INVESTIGATING THE EFFECTS OF COOPERATIVE LEARNING APPROACHES ON EMOTIONAL INVOLVEMENT TO ENHANCE ARTISTIC CREATIVITY AMONG THIRD-GRADE ART STUDENTS IN CHINESE SECONDARY VOCATIONAL SCHOOLS

HUIMIN WANG

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
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Author Huimin WANG
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Advisor Assistant Professor Dr. Saifon Songsiengchai

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……

(Assistant Professor Dr. Yaoping LIU)
Director of the Institute of Science Innovation and Culture
Date……Month……..Year…..…

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ABSTRACT

This study focused on the Yuehua Secondary Vocational School students in Dezhou City. The objectives of this research were 1) to analyze the impact of cooperative learning methods on students' emotional involvement, 2) To explore the students' emotional Involvement affects their learning outcomes of more than 70%, and 3) to compare the difference between and after implementing the emotional involvement affected their learning outcomes of artistic creativity. Krejcie and Morgan's table shows that the research sample included 1400 students, with a subset of 302 students participating. The research employed a quantitative research method. Statistical analysis used percentages, means, standard deviations, and narrative analysis to interpret the data. The primary research tools were questionnaires, tests, and lesson plans. The results revealed that: 1) the overall mean score for all variables was 3.76, with a standard deviation of 0.88, indicating a generally high level of agreement among respondents. 2) based on the test results, 70% of the students who participated showed that emotional involvement positively affected their learning outcomes of artistic creativity, as evidenced by the majority receiving grades of "Very Good" or "Excellent", and 3) after implementing the emotional involvement difference before learning outcomes of artistic creativity at the mean score of 9. 58 with a standard deviation of 0.98. These findings suggested that cooperative learning methods significantly enhanced students' emotional involvement, positively influencing their academic performance and creative abilities. The study underscored the importance of creating emotionally engaging cooperative learning environments. Recommendations included personalizing learning approaches, strengthening teacher-student relationships, providing professional development for teachers, and incorporating technology to boost emotional involvement and creative outcomes further. Future research should explore the longitudinal impacts and the integration of advanced educational technologies to improve cooperative learning strategies continuously.

Keywords: Cooperative Learning, Emotional Involvement, Secondary Education

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Two years ago, driven by an insatiable curiosity for knowledge and a desire to explore foreign academic landscapes, I embarked on a journey by enrolling at the Rajamangala University of Technology Krungthep, Thailand. This esteemed institution, celebrated for its rich history, vibrant culture, and intellectual brilliance, has been a transformative chapter in my life. I am incredibly grateful to the Institute of Science Innovation and Culture (ISIC), where every educator has profoundly influenced my academic and personal growth. They have taught me to view educational challenges through an international lens, broadening my understanding and expanding my horizons. With their multifaceted expertise, unwavering sense of responsibility, and global perspective, these mentors have inspired me to improve myself.

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As I bid farewell to my graduate studies and Rajamangala University of Technology Krungthep, I carry cherished memories, profound gratitude, and hope for future reunions. Thank you, and until we meet again.

Huimin WANG

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CHAPTER I
INTRODUCTIONS

1.1 Background and Rationale

In contemporary educational practice, the development of vocational education and training (VET) has emerged as a key area for advancing students' readiness to face the challenges of their careers, particularly in developing the socio-emotional skills necessary to cope with rapidly changing work environments (Den Heijer et al., 2023). These skills, which include emotional regulation, self-awareness, and interpersonal competence, not only support students in making mature decisions when encountering value conflicts in their careers but also provide a strong foundation for their personal and professional development (Schonert-Reichl, 2019). Scholars such as Schoor et al. (2015) and Ha (2023) have noted in their research that enhancing students' attention to intrinsic emotion, providing explicit instruction, and facilitating student-teacher interactions can be effective in promoting deeper exploration of students' self-emotion and values, thereby increasing their adaptability and creativity. Although the importance of social-emotional learning (SEL) is widely recognized in educational reform, especially in collaborative learning environments, where instructional experiences in which students' emotional skills and values are self-explored have a positive impact on improving learning outcomes (Herrmann, 2013), there is insufficient research on how collaborative learning affects students' emotional involvement, participation, and motivation to learn (Boekaerts, 2011). Furthermore, while collaborative learning is critical in promoting student learning strategy use and improving science achievement (Chi & Wylie, 2014; Ryzin & Roseth, 2021), how these factors work together in specific collaborative learning environments to influence students' emotional involvement in learning and motivation remains an open question. *As a researcher and an art teacher in a secondary vocational school in Dezhou City, I believe high-quality vocational education is critical in developing valuable human resources and promoting student employment*. Student achievement in the discipline of

