage of teaching materials (Yang, 2017).

The aim of this study is to investigate the current situation and characteristics of interpersonal skills, self-respect and well-being of university students, to explore the mechanism of the Orff teaching method on interpersonal skills, self-respect and well-being, and to guide university students to face future development and challenges with confidence and ease and maintain their mental health. At present, there are few studies on Orff teaching method interventions on interpersonal skills, self-respect and well-being of university students majoring in music education, and the few studies only explore the impact of Orff teaching method on preschool children's learning quality and the application of Orff teaching method in preschool education. These studies do not explore the research on Orff teaching method on interpersonal skills, self-respect and well-being of university students (Bo, 2016). The interactive and humanistic elements of Orff teaching method are widely present in various levels of interpersonal relationship ability, self-respect and even happiness of college students, thus this study aims to address the gap of research in this area. Based on the background of the education of college music education majors, this research studies the influence of Orff teaching method on interpersonal relationship ability, self-respect and happiness of college students in music education, in order to promote the better development of music education and teaching in universities and guide university students to face future development and challenges with confidence and maintain their mental health.

## **2. Theoretical Background**

### **2.1. Research status of Orff teaching method**

#### *2.1.1. Research progress of the theoretical basis of Orff's teaching method*

The principle of Orff music education is summed up in a sentence, namely: the original music education. The so-called "original nature" is "belonging to the basic elements, the original starting point, suitable for the beginning" (Rong, 2016). The original music is not only a separate music, it is closely combined with movement, language and dance. It is a kind of music that must be attended by human beings (Yibo, 2016).

Some scholars believe that the characteristic of Orff's teaching method is to emphasize the integration of the original nature of music and the original nature of

people, that is, "all my ideas are a concept of music education about the original nature, not something new." It is Orff's teaching philosophy that still shows strong vitality in today's diverse world (Li, 2016). He took the original nature as the most basic concept in the music education system, opened the most direct, simple, natural, direct heart of the students' understanding of music without any modification, to show an unmodified natural expression of music (Wang, 2016). Some scholars also believe that the characteristic of Orff teaching method is the combination of music and games. Through the game teaching, students can strengthen the impression, a song, a dance students learned in the game, so that everyone seems to feel that every class is playing, in the process of "playing" to perceive the connotation of music, in the "playing" to enhance the sense of cooperation and group coordination ability. In this way, the teacher has completed the teaching task, and the students are also more interested in music (Du, 2015).

### 2.1.2. Research progress of Orff teaching method elements

#### (1) Original nature and local elements

The teaching principle of Orff's teaching method is the "original nature". The original music is closely combined with movement, dance and language, requiring students to participate independently (Wang & Xu, 2015). In primary school music class, music teachers should return to the original, respect the children's wishes, liberate their nature, use the original teaching mode, combine some basic physical training, and cultivate students for the concept of musical rhythm and melody (Lu, 2014). With the help of local ethnic instruments, the richness of the classroom is increased, so that students can effectively train their sense of music and sense of rhythm through independent practice experience (Jianjin, 2014; Yang et al., 2014).

#### (2) Interactive elements

The Orff teaching method advocates learning in games, emphasizing the student-oriented perception and exploration of music. Through the implementation of the new curriculum reform, many teachers have now added small games to the music class and designed practical participation, making music teaching become a mode of learning in games and playing games in learning (Xiaojia, 2013). Let students participate in it freely, eliminate the anxiety and anxiety caused by students in the busy course, make them open their hearts, actively accept the teachers' education mode, and devote themselves to the teaching process (Zi, 2013).

#### (3) Humanity elements

In my opinion, the most important point mentioned in Orff's teaching method is "human nature". In the music class, teachers should pay more attention to returning to humanism. The essence of music is truth, goodness and beauty, and music is a clever way of emotional expression of human beings (Chongshang, 2013). Therefore, the music class should take students as the leading role of the classroom, with students as the main body. After fully understanding the characteristics of the physical and mental development of students of all ages, teachers should teach students at different stages in accordance with their aptitude (Ying, 2013).

#### (4) Impromptu elements

Improbability is the core and attractive part of Orff's music education system. On the whole, improvisation activities mainly focus on children's active learning in the process of "doing", so "doing it or not" is the key, while doing "doing well" is secondary (Xueqin, 2012). Impromptu activities based on a spirit of exploration, it to cultivate children's rhythm, music image understanding and high attention, and the development of cooperation between peers are of great help, will also let children in the process of creation experience "discovery" and "explore" fun and the joy of success (Zi, 2012).

### 2.1.3. Research progress of existing problems in Orff teaching method

There are some problems in the application of Orff teaching method in preschool education practice. For example, teachers cannot have a comprehensive and systematic understanding of Orff rhythm teaching. At present, in order to fundamentally promote the healthy development of children's physical and mental health, improve the aesthetic atmosphere and comprehensive quality, it is imperative to continuously optimize the education and training system in the process of children's music education (Mei, 2012). However, through the analysis of a large number of teaching research data, it can be found that in the modern education process of children's music, some teachers are deeply influenced by the traditional learning ideas, attach importance to examinations, and there is a deviation in the cognition of "Orff rhythm teaching" in the process of education. Problems such as "emphasis on knowledge and neglect of curriculum", "emphasis on skills and experience" and "emphasis on imitation and neglect of activities" have not been effectively solved. Traditional boring teaching methods are still adopted in the implementation of educational activities, and children's knowledge of music curriculum and singing techniques is seriously insufficient (Mei, 2012). In the long run, pedagogy activities are superficial, which not only complicates the expected achievement of education and pedagogy outcomes, but also hampers the implementation of the comprehensive goals of early childhood development (Lixin, 2012a).

Moreover, there are significant differences in self-development among young children. As the stage of enlightenment, the effectiveness of kindergarten education and teaching has an important impact on children's growth. As an important part of vocational education, the quality and effect of children's singing and dancing have attracted wide attention from all walks of life in recent years (Lixin, 2012a). However, according to the analysis of a large number of teaching research materials, the difference in children's music level in the process of performance and singing education has a direct impact on the teaching effect of Orff teaching method course (Yan, 2012). However, since most children are not affected by games and singing before entering school, the gap in basic music knowledge increases the difficulty of later educators, and it is difficult to effectively improve children's singing performance and singing ability, which also affects the quality of music education and teaching to a certain extent (Lixin, 2011).

#### *2.1.4. Research progress of Orff teaching method improvement*

Some scholars believe that the Orff teaching method should give full play to the comprehensiveness of artistic activities in the practical application process. Orff's educational concept tells us that there is no single singing, reading, appreciation, playing music and pure music theory learning (Yunxiu, 2010). Comprehensive music, not only can make children learn actively, learn happily, learn naturally, but also for their physical and mental development has a very important significance. At the same time, the development of students should be respected. For example, starting from children is an important teaching principle of Orff teaching method (Jing, 2010). Children's psychological, emotional, learning and self-realization needs, as well as the right to self-choice, are respected to make the course suitable for students (Tsai & Xu, 2010).

And, to cultivate and give play to the students' main body creative ability. Children are all developing actively. Giving full play to students' subjectivity and cultivating their creativity is a concrete expression of respect for students (Ho, 2009). Pay more attention to the process of the activity than to the outcome. Moreover, the key to creation lies in practice. In the practice of Orff's teaching method, we should master the essence of thought, not blindly copy the teaching, and scientifically integrate this lively music teaching system into the modern music education in China, and explore the unique teaching characteristics combined with the reality (Yaxian, 2008).

## **2.2. Interpersonal skills**

Interpersonal relationship is the relationship between people, it is how a person perceives, thinks and does to others (Ao & Sang, 2022). Interpersonal relationships reflect the psychological state of people seeking to satisfy their needs. If people's needs are all met, then they are in close relationship with each other (Konan, 2021). Proximity and alienation between people are a reaction to people's psychological distance, which is commonly referred to as interpersonal relationships. Interpersonal interactions are the basis for the establishment of interpersonal relationships, through which people achieve mutual exchange and mutual influence on ideas, thoughts, interests, emotions, personality and other characteristics (Zheng & Huan, 2021). People receive information from society in the process of interaction, enriching their individual consciousness and personality qualities and forming their beliefs, concepts, attitudes and outlook on life and values (Zhou et al., 2021). Individuals' thoughts, ideas and behaviours can only have an impact on others through interactions. Therefore, it is said that interaction is the basis for the establishment of interpersonal relationships, and it is also a necessary condition for the overall development of personality (Qingtong et al., 2021).