art not only reflects personal growth but is also an important indicator for evaluating the sophistication of the educational system.

Therefore, research on improving students' academic performance in art has become a key concern, which is not only a responsibility as an educator but also the key to guiding students to stand out in the fierce social competition and lay a solid foundation for their future. Especially in the field of secondary vocational education in Dezhou City, Shandong Province, there is a gap in in-depth research on the impact of cooperative learning methods on students' emotional involvement despite the high importance of vocational education in the region. This study focuses on the impact of the cooperative learning method on the learning emotional involvement of third-grade art majors in secondary vocational schools in Dezhou City, aiming to reveal how cooperative learning can provide practical guidance and theoretical support for the realization of high-quality development of education by facilitating students' self-exploration of their emotions and values, and then enhancing their adaptive and innovative abilities.

By deeply exploring the relationship between cooperative learning and students' emotional involvement, this study will provide teachers with valuable insights to help them personalize their teaching strategies, optimize the teaching process, and enhance their learning experience and effectiveness. This will not only promote the overall development of students and enhance their learning interest and motivation but will also provide important value and significance for teachers in secondary vocational education. In addition, this study will help reveal potential inequities in the educational process, provide a basis for educational policymakers to promote the development of educational equity, and provide new theoretical support and references for educational research and future educational practice, thus promoting continuous innovation and improvement in the field of education.

1.2Research Questions

This study focuses on the impact of cooperative learning on students' emotional involvement in art learning in secondary vocational schools, aiming to study it in depth and propose innovative solutions. Our goal is to promote the holistic

development of secondary students and provide more detailed and practical suggestions for constructing the vocational education system by comprehensively examining all aspects of student learning. Through this study, we expect to contribute valuable insights to the quality improvement and overall development of secondary education and to make the relevant system more responsive to the needs of today's society. The main research content of this paper will be centered on the following three questions.

1. How does the cooperative learning method impact the emotional involvement of art majors in secondary vocational schools?

2. In what ways does students' emotional involvement influence their learning outcomes of artistic creativity in the context of cooperative learning methods?

3. What are the results of the differences between and after implementing the emotional involvement that affected their learning outcomes of artistic creativity?

1.3 Research Objectives

1. To analyze the impact of the cooperative learning method on students' emotional involvement.

2. To explore how the students' emotional involvement affects their learning outcomes by more than 70%.

3. To compare the difference between and after implementing the emotional involvement affected their learning outcomes of artistic creativity.

1.4 Scope of the Research Study

1.4.1 Research Scope

1.4.1.1 Scope of Content

This study is dedicated to exploring the current status of cooperative learning methods in art teaching activities in secondary vocational schools in Dezhou City, Shandong Province, and evaluating their impact on the emotional involvement of third-grade art students. The study will compare how different cooperative learning methods optimize students' emotional involvement in art education and analyze how

this emotional involvement affects students' academic achievement and creativity. This study aims to reveal how cooperative learning methods can fully develop students' emotions and enhance their involvement and creativity in vocational art education. The findings provide strategic recommendations and theoretical support for teaching practice in the field of vocational education and further promote the effective integration and development of the cooperative learning method.

1.4.1.2 Scope of Time

This study was conducted in a secondary vocational school in Dezhou City, Shandong Province, focusing on a group of third-grade art majors. The study's timeframe is expected to span one semester to fully observe and analyze the changes and impacts of the cooperative learning method before and after its implementation. This period includes initial data collection, implementation of collaborative learning strategies, subsequent follow-up assessments, and final data analysis and report writing. Conducting this study within a specific time and place frame aims to gain an in-depth understanding of the specific impact of the cooperative learning method on the emotional involvement and learning outcomes of art majors in secondary vocational schools in Dezhou City and to provide empirical foundations and theoretical guidance for the further promotion and optimization of the cooperative learning method.

1.4.2 Research Limitation

1. Sample Size Limitations

Because the study focused on students in specific grades and majors in Dezhou City, its findings may not apply to students in other areas, grades, or majors. This limits the generalizability of the study's findings, making the generalization and application of the findings limited.

2. Limitations of Long-term Impact

Since the study only covered a one-semester time frame, it may be difficult to adequately assess and observe the long-term effects of the cooperative learning approach on students' emotional involvement and learning outcomes. Changes in emotional development and academic achievement may take longer to emerge fully, meaning that studies may not capture these long-term effects.

3. Cultural and Area-Specific Limitations

The fact that the study was conducted in the specific cultural and educational context of Dezhou City means that regional cultural and educational system characteristics may influence its findings. This regional specificity limits the extrapolation of the study's findings, making them potentially inapplicable to settings with different cultural and educational contexts.

1.5 Conceptual Framework

Based on the empirical investigation of Yuehua School in Dezhou City, Shandong Province, and data collection based on questionnaires and interviews, this study focuses on the emotional involvement in middle school students' learning. It explores the effects of differences in teaching methods on middle school student's involvement in learning, starting from the various steps of cooperative learning teaching methods. Among them, cooperative learning was categorized into five dimensions: assessment, interpersonal skills, interaction, group reflection, and counseling. According to Guo (2018), students' emotional involvement is divided into two dimensions: extrinsic emotional involvement (satisfaction with school, sense of belonging to school, and identification with teachers) and intrinsic emotional involvement (confidence in learning, interest in learning, and value of learning). For the test section, this study proposed four areas of evaluation: Compositional Skills, Use of Color, Realistic Technique Expression, and Innovation and Individuality. The research framework of this paper is shown in Figure 1.

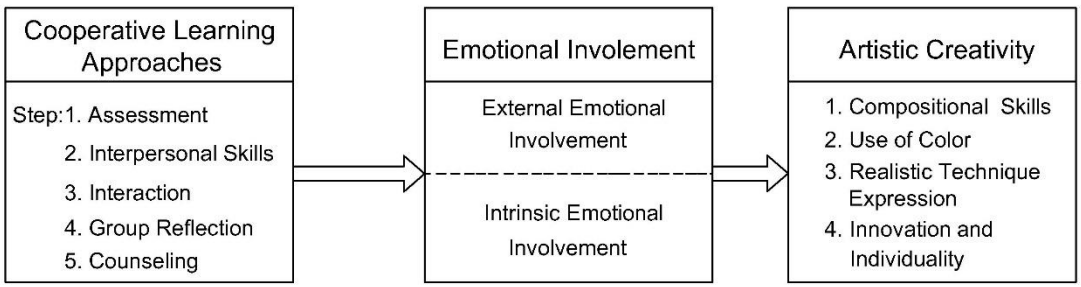

Figure 1 Research Framework

1.6 Definition of Key Terms

1.6.1 Secondary Education

This refers to more practically oriented education adapted to specific occupations. According to the International Standard Classification of Education (ISCED), revised by UNESCO in 1997, vocational education mainly refers to "education that is more practically oriented and adapted to specific occupations, with the main purpose of enabling students to acquire the practical skills and knowledge needed to engage in a particular occupation, trade or type of occupation or trade". According to the International Standard Classification of Education (ISCED) revised by UNESCO in 1997, vocational education is "more practically oriented and adapted to specific occupations, with the primary purpose of enabling students to acquire the practical skills and knowledge required for a particular occupation, trade or class of occupations and trades. Vocational education arises from the demand for large-scale industrial production for large quantities of specialized skilled personnel. It closely relates to several subjects, such as the government, schools, students, enterprises, and industries. In contrast, secondary vocational education mainly targets the upper secondary education stage. In some cases, it also involves subsequent vocational training. Through this form of education, secondary vocational education can cultivate more active and beneficial skilled talents and high-quality laborers to develop China's socialist market economy.