#### *2.2.1. The three-dimensional theory of interpersonal relationships*

Schutz further developed a three-dimensional structure in interpersonal relationships based on the basic theory of interpersonal needs (Lei et al., 2018). In his analysis, he developed the interpersonal orientation theory, which focuses on the existence of three interpersonal needs: inclusion, dominance and emotion; interpersonal needs influence the association between individuals and situations. If they are not met effectively, they may cause significant problems such as psychological disorders; for the three basic interpersonal needs, people develop both active and passive patterns of expression (Zhang et al., 2020). The three types of needs, together with the two types of performance, form the six basic orientations; the effective satisfaction of interpersonal needs in childhood and the behavioural patterns that emerge from them have a significant impact on interpersonal relationships in adulthood (Ren et al, 2020). Schutz uses three-dimensional theory to describe group emergence and dissolution, further developing new principles of group integration (Shou et al., 2019). The actual process of group emergence is initially inclusive, followed by control and finally emotion, and the cycle has a continuous emergence (Yimin, & Yongxin,, 2015). The actual process of group disintegration is of a very different order, starting with emotional discord, followed by a loss of control, and ultimately difficulty in achieving inclusion, which in turn leads to group disintegration (Kejia et al., 2010).

#### *2.2.2. Social learning theory*

According to Bandura, human personality is formed in the process of observational learning. Observational learning is a common behaviour in people's lives and is conceptualised as the activity of learning by observing others, which is a complex process in which human personality is formed through observation and constant imitation (Kui et al., 2022). Bandura also suggests that all forms of learning must go through the step of observation (Guo et al., 2022). The observer is able to acquire new behaviours without reinforcement during the learning process, but whether or not the acquired new behaviours can be shown externally is related to the effectiveness of reinforcement (Gao et al., 2022). Bandura's social learning theory is a unique perspective based on behaviourist and cognitivist views. He believes that human personality is formed under the combined influence of self-behaviour, self-perception and the external environment (Yang & Su, 2021). The first step in the emergence of people's behaviour is a combination of their observation of their surroundings and the role models they set and is also highly related to their own perception of the role models, as well as their activities, behaviours and internal triggers. The three factors, including behavior, perception and external environment, work together and have effects. The influence of

the environment is only a potential objective fact, but its effect is highly dependent on the conditions and activities of the people. People are not only influenced by their environment, but they also exert influence on the external environment, using symbols to make judgements about what will happen in the future (Xiaoyin, & Zhuohong,, 2021). Because people have cognitive instincts, the self-regulatory system can selectively acquire environmental information in the session of observation and imitation, while filtering feedback, constantly forming the variability of human personality (Tang & hu, 2021). Behaviour, personal cognition and environmental influence are the three important factors of Bandura's sociological department theory, and human personality is gradually formed under the joint action of the three factors (Dong et al., 2016).

### 2.2.3. Conflict theory

Conflict is a psychosocial phenomenon that occurs when another work group or individual is frustrated because the work group or individual is trying to meet its own needs. Conflict manifests itself as an intense struggle caused by the incompatibility of both parties' views, needs, desires, interests and demands (Yang et al., 2019). Work groups and individuals who are experiencing conflict are likely to adopt negative and destructive behaviours, making productivity decline and organisational goals unattainable. According to a simple division, conflicts can be classified into interpersonal conflicts as well as group conflicts, which are conflicts between different individuals as well as between different groups (Yin & Wang, 2018). The earliest Western management theories often identified conflict as an area of violence, destruction, etc., and conflict was considered to be a behaviour that has a hundred harms rather than one benefit (Yanhong, 2018). However, recent psychological research tells us that there should be a new perspective on conflict, which is that conflict is not all bad. There are destructive conflicts, but some conflict behaviours have constructive meaning. A peaceful and stable environment does not necessarily bring about the desired performance of a company; on the contrary, the emergence of some conflicts can enable companies to accelerate their adjustment and recognise the contradictions, thus contributing to their long-term development; it is also conducive to getting people inspired to create and gain new ways of dealing with problems (Zhong & Feng, 2018). This shows that conflict theory gives us three insights: firstly, we need to face the conflict squarely, not running away from the problem and letting it fester in our hearts; secondly, we need to face the conflict rationally, not confronting it in a violent and intense way; thirdly, conflict is not an end, but as a means of venting our emotions, in order to be more united in the future (Chuankai, & Wanyong, 2017).

### 2.3. Self-esteem

Self-esteem is also known as self-respect. Currently, issues related to self-esteem involve various aspects of society, schools, families and individuals. Related research involves different disciplinary fields such as psychology, education, therapy and sociology. However, researchers are still divided on the conceptual definition of the meaning of self-esteem, having not formed a unified understanding (Wang et al., 2022).

In his book *Principles of Psychology*, James (89) made self-awareness one of the research topics in psychology and first introduced the concept of self-esteem. Over the past 100 years, research on self-esteem has become an important core issue in the fields of social, developmental, clinical and educational psychology (James, 2022).

A search of the literature reveals that there is a vast and diverse body of research on self-esteem. Self-esteem research itself has gone through several stages, from the rise, to the cooling, to the warming, to the boom. The first stage was the emergence of self-esteem research, which became one of the areas of interest in psychology when the *Principles of Psychology* was officially published in 1890; the second stage was the cooling off of self-esteem research, when the behaviourist psychologist Watson announced the abolition of 'consciousness' from psychological research in 1913. In the

third phase, self-esteem research heated up, with three landmark books on self-esteem published in just four years from the 1960s: Morris Risenberg's *Social and Adolescent Self-Imagination* (1965), Stanley Coopersmith's *The Origins of Self-Esteem* (1967) and Nathaniel Branden's *The Psychology of Self-Esteem* (1969), after which self-esteem research returned to the academic mainstream of psychological research; the fourth phase was the culmination of self-esteem research, which began in the late 1990s and has been characterised by the rapid growth of the self-esteem research literature, the establishment of the International Association for the Study of Self-Esteem, the influence of the California Self-Esteem Promotion Organization on public awareness of self-esteem in Western societies, and the publication of the professional journal *Self and Identity* in 2002 (Jun et al. 2022). These are all signs that the issue of the self has become a common concern for psychological researchers since the beginning of the 21st century (Ban et al., 2022).

## 2.4. Well-being

Initially, classical psychology focused more on psychological problems, diagnosis and treatment of mental illnesses, and studied negative human psychology, such as depression, obsessive-compulsive, fear and anxiety disorders. But at the same time this neglected the pursuit of positive characteristics in individuals with normal physiological functions, which, in fact, is contrary to the ultimate goal of psychology - promoting human happiness (He et al., 2023). In order to correct the shortcomings of the negative psychology focus and model, and to better develop and apply psychology, positive psychology was born at the end of the 20th century, marked by Seligman and Csikszentmihalyi's paper "Introduction to Positive Psychology". In this paper, a positive orientation of psychology to study the positive nature of human psychological qualities, the concern for human health and harmonious development are advocated (Cao et al., 2019). The research topics include subjective well-being, psychological health, satisfaction, positive emotions, negative emotions, emotional balance, happiness awareness, subjective well-being, subjective unhappiness, quality of life, etc. (Liu et al., 2022).

Two schools of thought have evolved in the development of well-being, the Hedonic-based Subjective well-being (SWB), which focuses on the experience of well-being, and the Eudemonia-based Psychological well-being (PWB) that focuses on the full potential of the individual (Liping, 2022).

### 2.4.1. Subjective well-being

Subjective well-being is an individual's subjective assessment of his or her quality of life and psychological well-being according to his or her own internal criteria, as the main criterion for evaluating the quality of an individual's existence (Zihao et al., 2022). Subjective well-being focuses on people's pursuit and satisfaction of material life as a way of defining happiness. Subjective well-being consists of two basic components, namely the cognitive component and the affective component (Yang et al., 2021). The cognitive component is mainly related to life satisfaction, i.e., general life satisfaction and specific satisfaction in terms of family, school, work, marriage, friendship, etc.; the affective component is mainly related to positive and negative affect. There is a certain degree of covariance between life satisfaction, positive affect and negative affect. For example, the higher the life satisfaction, the more positive the personal experience and the less negative affect, but this does not indicate that one of the scores predicts the other; the three exist as relatively independent dimensions (Yang & Xiang, 2021).

Subjective well-being has three characteristics: (1) Subjectivity. The evaluation standard of subjective well-being is entirely dependent on the individual's own subjective feelings. Each person's evaluation standard may be very different, which means that the process of generating the evaluation, the evaluation indexes based on and the perspective referred to in the evaluation are different for each person (Yuan et



al., 2021). (2) Entirety. Subjective well-being is not an evaluation of an individual's feelings in a particular area alone, but a comprehensive evaluation of the individual's internal and external environment, which includes both the individual's overall satisfaction with the external environment and the experience of positive emotions (e.g., happiness, joy, etc.) and negative emotions (e.g., depression, sadness, etc.) (Fan et al., 2020). (3) Relative stability. Although subjective well-being may fluctuate in the short term due to changes in the environment, it will remain at a relatively stable level in the long term and will not change drastically (Deng et al., 2020).

#### 2.4.2. Psychological well-being

Psychological well-being aims at the intrinsic satisfaction that individuals experience and achieve in the process of continuous exploration and pursuit. It is concerned with classifying psychological well-being at the level of individual self-development and fulfilment (Xiaowen, & Jatong, 2019).

##### (1) Personal presentation theory

Waterman proposes that psychological well-being is the pleasure that arises when a person's activities are in line with their deep self-worth and can be fully engaged in them, skills are developed and self-realized, resulting in an enhanced ego and unlocked potential (Chi et al., 2019). He classified happiness into two types: one is Personal Expressiveness, which means that the individual can fully engage in the activity and realize that his or her potential is stimulated and fully realized, which is the realization of his or her happiness; the other is Hedonic Enjoyment, which means that the individual experiencing their own psychological needs or satisfying their own needs in life (Jiujun, 2019).

##### (2) Six-dimensional model theory

Ryff combines previous experience and empirical research to propose the six-dimensional model theory, which suggests that psychological well-being is the pleasure of physical and psychological satisfaction when individuals reach their full potential (Xue & Xiaoli, 2019). The theory consists of six dimensions, namely personal growth, positive relation with others, purpose in life, self-acceptance, environmental monitoring and adjustment, and autonomy (Hou et al., 2019). Ryff also developed the Psychological Wellbeing Scale on this basis, which provided a reliable tool for measuring psychological well-being and promoted empirical research on psychological well-being (Guo et al., 2019).

##### (3) Self-determination theory

Ryan and Deci argue that individuals engage in certain activities because they have internal needs, such as improving their abilities, desiring relationships, and accomplishing self-actualization. When internal needs are met, individuals experience pleasure and happiness. They refer to this as self-determination theory and emphasise that individuals achieve a state of self-improvement and fulfilment by using their full potential, valuing social relationships, life goals and independence goals (Dong et al., 2018).

In fact, subjective well-being and psychological well-being are not two opposing systems. In actual research, it can be found that these two types of well-being can often complement each other and interdepend on each other, developing a new pattern of gradual integration (Liu et al., 2012). In subjective well-being studies, in addition to assessing the three dimensions of life satisfaction, positive emotions and negative emotions, they often use factors such as trust, self-esteem, job satisfaction and marital satisfaction as complementary indicators of subjective well-being (Wang & Wang, 2011). Similarly, classical indicators of subjective well-being are often used as references when assessing psychological well-being (Gao et al., 2010). Numerous studies have shown that the optimal structure of happiness should be a multidimensional composite structure that contains both enjoyment and reality as conceptual systems. In essence, happiness is

a unified organic whole that unifies subjectivity and objectivity, happiness and meaning, development and enjoyment (Zhang & Huang, 2010).

Rather than leaning towards either subjective or psychological well-being, this study adopts a well-being architecture that integrates both, which is the only way to reveal the complex relationship between its connotations and other psychological characteristics and to allow for a comprehensive, multi-faceted and integrated examination.

### 3. Research Methodology

#### 3.1. Object of study

In this study, 393 university students majoring in music education at GG University in China were recruited and questionnaires were distributed via the internet and in classrooms. Among them, there were 203 male students and 190 female students; Grade level: 121 freshmen, 136 sophomores and 127 juniors; Home location: 213 urban and 180 rural; 200 who were only children and 193 who were not; Academic performance: 100 excellent, 111 intermediate, 83 lower intermediate and 99 bottom. The information on demographic variables was described using frequency and composition ratios, as shown in Table 1.

Table 1. Information on demographic variables

Demographic variables	Category	Number of people	Percentage
Gender	Male	203	51.65%
	Female	190	48.35%
Grade Level	Freshman year	121	30.79%
	Sophomore	136	34.61%
	Third Year	127	32.32%
Home location	City	213	54.20%
	Rural	180	45.80%
One child	Yes	200	50.89%
	No	193	49.11%
Academic performance	Excellent	100	25.45%
	Moderate	111	28.24%
	Lower Middle	83	21.12%
	Countdown	99	25.19%

#### 3.2. Experimental design

This paper focuses on the core of the effect of the Orff teaching method on interpersonal skills, self-esteem and well-being of university students majoring in music education. Using an experimental control method, the recruited university students majoring in music education from GG University in China were randomly divided into an experimental group and a control group, with 197 students in the experimental group and 196 students in the control group. Students in the experimental group received a 12-week Orff teaching method intervention based on traditional teaching, while students in the control group maintained the traditional teaching method for the duration of the experiment (Xueqin, 2012).

The questionnaires were distributed to 393 music education students before and after the experiment, followed by the use of questionnaires, statistical analysis and other

methods to analyse the effectiveness of the use of the Orff teaching method and the need for improvement. Finally, it proposes the opportunities and strategies faced by music education majors in the use of the Orff method.

### 3.3. Questionnaire

Using the questionnaire survey method, questionnaires were distributed to 393 university students recruited for music education, and two questionnaire studies were conducted before and after the experiment, followed by the collation of valid data and statistical analysis using quantitative assessment methods (Jue-Min, 2004). The questionnaire was divided into 4 major dimensions, namely the Basic Information Non-Scale, the Interpersonal Competence Scale, the Sense of Self-Respect Scale and the Happiness Scale, and the number of questions for each dimensional scale is shown in Table 2.

Table 2. Questionnaire dimension design

Dimensionality	Number of titles	Form
Basic information	6	Non-scale
Interpersonal skills	20	Scale
Sense of self-respect	10	Scale
Happiness	10	Scale

#### 3.3.1. Reliability test of the questionnaire

Reliability Analysis is about whether the research data are true and reliable, also known as “reliability analysis”, which is commonly known as whether the research sample answered the questions truthfully and whether the test respondents answered the questions properly, specifically, the degree of consistency of the results obtained when the questionnaire is repeatedly measured on the research respondents (Zhang & Zhou, 2004). In this paper, Cronbach’s alpha coefficient method was used to test whether the reliability of the data was up to standard and to detect the consistency of the content of the respondents’ responses to the scale entries in the scale.

The reliability test results of the questionnaire are shown in Table 3. We can see that for the accuracy of the empirical data, the method of testing Cronbach’s alpha was used to test its reliability. 393 sample size data were collected, and the reliability test results, that is, the reliability of the interpersonal competence dimension scale, the self-esteem dimension scale and the happiness dimension scale, were 0.957, 0.769 and 0.837, all greater than 0.7, indicating that the reliability of the scales in this questionnaire is good and within acceptable limits for the purpose of analysis.

Table 3. Questionnaire Reliability Test

Dimensionality	Cronbach’s Alpha	Cronbach’s Alpha Based on Standardized Items	N of Items
Interpersonal skills	0.957	0.950	20
Sense of self-respect	0.769	0.734	10
Happiness	0.837	0.829	10

#### 3.3.2. Validity test of the questionnaire

Validity Analysis is concerned with the validity of research questions in conveying conceptual information about a research variable or dimension, commonly referred to as the appropriateness of the question design, i.e., whether the surveyor has designed the questions scientifically or whether the questions represent a variable appropriately (Yumei, 2004). To ensure the validity of the questions, a logistic analysis was conducted to analyse the validity of the questions. The questionnaire was rated as “very valid”, “relatively valid”, “average”, “not very valid” and “very ineffective” (Guixiang, 2002). The validity of the questionnaire was tested using SPSS and the results are shown in Table 4.

Table 4. Questionnaire validity test

KMO Measure	Bartlett's Test of Sphericity		
	Chi-Square	df	P
0.975	8450.721	780	0.000

From Table 2 we can see that the KMO coefficient is 0.975, which is very close to 1. And the Bartlett sphericity test has a significance of  $P=0.000 < 0.05$ . If it is less than 0.05, it means that the questionnaire has good structural validity.