"Secondary Vocational Students" refers to students who receive secondary vocational education. After years of development, secondary vocational education has become important to China's education. The main body of students receiving secondary vocational education are those fully receiving nine years of compulsory education. The school system of secondary vocational education is three years in total. Students in vocational schools not only have to learn high school cultural knowledge but also have to learn skills that match the specialty they are studying. The education department approves secondary vocational schools, which are full-time vocational schools, and students graduate with a secondary vocational degree. According to the Ministry of Education's statistics classification, secondary vocational education schools are divided into general junior colleges, adult junior colleges, vocational high schools, technical

schools, and other secondary vocational institutions. In the current development, the barriers between general junior colleges and vocational high schools have been eliminated. Secondary vocational students are young people who specialize in secondary vocational education in secondary vocational schools, are engaged in learning activities, and have bodies and minds that are yet to be further developed and perfected.

1.6.2 Teaching Methods

Refers to various strategies, techniques, and activities teachers use in the teaching and learning process designed to impart knowledge and promote student learning and development effectively. These methods may include lectures, demonstrations, discussions, experiments, case studies, role-plays, games, and other forms, and are usually selected and applied according to different subjects, student characteristics, and teaching objectives. The selection and application of teaching methods have an important impact on teaching effectiveness and student learning outcomes, so teachers must flexibly utilize various methods according to the actual situation to achieve the best teaching results.

1.6.3 Cooperative Learning

This refers to an instructional methodology designed to promote learning by having students work together in groups or teams to accomplish tasks, solve problems, or reach common goals. In cooperative learning, students collaborate, communicate, and share knowledge to enhance learning outcomes through mutual help and support. This teaching method emphasizes student interaction and cooperation, which helps develop teamwork, communication, problem-solving, and critical thinking skills. Through cooperative learning, students can progress academically and develop social skills and self-management abilities, laying a good foundation for their future learning and career development.

1.6.4 Learning Emotional Involvement

It refers to the cognitive, emotional, and behavioral efforts and inputs in the classroom and other learning activities. First introduced in the 20th century, this concept has two core characteristics: first, the degree of time and effort students put into learning and other activities, and second, how schools allocate resources, organize the curriculum, and provide other learning opportunities and services, which in turn

deepen students' involvement in learning and contribute to desired educational outputs. This includes concentration, motivation, and deep involvement in learning tasks. Learning involvement is not only about the use of time and energy but also about the degree of individual self-involvement in learning and the active pursuit of knowledge, which affects the effectiveness and outcomes of learning.

1.6.5 Emotional Input to Learning

This refers to the range of emotions students give to their learning and covers a wide range of feelings, motivations, and attitudes. Emotional involvement in learning, as a subcomponent of learning involvement, is an important aspect of the learning process that students participate in and experience. Interest is the cornerstone of practical involvement in learning, while motivation is an integral part of practical involvement in learning. Students' motivation can be categorized into intrinsic and extrinsic motivation. Intrinsic motivation involves a love of knowledge and a desire to explore, while extrinsic motivation may involve external rewards or avoidance of punishment. In addition, students' emotional attitudes are critical, including their emotional responses to learning tasks, such as liking, disliking, optimism, and pessimism. Concentration is another crucial aspect of emotional involvement in learning; students' concentration reflects how well they focus on the learning task.

Emotional management is also a key competency in learning emotional involvement. Students need to learn to deal effectively with frustration and stress in the learning process and maintain a positive emotional state. Students with strong emotional management skills can better adapt to learning challenges and maintain confidence in their studies, thus coping better with the various pressures of school and life. In summary, emotional involvement in learning is not only about students' interest and motivation in knowledge but also reflected in their emotional attitudes, concentration, and emotional management ability. Emotional involvement positively impacts students' individual development, helps create a positive learning atmosphere, and improves the overall quality of school education.