Next, an exploratory factor analysis was performed, with the results being as follows:

Table 5. Total explained variance

ingredient	Initial eigenvalue			The sum of the load squares was extracted			Sum of the rotating load squares		
	amount	variance	accumulation	amount	variance	accumulation	amount	variance	accumulation
	to	percentage	%	to	percentage	%	to	percentage	%
1	8.32	27.77%	27.77%	8.32	27.77%	27.77%	8.32	27.77%	27.77%
2	7.14	23.83%	51.60%	7.14	23.83%	51.60%	7.14	23.83%	51.60%
3	4.32	14.42%	66.02%	4.32	14.42%	66.02%	4.32	14.42%	66.02%

As can be seen from Table 5, the sum of extracted load and the sum of rotating load and the cumulative percentage exceed 60%, and the following principal component analysis can be done.

Table 6. Rotational component matrix table

Question item	ingredient			Question item	ingredient		
	1	2	3		1	2	3
1	0.877	0.208	0.127	21	0.167	0.748	0.242
2	0.711	0.083	0.286	22	0.260	0.802	0.112
3	0.768	0.264	0.177	23	0.088	0.857	0.200
4	0.866	0.204	0.084	24	0.171	0.837	0.136
5	0.738	0.222	0.180	25	0.171	0.830	0.083
6	0.822	0.221	0.236	26	0.084	0.707	0.283
7	0.783	0.115	0.113	27	0.140	0.817	0.249

Question item	ingredient			Question item	ingredient		
	1	2	3		1	2	3
8	0.798	0.163	0.167	28	0.229	0.889	0.072
9	0.861	0.174	0.086	29	0.236	0.734	0.272
10	0.840	0.273	0.098	30	0.237	0.852	0.052
11	0.771	0.189	0.195	31	0.197	0.189	0.756
12	0.830	0.268	0.085	32	0.179	0.102	0.793
13	0.856	0.063	0.076	33	0.080	0.273	0.771
14	0.723	0.216	0.095	34	0.114	0.063	0.752
15	0.709	0.206	0.260	35	0.058	0.091	0.721
16	0.700	0.234	0.285	36	0.127	0.190	0.740
17	0.899	0.146	0.091	37	0.272	0.195	0.714
18	0.818	0.136	0.241	38	0.250	0.189	0.891
19	0.863	0.246	0.088	39	0.272	0.052	0.768
20	0.763	0.062	0.151	40	0.173	0.222	0.860

As shown in Table 6, principal component analysis was used for factor extraction, and the maximum variance rotation method was used to set the number of factor extraction to 3. The unqualified items were repeatedly deleted according to the standard, the single common factor topic with factor load less than 0.3 was removed, and the questions with multiple loads were deleted. In the end, no items were deleted, 40 items were retained, 3 factors were extracted, and the cumulative variance contribution rate was 66.02%.

### 3.4. Statistical analysis of data

By analyzing the questionnaire with SPSS (Statistical Product and Service Solutions) data statistical analysis software, the data was analyzed objectively to form statistical graphs and tables to provide data support for analyzing the current status of the case activities carried out in the study (Weimin, 2000).

#### 3.4.1. One-way ANOVA

One-way ANOVA is a statistical method used to analyze the results of a one-way experiment to test for differences between multiple means and thus determine whether a single factor has a significant effect on the experimental results (Ho, 2009).

In our study, a questionnaire survey was administered to music education undergraduates before the experiment and a one-way ANOVA was applied to investigate whether there were any significant differences in interpersonal skills, self-esteem and well-being between the students in the experimental and control groups before the experiment.

#### 3.4.2. Analysis of covariance

Analysis of covariance is an extension and expansion of ANOVA (Luo & Yang, 2020). The basic principle is to combine linear regression with ANOVA by adjusting the experimental error terms of the group means and F-tests to test for significant differences between two or more adjusted means in order to control for the effects of covariates (variables that are closely regressed with the dependent variable) that affect the experimental effect (dependent variable) in the experiment but cannot be artificially controlled in the ANOVA (Wang & Xu, 2015).

In the course of our research, it often appears that in addition to the independent and dependent variables of interest, there are other factors that also affect the dependent variable. This study wanted to explore the effect of the Orff teaching method on interpersonal skills, self-esteem and well-being of university students majoring in music, but as there was some variation in each student's questionnaire responses before the experiment, the pre-experimental questionnaire scale was used as a covariate and was conducted in the ANOVA.

#### 4. Research Findings and Analysis

##### 4.1. Interpersonal skills

The interpersonal skills scale in the questionnaire consisted of 20 questions and was divided into four areas: "talking to people", "socialising and making friends", "presentation skills" and "communication skills". As shown in Table 7.

Table 7. "Interpersonal skills" dimension of the questionnaire

The "interpersonal skills" dimension	Questions
	I don't like to make a wide range of friends.
	Most of the friendships I have developed with others have been initiated by others.
	My friends are all around my age.
Socialising and making friends	I have very few close friends.
	I rarely take the initiative to go to my classmates' or friends' houses to play.
	I won't meet many new people by attending a new rally.
	I often feel overwhelmed in the presence of strangers of the opposite sex.
Talking to people	I only like to be close to people I know well.
	I'm not used to talking to people.
	I am better at expressing myself in writing than verbally.
	I often don't know what to say when I look at strangers.
Presentation skills	It's hard to find things to talk about with each other if I don't have someone I know present.
	When the teacher was present, I was particularly nervous about speaking, stammering and not expressing myself clearly.
	When I speak in public, I am afraid to look my audience in the eye.
Communication skills	I can go to a new environment and not speak for days at a time.
	I am not used to speaking in large crowds.
	If I had to choose between 'conducting a class meeting' and 'taking notes of a class meeting', I would definitely choose the latter.
	I often don't know what to do when someone asks for my help and I can't meet their request.
	Even if I think it makes sense, I am not good at convincing people.
	When someone is unkind to me, I often cannot find an appropriate response.

#### 4.1.1. Comparative analysis of the interpersonal skills of the experimental and control groups before the experiment

A one-way analysis of variance (ANOVA) was conducted on the interpersonal skills of the experimental group and the control group before the experiment. The survey questionnaire on the interpersonal skills scale consisted of 20 questions divided into 4 dimensions, namely, socializing and making friends, communicating with others, presentation skills and communication skills. The results of the one-way ANOVA between the experimental group and the control group on the four dimensions of interpersonal skills are shown in Table 8. Before the experiment, there was no significant difference between the interpersonal skills scores of the two groups of university students, and the p-values of the four dimensions of interpersonal skills were all greater than 0.05. Therefore, the original hypothesis should be rejected, and the mean values of the interpersonal skills scores of the experimental and control groups were considered not to be significantly different.

Table 8. One-way ANOVA for pre-experimental interpersonal skills scores

Interpersonal skills	Mean Square	F	P
Socialising and making friends	0.198	0.251	0.617
Interacting with people	0.352	0.475	0.491
Presentation skills	0.086	0.077	0.741
Communication skills	0.293	0.189	0.549

#### 4.1.2. Comparative analysis of the interpersonal skills of the experimental and control groups after the experiment

To study the effect of different teaching methods on interpersonal competence, the role of the results of the pre-experimental interpersonal competence survey on the dependent variable cannot be ignored. The results of the pre-experimental interpersonal competence survey were used as covariates with a one-way covariance test, and the results are shown in Table 6 (Lixin, 2012b). Since the questions on the interpersonal competence scale are all negative indicator questions, a higher score indicates poorer interpersonal competence, while a lower score indicates better interpersonal competence (Lixin, 2012c).

As can be seen from Table 9, there were significant differences ( $p < 0.05$ ) between the university students in the experimental group (197 people) and the control group (196 people) on all dimensions of interpersonal skills, and the mean scores were all smaller for the experimental group than for the control group, indicating that the experimental group had significantly improved their interpersonal skills compared to the control group.

Interpersonal skills	Experimental group	Control group	F	P
Socialising and making friends	2.65±1.175	3.88±0.884	1396.536	0.000
Interacting with people	2.71±1.191	3.86±0.874	635.134	0.000
Presentation skills	2.69±1.199	3.83±0.887	604.751	0.000
Communication skills	2.72±1.169	3.88±0.912	456.589	0.000

Table 9. One-way ANOVA for post-experimental interpersonal skills scores

## 4.2. Self-respect

The self-esteem scale in the questionnaire consisted of 10 questions, and the self-esteem scale was divided into two areas, “positive self-evaluation” and “negative self-evaluation”, as shown in Table 10.

Table 10. Questionnaire “Sense of self-respect” dimension

The “sense of self-respect” dimension	Questions
Positive self-assessment	Overall, I am very happy with myself.
	I think I have a lot of strengths
	I can make things work as well as most people.
	I feel that I am a valuable person.
Negative self-assessment	I have positive attitudes towards myself.
	Sometimes, I think I am useless.
	I don’t think I have much to be proud of.
	I really feel useless sometimes.
	If only I could see myself more highly.
Overall, I tend to think of myself as a loser.	

### 4.2.1. Comparative analysis of the sense of self-respect between the experimental and control groups before the experiment

A one-way analysis of variance (ANOVA) was conducted on the sense of self-respect between the experimental and control groups before the experiment. The survey questionnaire on the sense of self-respect scale consisted of 10 questions divided into 2 dimensions, namely positive self-evaluation and negative self-evaluation. The results of the one-way ANOVA between the experimental group and the control group on the 2 dimensions of self-respect are shown in Table 11. Before the experiment, there was no significant difference in the self-respect scores between the two groups of university students, and the p-values of the 2 dimensions of self-respect were all greater than 0.05, so the original hypothesis should be rejected. It was concluded that there was no significant difference between the mean values of the self-respect scores of the experimental and control groups.

Table 11. One-way ANOVA for pre-experimental self-esteem scores

Sense of self-respect	Mean Square	F	P
Positive self-assessment	0.121	0.125	0.724
Negative self-assessment	0.021	0.028	0.868

### 4.2.2. Comparative analysis of the sense of self-respect between the experimental and control groups after the experiment

The results of the pre-experimental self-esteem survey were used as covariates and the results were tested using one-way covariance tests as shown in Table 12. The positive self-assessment includes all positive indicator questions, so a higher score means a stronger sense of self-respect, while the negative indicators are all negative indicator questions, with a higher score indicating a poorer sense of self-respect and a lower score indicating a better sense of self-respect.



As can be seen from Table 12, there were significant differences between the university students in the experimental group (197 people) and the control group (196 people) in all dimensions of self-esteem ( $p < 0.05$ ), and the mean score of positive self-evaluation was higher in the experimental group than in the control group, while the mean score of negative self-evaluation was lower in the experimental group than in the control group, indicating that the self-esteem of the experimental group was significantly higher than that of the control group.

Table 12. Analysis of covariance for post-experimental self-esteem scores

Sense of self-respect	Experimental group	Control group	F
Positive evaluation indicators	3.54±1.093	2.71±0.988	456.589
Negative evaluation indicators	2.69±1.167	3.90±0.883	887.034

### 4.3. Well-being

The questionnaire has 10 questions on the happiness dimension scale, which is divided into four dimensions: "life satisfaction", "friendly relationships", "life vitality" and "negative emotions". The four dimensions of happiness were studied, as shown in Table 13.

Table 13. "Well-being" dimension of the questionnaire

The "well-being" dimension	Questions
Life satisfaction	I am very satisfied with the overall learning atmosphere and school spirit.
	I am very satisfied with the ethics of the school and the quality of teaching.
	I am very satisfied with the learning, living and recreational environment provided by the school.
Friendly relationship	I have adapted well to the class group and to group life in the dormitory.
	I was able to get help and support from my class group and friends.
Vitality of life	I think what I am learning now will be of great use to me when I go out into society and survive on my own.
	Everyday life is full of things that interest me in my studies.
Negative emotions	I feel scared to be with the teacher after class.
	Over the past month I have often felt some kind of overwhelming binding, pressure or irritation.
	Over the past month I have often woken up feeling groggy and unmotivated.

#### 4.3.1. Comparative analysis of the well-being of the experimental and control groups before the experiment

A one-way analysis of variance (ANOVA) was conducted on the pre-experimental experimental group and the control group on self-esteem. The survey questionnaire on the self-esteem scale consisted of 10 questions divided into 4 dimensions, namely life satisfaction, friendly relationships, life vitality and negative emotions. The results of the one-way ANOVA between the experimental and control group on the 4 dimensions of well-being are shown in Table 14.

As can be seen from Table 14, before the experiment, there was a significant difference between the experimental and control groups on the happiness dimension of “life satisfaction”, while the p-values for the three dimensions of “friendly relationship”, “life vitality” and “negative emotion” were all greater than 0.05. Therefore, the original hypothesis should be rejected. The experimental group and the control group should be considered to be significantly different in the dimensions of “friendly relationship”, “life vitality” and “negative emotion”.

Table 14. One-way ANOVA for pre-experimental well-being scores

Happiness	Mean Square	F	P
Life satisfaction	1.085	1.313	0.037**
Friendship	3.649	4.053	0.922
Vitality of life	0.073	0.097	0.948
Negative emotions	0.082	0.102	0.785

#### 4.3.2. Comparative analysis of the well-being of the experimental and control groups after the experiment

The results of the pre-experimental happiness survey were used as covariates, and the results of the one-way covariance test are shown in Table 15. The “negative emotion” scores are all negative indicator questions, with higher scores indicating poorer well-being and lower scores indicating better well-being.

As can be seen from Table 15, there are significant differences between the experimental group (197 people) and the control group (196 people) in all dimensions of self-esteem ( $p < 0.05$ ), and the mean scores of the three positive indicators of “life satisfaction”, “friendly relationship” and “life vitality” are higher in the experimental group than in the control group, while the mean scores of “negative emotion” were smaller in the experimental group than in the control group, indicating that the experimental group had a significantly higher sense of well-being than the control group.

Table 15. Analysis of covariance for post-experimental well-being scores

Happiness	Experimental group	Control group	F	P
Life satisfaction	3.34±1.156	2.31±0.925	418.165	0.000
Friendship	3.40±1.175	2.21±0.909	327.711	0.000
Vitality of life	3.40±1.170	2.19±0.909	326.315	0.000
Negative emotions	2.70±1.164	3.89±0.890	525.066	0.000

## 5. Discussion, Conclusions and Recommendations

In this study, based on the interpersonal skills, self-respect and well-being questionnaire scales, the impact of the Orff music teaching method on the interpersonal skills, self-respect and well-being of university students majoring in music education was explored. The results of the pre-experimental survey showed that there was no significant difference between the interpersonal skills of the experimental and control groups ( $P=0.617$  for sociable friendships,  $P=0.491$  for communication with others,  $P=0.741$  for presentation skills and  $P=0.519$  for communication skills); there was no significant difference in the scores of self-esteem ( $P=0.724$  for positive self-evaluation and  $P=0.868$  for negative self-evaluation) between the two groups before the experiment. There was a significant difference between the two groups in terms of “life satisfaction”

( $P=0.037$  for life satisfaction) and “friendly relationship”, “vitality of life” and “negative emotion”. There were no significant differences between the two groups in the three dimensions of happiness: “friendly relationship”, “life vitality” and “negative emotion” ( $p=0.922$  for friendly relationship,  $p=0.948$  for life vitality and  $p=0.785$  for negative emotion).

Under both teaching methods, the interpersonal skills, self-respect and happiness of the university students majoring in music education in the experimental group were significantly higher than those of the traditional teaching control group after 12 weeks of the Orff teaching method intervention ( $p<0.05$ ). Therefore, it is believed that the Orff teaching method can influence emotion regulation, strengthen positive emotions and regulate individuals’ negative emotions, enhance interpersonal skills, self-respect and happiness, guiding the university students to face future development and challenges with confidence and ease and maintain psychological health, and promote better development of education. Firstly, on the level of interpersonal skills, Orff music education is based on anthropology and takes the natural and physical characteristics of the educated as the starting point. Self-expression and teacher-student interaction are all primitive manifestations of music undergraduates’ orientation to themselves and to the world, and also help them gain the initial experience of social interaction (Hua, 2008); secondly, on the level of self-respect from the perspective of Orff music education activities, having music college students listen to and perform songs can enhance their self-esteem and self-confidence. Therefore, we can help and address the creativity of music majors as much as possible, based on their interests and expanding their imagination as the goal, thus enhancing their self-confidence. For example, in music teaching, students majoring in music listen to music for practice. Especially students who are in different vocal parts in some cases should have the courage to go to the students they are working with one by one to communicate, exchange experiences with each other, find out their own or each other’s mistakes and improve them one by one. Through these methods music majors can develop and enhance their positive self-esteem and self-confidence (Chen, 2008); from the aspect of wellbeing, the most important feature of Orff music education is that it focuses on the development of the inner world of students majoring in music. In such learning, students majoring in music will not consider learning music as a burden or a merit, but will devote themselves to the world of music, using their bodies, language and instruments to freely interpret and express their inner world in a unique way. When music becomes a need for students majoring in music themselves, their mastery of music theory, musicianship, performance as well as language and culture is naturally easy, fast and deeply rooted (Ying, 2006).