1.6.6 Artists Creativity

"Artists Creativity" refers to the innovation and unique artistic expression artists demonstrate during creation. This creativity is manifested not only in the form

and content of the works but also in breakthroughs and innovations in techniques, materials, concepts, and methods of expression.

1.7 Benefit of The Study

This study provides important insights into applying cooperative learning methods in the art program of secondary vocational schools in Dezhou City and its impact on students' emotional involvement, which brings important implications for educational practice. First, the findings can help teachers identify and implement cooperative learning strategies that maximize students' emotional involvement. In highly creative and expressive art education, emotional involvement is essential to stimulate students' creativity and enhance their artistic skills. With the insights provided by this study, teachers can design lessons and activities more responsive to students' emotional needs, thereby creating a learning environment that encourages exploration, innovation, and individual expression. This not only enhances students' learning experience but also promotes the overall development of their skills.

In addition, the findings of this study regarding the relationship between student's emotional involvement and learning outcomes and creativity provide valuable information to help educational policymakers and curriculum designers better understand the importance of emotion in the educational process. Recognizing that emotional involvement not only affects students' immediate motivation and involvement but also has a profound impact on their long-term academic achievement and creativity can motivate the educational system to pay more attention to the cultivation and support of emotional factors in strategy development and resource allocation. Therefore, the findings of this study not only guide the improvement of the quality of art education but also provide a scientific basis for promoting students' whole-person development and adapting to the diverse needs of future society.

CHAPTER II
LITERATURE REVIEW

2.1 Related Theories

2.1.1 Constructivist Theory

Constructivism is a critical learning theory widely used in education and teaching practice (Arık & Yılmaz, 2020). Constructivist learning theory believes that knowledge is not acquired by teachers but by learners in a particular social and cultural context, with the help of others, through the acquisition of meaning construction. Learning is a process of active meaning construction and social interaction.

First of all, constructivist theory emphasizes the subjective position of students. Constructivism believes that in knowledge acquisition, students are not passive receivers but active agents of knowledge construction, which others cannot replace. Therefore, students should be allowed to change from passive to active through communication and cooperation with others, based on the original knowledge and experience, new knowledge processing, to "grow" new knowledge and experience. Secondly, the teacher is not simply transferring knowledge to students in knowledge construction. Teachers should abandon direct knowledge output in teaching, create a collaborative and interactive classroom atmosphere for students' information acquisition, stimulate students' motivation, mobilize students' enthusiasm, let students actively participate in learning activities, and, through communication and discussion with peers, assimilate and adapt to what they have learned, to achieve qualitative changes in cognitive structure and improvement of learning ability. In addition, in the teaching process, constructivism opposes the one-sided emphasis on results and advocates that teachers pay more attention to the process of students' knowledge acquisition. The doctrine of constructivism has made a new interpretation of learning and teaching, which is significant for reforming traditional teaching modes.

Cooperative learning takes students as the main body and group cooperation as the form of expression. The learning theory of constructivism provides a theoretical basis for cooperative learning. Constructivism emphasizes the student's subject position in the classroom and the importance of human communication and

cooperation for knowledge learning; that is, it emphasizes the necessity of cooperative learning in the art classroom.

2.1.2 Social Interdependence Theory

Social interdependence theory, or group dynamics theory, is a central theory in social psychology that emphasizes interdependence among individuals as a source of motivation for changes in group behavior. The theory originated in the Gestalt school of psychology in the early 1900s. Koffka proposed it, further developed and enriched by Lewin in the 1930s. Lewin proposed that cooperative learning is based on social interdependence theory, emphasizing that social interdependence develops when people share a common goal. Individuals depend on others for their success. He further asserts that the essence of a group lies in the interdependence formed by individuals based on the group's goals, making the group a dynamic whole. Not only does the outcome of an individual's behavior affect other members, but appropriate group pressure helps to push the group toward a common goal (Hananingsih & Priyana, 2020).

According to social interdependence theory, cooperative learning is most effective in situations where students realize that they have similar goals and that the goals of individual members are positively dependent on the group's behavior. This positive interdependence enhances facilitative interactions that include mutual encouragement and assistance, feedback, and challenging each other's conclusions and reasoning among students to explore problems more deeply from different perspectives. Such facilitative interactions will increase academic achievement (Vu et al., 2021).