In summary, this study examines the effects of the Orff teaching method on music education students from three perspectives: interpersonal skills, self-respect and well-being. The Orff teaching method emphasises the educational concept of “returning to human nature and appealing to emotions”, encourages students to express their emotions and feel the charm of music through singing, dancing and language, enhances students’ music and art skills in practice, meets their individual learning needs in terms of knowledge and skills, improves their practical efficiency and motivates them to learn independently. It also has a positive impact on students’ interpersonal skills, self-esteem and sense of well-being.

Despite the slight shortcomings of this study, with its small sample size and short intervention period, the results of this study are meaningful. Previous research on the Orff music teaching method has been limited to the musical initiation of children from kindergarten to primary school. However, as more people around the world study and practice the Orff education system, it has now been extended to a wide range of areas such as secondary schools, music classes in colleges and universities, music therapy, geriatric health and other areas where people of all ages are enjoying the benefits of Orff music education. This study alone demonstrates that the Orff Method can influence

emotion regulation, strengthen positive emotions and regulate negative emotions of individuals, and enhance interpersonal skills, self-esteem and well-being.

**Author's Declaration:** This study reveals that it is an excerpt from the Ph.D. thesis of 'Han Wei'.

**Funding:** This research received no external funding.

**Acknowledgments:** Not applicable.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Not applicable.

**Conflicts of Interest:** The authors declare no conflict of interest. This paper has no other sponsors besides the author herself. No other people had any role in the design of the study, in the collection of data, analyses, or interpretation of data, writing of the manuscript, or in the decision to publish the results.

## References

- Ao, Y. J. & Sang, C. Q. (2022). A study on the influence of interpersonal social network on psychological health in postgraduate subject groups. *Jiangsu Higher Education*, (12), 146-150. <https://doi.org/10.13236/j.cnki.jshe.2022.12.022>
- Ban, Y. F., Lu, L. X., Chen, Y. Q., Sun, J., & Wang, T. Z. (2022). The relationship between discrimination perception and mental health of blind students: appreciating the chain mediating role of social support and self-esteem. *Special Education in China*, (09), 29-38.
- Bo, Z. (2016). Music teachers in higher education should strengthen their research on the principles of music education - A review of Orff's Ideas and Practices of Music Education. *Chinese Journal of Education*, (11), 131.
- Cao, X. M., & Liu, X. (2008). From learned helplessness and learned optimism to positive psychology - Seligman's contribution to the development of psychology. *Advances in Psychological Science*, 16(4), 5.
- Chen, W. (2008). The application of Orff education concept in kindergarten. *Fujian Forum (Humanities and Social Sciences Edition)*, (S2), 98-99.
- Chi, Z., Hui, C., Ziwei, H., Zirei, H., & Haihua, L. (2019). The relationship between psychological flexibility and negative emotions and well-being among college students. *Chinese Journal of Mental Health*, (11), 868-874.
- Chongshang, L. (2013). Drawing on Orff and Kodály teaching systems to improve folk music teaching in primary schools in China. *Journal of Shanxi University of Finance and Economics*, (S1), 128. <https://doi.org/10.13781/j.cnki.1007-9556.2013.s1.064>
- Chuankai, Z., & Wanyong, F. (2011). Exploration, construction, establishment and deepening—historical development of Marx's social conflict theory. *Journal of Anhui Normal University (Humanities and Social Sciences Edition)*, (04), 397-404. <https://doi.org/10.14182/j.cnki.j.anu.2017.04.001>
- Deng, J., Lu, X., Li, Q., Wei, X., & Wang, J. (2020). Reliability and validity tests of the Chinese version of the Subjective Truthfulness-Continuous Happiness Scale. *Chinese Journal of Clinical Psychology*, (02), 335-338+343. <https://doi.org/10.16128/j.cnki.1005-3611.2020.02.024>
- Dong, W., Li, C. Y., Li, S.-N., & Xu, H. C. (2018). The relationship between boredom tendency and well-being among college students: The mediating role of internet dependence. *Chinese Journal of Clinical Psychology*, (05), 1034-1037. <https://doi.org/10.16128/j.cnki.1005-3611.2018.05.042>
- Dong, Y., Jincong, Y., Qingfeng, W., Shiwei, T., Yaqiong, Y., Jie, G., ... & Wang, Z. (2016). The relationship between new drug use and propensity to use among secondary school students and elements related to theory of planned behavior and social learning theory. *Chinese Public Health*, (04), 448-452.
- Du, Q. (2015). From the current situation of music therapy for people with disabilities to the therapeutic objects and therapeutic methods and goals of music therapy. *People's Music*, (11), 87-89.

- Fan, Z. G., Yuan, Q. M., Liu, S. H., & Zhang, X. H. (2020). The effect of fear of negative evaluation on the well-being of college students with disabilities: the role of loneliness and self-stigma. *Special Education in China*, (11), 27-33.
- Gao, B., Ma, A. R., & Lidal, D. (2022). Commemorating Bandura's discovery of social learning theory: a review based on a mathematical psychology framework. *Psychological Research*, 15(1), 27-35. <https://doi.org/10.19988/j.cnki.issn.2095-1159.2022.01.004>
- Gao, L., Zheng, X., & Yan, B. B. (2010). (2010). Chinese and Western differences in well-being: A self-constructed perspective. *Advances in Psychological Science*, (07), 1041-1045.
- Guixiang, Y. (2002). Teaching principles and practices of Orff's original musical education ideas. *Educational Science*, (02), 20-21.
- Guo, B., Zhang, L., & Zhang, Z. (2019). Adolescent materialism and well-being: The mediating role of self-esteem. *Psychological and Behavioral Research*, (01), 56-62.
- Guo, S. P., & Zhang, X. B. (2022). A re-evaluation of Bandura's social learning theory - from a cultural psychology perspective. *Psychological Research*, (02), 99-104. <https://doi.org/10.19988/j.cnki.issn.2095-1159.2022.02.001>
- Guozhong, Z. (2019). The integration of music teaching and Orff teaching method in primary and secondary schools in China - A review of "A study on the localization of Orff music teaching method". *Journal of Chinese Education*, (10), 132.
- Hang, Y. (2020). How to improve the quality of music education--a review of Orff's thoughts and practices on music education. *China University Science and Technology*, (07), 112. <https://doi.org/10.16209/j.cnki.cust.2020.07.038>
- He, A. M., Zhang, Y. R., & Hui, Q. P. (2023). The relationship between gratitude and social well-being among college students: The mediating role of mobile phone cold-calling behavior and the moderating role of negative life events. *Psychological Development and Education*, (04), 1-8.
- Ho, J. (2009). A study of diversified music education models under the view of quality education. *Educational Research and Experimentation*, (S1), 184-186.
- Hou, Z. H., Chieh, L. I., & Xu, X. F. (2019). The impact of demographic variables on the overall well-being of university students. *Higher Education Development and Evaluation*, (01), 54-71+91+2.
- Hu Y. Q. (2021). Drawing on Orff's musical ideas to promote localized educational reform--A review of Orff's musical educational ideas and practices. *Journal of Shanxi University of Finance and Economics*, (12), 135-136.
- Hua, C. (2008). A brief discussion of the characteristics of and lessons from Dalcroze, Orff, and Kodály pedagogy. *Fujian Forum (Humanities and Social Sciences Edition)*, (S2), 92-93.
- James, W. (1989). *Principles of psychology*. China Business Press.
- Jianjin, G. (2014). Teaching objectives, contents and methods of the new system of school music education. *People's Music*, (01), 40-44.
- Jing, L. (2010). Analysis of the difficulties and countermeasures of Orff teaching method in Gansu minority areas. *Journal of Xinghai Conservatory of Music*, (01), 102-105.
- Jiujun, W. (2019). The effects of positive psychological interventions on psychological harmony, resilience, general well-being and depression among college students. *Journal of Capital Normal University (Social Science Edition)*, (04), 178-188.
- Jue-Min, C. (2004). Curriculum theory and the "paradigm" of music curriculum in 20th century practice. *Chinese Musicology*, (03), 90-95. <https://doi.org/10.14113/j.cnki.cn11-1316/j.2004.03.018>
- Jun, Y., Kaijuan, Q., Baole, T., Wenjie, Z., Bingbing, Z., & Yueyan, J. (2022). An experimental study on the effects of exercise intervention on children's mental health: the chain mediating role of physical self-esteem and self-concept. *Sports and Science*, 43(03), 89-96. <https://doi.org/10.13598/j.issn1004-4590.2022.03.010>
- Kejia, Q., Hong, Z., & Yibing, Y. (2010). The relationship between adolescent loneliness and the five personality factors: The mediating role of interpersonal competence. *Psychological Inquiry*, (06), 75-80.

- Konan, J. (2021). A study on topic selection and the construction of harmonious interpersonal relationships. *Japanese Language Learning and Research*, (06), 29-38. <https://doi.org/10.13508/j.cnki.jsr.2021.06.005>
- Kui, Z., & Ran, W. Z. (2022). Subject matter expansion and narrative innovation of parenting observation reality shows: Family gender role recasting based on social learning theory. *China TV*, (11), 50-56.
- Lei, X., Jingqun, W., Yuan, Z., Baojuan, Y., & Cuicui, L. (2018). The effect of core self-evaluation on depression among college students: The chain mediating role of coping style and interpersonal distress. *Chinese Journal of Clinical Psychology*, (04), 808-810+830. <https://doi.org/10.16128/j.cnki.1005-3611.2018.04.039>
- Li, L. (2016). A Chinese cultural interpretation of the essence of Orff's "originality"-Returning to the basics: the liberation of the body and the creation of the mind. *Curriculum. Teaching Materials. Pedagogy*, (04), 123-127. <https://doi.org/10.19877/j.cnki.kcjcf.2016.04.022>
- Liping, P. (2022). The effect of volunteering participation on college students' subjective well-being: the chain mediating role of self-efficacy and self-identity. *Chinese Journal of Clinical Psychology*, (05), 1126-1129. <https://doi.org/10.16128/j.cnki.1005-3611.2022.05.023>
- Liu, C. J., Yang, S. S. & Wang, Y. (2022). Window of time and creation of time: Time effects of stay-at-home experiences on subjective well-being. *Society*, (06), 188-213. <https://doi.org/10.15992/j.cnki.31-1123/c.2022.06.013>
- Liu, M. (2020). The dissemination and localization of Orff's music education practices in China: A review of Orff's music education ideas and practices. *Chinese Journal of Education*, (03), 116.
- Liu, T. T. (2020). Problems and countermeasures of university music education in the era of micro communication--a review of Orff's music education ideas and practices. *News Lovers*, (12), 123-124. <https://doi.org/10.16017/j.cnki.xwzh.2020.12.037>
- Liu, Y., Huang, W., & Zhu, W. (2012). Suicidal ideation among college freshmen and its relationship with life satisfaction and well-being. *Chinese Journal of Mental Health*, (03), 235-238.
- Lixin, W. (2011). The fit between Orff's music education philosophy and China's new music standards. *Journal of Northeastern Normal University*, (04), 289-291. <https://doi.org/10.16164/j.cnki.22-1062/c.2011.04.026>
- Lixin, W. (2012a). Constraints on the localization of Orff music pedagogy. *Journal of Northeast Normal University*, (02), 234-236. <https://doi.org/10.16164/j.cnki.22-1062/c.2012.02.020>
- Lixin, W. (2012b). The construction of localized teaching model of Orff music teaching method. *Foreign Education Research*, (04), 69-76.
- Lixin, W. (2012c). Constraints on the localization of Orff music pedagogy. *Journal of Northeast Normal University (Philosophy and Social Science Edition)*, (02), 234-236. <https://doi.org/10.16164/j.cnki.22-1062/c.2012.02.020>
- Lu, H. (2014). A case study of teaching traditional Chinese music in a multicultural context. *Chinese Music*, (03), 162-169. <https://doi.org/10.13812/j.cnki.cn11-1379/j.2014.03.032>
- Lu, P. W. (2020). Research on the application of Orff's teaching method in music education--a review of Orff's music education ideas and practices. *News Lovers*, (06), 105-106. <https://doi.org/10.16017/j.cnki.xwzh.2020.06.032>
- Luo, T., & Yang, C. F. (2020). An exploration of the integration of Orff music teaching method and music teaching of senior teachers--A review of "A study on the localization of Orff music teaching method". *Chinese Journal of Education*, (01), 121.
- Luo, T., & Yang, C. F. (2020). An exploration of the integration of Orff music teaching method and music teaching of senior teachers--A review of "A study on the localization of Orff music teaching method". *Chinese Journal of Education*, (01), 121.
- Mastenak, W., & Danhong, Y. (2011). Interpretation of Karl Orff's "original" concept--For Chinese music education Colleagues. *Music Art (Journal of Shanghai Conservatory of Music)*, (03), 169-178. <https://doi.org/10.19359/j.cn31-1004/j.2020.03.015>
- Mei, H. S. (2012). Reconceptualizing Orff music education from a historical perspective. *Chinese Music*, (03), 214-216+229.
- Mei, L. (2012). Making the music classroom "move"--Thinking about the "music practice class". *Chinese Music Education*, (06), 8-12.

- Peng, R., Kang, D., Yang, X., Xie, H., & Tang, S.-L. (2011). A new species of the genus *Phyllostachys* (Hymenoptera, Braconidae) from China. (2021): Effectiveness of an intervention of Orff music games on the development of creative thinking in 5-6-year-old children. *Chinese Journal of Mental Health*, (08), 637-642.
- Qingtong, G., Mingxue, X., Chunyan, X., & Xiuli, L. (2011). A new species of the genus *Phyllostachys* (Coleoptera, Staphylinidae) from China. (2021). The relationship between interpersonal distress and mobile phone addiction in college dormitories: a serial mediation model and gender differences. *Psychological and Behavioral Research*, (05), 650-656.
- Ren, L. J., Mo, B. B., Li, D., & Liu, J. S. (2020). A cross-lagged analysis of interpersonal skills and loneliness among college students. *Chinese Journal of Clinical Psychology*, 4, 850-852+856. <https://doi.org/10.16128/j.cnki.1005-3611.2020.04.041>
- Rong, C. (2016). An exploration of the core concept and system construction of Orff's teaching method: A historical tracing of the Junt School in Munich, Germany from 1924 to 1944. *Music Art (Journal of Shanghai Conservatory of Music)*, (03), 119-127. <https://doi.org/10.19359/j.cn31-1004/j.2016.03.012>
- Shou, T., Lirui, Z., & Jin, H. (2019). The relationship between interpersonal adjustment and extraversion and self-control among college students. *Chinese Journal of Mental Health*, (02), 153-157.
- Tang, X., & Hu, Z. (2021). A study on the mechanism of online co-reading based on social learning theory. *Modern Publishing*, (02), 75-79.
- Tsai, N. C. & Xu, C. J. (2010). Time and space collide to create "poetic-musical structures"-a study of the musical structure of Carl Orff's Bran Psalms. *Huang Zhong (China Journal of Wuhan Conservatory of Music)*, (01), 89-96.
- Wang, J. Y. (2016). The scientific combination of music education thought and practice - A review of Orff's music education thought and practice. *Chinese Journal of Education*, (03), 128.
- Wang, T., & Xu, X. (2015). An experimental study of the Orff music teaching method to improve the speech recognition ability of young children with cochlear implants. *Special Education in China*, (06), 29-34.
- Wang, Y. J., Liu, S. X., Ma, J. H., Yang, Q. R., & Wang, A. K.. (2022). Effects of negative emotions on eating disorder symptoms in college students majoring in exercise - mediating effects of forced exercise and self-esteem. *Chinese Journal of Clinical Psychology*, (06), 1308-1312+1328. <https://doi.org/10.16128/j.cnki.1005-3611.2022.06.009>
- Wang, Y., & Wang, Z.H.. (2011). The utility of written expression of positive emotions on well-being and coping styles. *Chinese Journal of Clinical Psychology*, (01), 130-132. <https://doi.org/10.16128/j.cnki.1005-3611.2011.01.005>
- Weimin, Z. (2000). Implications of the Orff children's music education system for art curriculum decision-making for preschool children in China. *Preschool Education Research*, (01), 30-32. <https://doi.org/10.13861/j.cnki.sece.2000.01.009>
- Wen, Z. (2022). Research and practice of integrating traditional nursery rhymes into music education of higher education teachers: An example of traditional nursery rhymes in Chaoshan. *Explorations in Higher Education*, (04), 51-55.
- Xiaohuan, H. (2019). A pilot study on the promotion of Orff music teaching method in China - A review of the theory and practice of Orff teaching method. *News Lovers*, (04), 107. <https://doi.org/10.16017/j.cnki.xwahz.2019.04.037>
- Xiaojia, W. (2013). An empirical study of Orff group music therapy for the psychological correction of delinquent minors. *Journal of Xinghai Conservatory of Music*, (04), 148-157.
- Xiaojun, F. (2006). Orff: The music education love affair of Dana Li. *People's Music*, (09), 75-77.
- Xiaowen, Z., & Jatong, L. (2019). A study on the pathway of subjective socioeconomic status affecting college students' happiness. *Journal of Henan University (Social Science Edition)*, (06), 106-115. <https://doi.org/10.15991/j.cnki.411028.2019.06.015>
- Xiaoyin, X., & Zhuohong, Z. (2011). The impact of leaders bowing their heads and using mobile phones on employee performance: Based on the perspective of social learning theory. *China Human Resource Development*, 38(06), 55-67. <https://doi.org/10.16471/j.cnki.11-2822/c.2021.6.004>

- Xin, L. (2018). Reflections on the value and methods of children's musical improvisation and creativity development - A review of the theory and practice of Orff's pedagogy (Volume 1: Selected classical texts (1932-2010)) (English and Chinese edition). *Chinese Journal of Education*, (03), 125.
- Xin, X. (2018). Orff's music teaching system - A review of Orff's music education ideas and practices. *Higher Education Development and Evaluation*, (06), 122.
- Xue, Z., & Xiaoli, C. (2019). Mental health education for poor college students in the perspective of positive psychology: reflections and improvements. *Jiangsu Higher Education*, (05), 119-124. <https://doi.org/10.13236/j.cnki.jshe.2019.05.021>
- Xueqin, Y. (2012). A study on the intervention of Orff music therapy for children with intellectual disabilities. *Art 100*, (06), 273-274.
- Yan Y. F. (2012). Sensitive to the reform of music education teaching in senior teachers - the inspiration of the world's excellent music education system to senior teachers' music education. *Chinese Music Education*, (01), 40-42.
- Yan, Z. (2022). Review of Ault's new book, Nabokov and the real world: between appreciation and defense. *Foreign Literature*, (02), 182-191. <https://doi.org/10.16430/j.cnki.fl.2022.02.013>
- Yang, J., Ye, W., Lu, J., & Xu, G. (2011). A new species of the genus *Phyllostachys* (Hymenoptera, Braconidae) from China. (2021). Prediction of happiness and unhappiness by internal and external goals. *Psychological Research*, (04), 315-321.
- Yang, J.-P., & Xiang, C.-Y. (2021). A study on the pathway of physical exercise to enhance college students' psychological well-being: the mediating role of social self-efficacy. *Journal of Chengdu Institute of Physical Education*, (03), 132-136+142. <https://doi.org/10.15942/j.jcsu.2021.03.021>
- Yang, L. H., Chen, Y. F. & Zhou, C. L.. (2019). A new theory of conflict between "public equilibrium and disequilibrium". *Chinese Social Sciences*, (11), 104-126+206-207.
- Yang, M. Q., & Su, T. I.. (2021). Mechanisms and pathways of constructing the value education field for ethnic minority children - Based on the perspective of social learning theory. *Ethnic Education Research*, (04), 88-93. <https://doi.org/10.15946/j.cnki.1001-7178.2021.04.012>
- Yang, S., & Dong, C. (2017). An analysis of Orff's music education theory and methods - A review of Orff's music education philosophy and practical operation. *Educational Theory and Practice*, (08), 2.
- Yang, S., Mentao, Y. & Xinxuan, S. (2014). The inspiration of the 20th century European music education theory on the quality education of children's dance. *Journal of Beijing Dance Academy*, (03), 28-33.
- Yanhong, W. (2018). The Dalton system and its modern revelation in the perspective of conflict theory. *Educational Theory and Practice*, (10), 13-17.
- Yao, L. (2021). Exploration of music pedagogy theory and teaching methods in practice - A review of Theory and Practice of Music Education. *Chinese Journal of Education*, (12), 144.
- Yaxian, C. (2008). An examination of the basic theory of the concept of ethnicity in the teaching of sight singing and ear training - taking the Kodály, Orff, and Dalcroze music education systems as examples. *Journal of Fujian Normal University*, (06), 161-165+170.
- Yibo, W. (2016). The breakthrough of Orff teaching method to the problems of primary school music education. *Chinese Journal of Education*, (05), 85-88.
- Yimin, L., & Yongxin, L. (2015). The impact of adolescents' interpersonal skills on social inferiority and psychological well-being: The role of social adaptability. *Psychological Science*, (01), 109-115. <https://doi.org/10.16719/j.cnki.1671-6981.2015.01.012>
- Yin, X. R. & Wang, M. H. (2018). Cossé's theory of social conflict and its implications for social governance in China - a n analysis based on The Function of Social Conflict. *Theoretical Monthly*, (09), 170-176. <https://doi.org/10.14180/j.cnki.1004-0544.2018.09.025>



- Ying, W. (2006). Orff's music education system and the development of students' creative ability--and the reference of Orff's music education system to the implementation of the Music Curriculum Standards. *Huang Zhong (China. Journal of Wuhan Conservatory of Music)*, (S1), 213-215. <https://doi.org/10.19706/j.cnki.cn42-1062/j.2006.s1.051>
- Ying, W. (2013). An experimental report on Orff group music therapy intervention for social anxiety among college students. *Huang Zhong (China. Journal of Wuhan Conservatory of Music)*, (02), 154-166+184.
- Yuan, C. X., Pan, Z., Siao, X., Xiyu, Z., & Lei, L. (2021). Friend support and college students' well-being: Mediation of self-efficacy and moderation of social comparison tendencies. *Psychological Science*, (02), 426-432. <https://doi.org/10.16719/j.cnki.1671-6981.20210224>
- Yumei, J. (2004). Music education and creative ability development. *Jiangsu Higher Education*, (01), 129. <https://doi.org/10.13236/j.cnki.jshe.2004.01.045>
- Yunxiu, X. (2010). The use of Orff teaching method in teaching sight singing in music education. *Music Exploration*, (04), 105-107. <https://doi.org/10.15929/j.cnki.1004-2172.2010.04.028>
- Zailin, Z., & Hu, G. (2018). A theory of music learning that returns to the origin of the body. *Journal of Xi'an Jiaotong University*, (01), 92-95. <https://doi.org/10.15896/j.xjtuskxb.201801010>
- Zhang, A., & Huang, X. (2010). The influence of economic status on individual well-being from relevant domestic studies. *Advances in Psychological Science*, (07), 1068-1072.
- Zhang, H. Y., & Zhou, W. (2004). The role of music therapy in the education of children with intellectual disabilities. *Journal of the Central Conservatory of Music*, (01), 79-88. <https://doi.org/10.16504/j.cnki.cn11-1183/j.2004.01.011>
- Zhang, S., Liu, T., Xia, F., & Li, Y. (2020). Social network analysis of interpersonal relationships and mental health among college students. *Chinese Journal of Mental Health*, (10), 855-859.
- Zhanghan, L. (2020). The practice and development of Orff's music education thought in China for dissemination - a review of Orff's music education thought and practice. *News Lovers*, (11), 97-98. <https://doi.org/10.16017/j.cnki.xwahz.2020.11.027>
- Zhao, Y. (2018). From "either/or" to "both/and"-the dialogue and subdialogue between Liu Jian and Rorty. *Contemporary Literature*, (03), 32-37. <https://doi.org/10.19290/j.cnki.51-1076/i.2018.03.004>
- Zheng, C., & Huan, Z. (2021). The impact of mobile phone addiction on physical activity in college students at school: A moderator of interpersonal distress. *Chinese Sports Science and Technology*, (12), 75-81. <https://doi.org/10.16470/j.csst.2019146>
- Zhong, J., & Feng, R. (2018). On the positive and negative dual functions of social conflict in tourism from the perspective of social conflict theory - based on an examination of tourism development in western ethnic areas. *Journal of Ethnicity*, (02), 59-64+117-118.
- Zhou, S.-G., Guo, H.-R., Yang, P.-P., Wang, M.-Y., Liu, X.-X. & Ding, X. (2021). The influence of family environment on college students' depression: the chain mediating role of cognitive-emotional regulation strategies and interpersonal relationships in dormitories. *Special Education in China*, (12), 75-81.
- Zi, G. (2012). An interview with Professor Sarah Brook, an expert in Orff pedagogy. *Chinese Music Education*, (09), 16-18.
- Zi, G. (2013). Inclusive-practical-operational - International Orff teacher training activities. *Chinese Music Education*, (10), 8-10.
- Zihao, Z., Liyi, P., Lin, Z., Shuangjin, L., Xiaoyu, O., Daoqun, D., ... & Xiaoyi, F. (2023). Effects of childhood abuse on depressive symptoms in college students: Mediation of subjective well-being and the moderating role of genes. *Psychological Development and Education*, (02), 276-285. <https://doi.org/10.16187/j.cnki.issn1001-4918.2023.02.14>

**Disclaimer/Publisher's Note:** The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of KIHSS and/or the editor(s). KIHSS and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.