Conversely, negative interdependence exists when the efforts of others are not conducive to individual learning outcomes, such as in highly competitive learning environments. Cooperative learning aims to construct student interactions that enhance positive interdependence and promote interaction, where positive interdependence implies that group members recognize that the collective efforts of the group are essential for individuals to achieve their goals (Herrmann, 2013).

Vu (2021) argued that although rewards and goal interdependence are usually more effective in enhancing achievement than goal interdependence alone, goal interdependence and social motivation are sufficient to produce higher achievement. This emphasizes that positive interdependencies and constructive interactions should

be promoted when designing cooperative learning activities to stimulate mutual support and growth among students.

2.1.3 Learning Involvement Theory

This paper focuses on applying the learning involvement theory. In 1991, based on the foundation of past scholars' research, George Coon, an American professor, proposed the learning involvement theory. George Coon proposed learning involvement as the intersection of student behavior and institutional behavior, which is the core concept of the theory (Jung & Lee, 2018). Therefore, the theory consists of two main aspects, one of which includes individual student involvement and the other is the school environment. Individual student participation refers to students' time and effort on educational activities inside and outside the classroom, such as consulting relevant materials to acquire new knowledge and communicating with teachers or classmates about their problems. School environment development includes school inputs and school environment. The theory emphasizes that the more time and energy students invest in the classroom and outside the classroom, the better their learning results and the more room for development they can get; the more the school invests in learning, the more resources it provides for students to learn, the more time and energy students will invest in their learning, and the more effective their learning will be. Wong designed a questionnaire on the investment in learning to facilitate the measurement of the investment in learning in college students by the universities. Wong also designed a survey questionnaire to measure college students' commitment to learning, and the research data obtained through the survey provided adequate support for the theoretical study of commitment to learning (Wong, 2022).

In addition, George Kuh recognizes that student involvement in learning refers to the amount of time and effort students spend on practical learning activities and how they respond to the support provided by the university. Generally speaking, students' involvement in learning is the primary manifestation of the schooling experience, which is divided into learning behaviors and institutional conditions, of which the former mainly includes learning habits and motivation, the amount of energy and time spent on learning, and the interaction with other students and teachers; and the institutional conditions include the learning resources provided by the school as well as

the learning opportunities given by the school, such as campus programs, activities, environment, and resources, and so on.

2.2 Related Studies

2.2.1 Related Research on Cooperative Learning

Cooperative learning has been widely studied and applied worldwide as an educational model. Its origin can be traced back to England in the late 18th century when Lancaster and Bell first proposed and practiced the teaching method of common learning groups. Over time, especially in the 20th century, cooperative learning was developed and popularized in the United States. Around 1965, Johnson and his colleagues began training educators in the pedagogical model of co-learning and applying it in their practice, leading to the creation of co-learning centers. This approach to education has had a tremendous impact on education, contributing to the flourishing of educational theory and the development of an innovative and creative teaching philosophy.

The theoretical foundation of cooperative learning has benefited from the contributions of several psychologists and educational theorists. Koffka's Social Interdependence Theory, Lewin's Group Dynamics Theory, and Vygotsky's Zone of Nearest Development Theory provide a solid theoretical foundation for cooperative learning. Together, these theories emphasize the interdependence of individuals in the learning process and the importance of reaching common goals through cooperation.

In cooperative learning, Slavin (1980) emphasized six characteristics: group goals, individual responsibility, equal opportunity for success, intergroup competition, task specialization, and meeting individual needs. These characteristics emphasize the importance of mutual learning motivation and the need for collective rewards to maintain motivation through cooperation. In addition, the importance of communication in cooperative learning cannot be overstated, requiring teachers to use dialogic teaching flexibly according to the teaching objectives and the actual situation, focusing on the principles of collectivity, reciprocity, helpfulness, accumulation, and purposefulness.

With the continuous development of cooperative learning theory, various distinctive cooperative learning methods have been proposed and applied in practice. For example, Sharan's group investigation method, the co-learning teaching method summarized by (Vu et al., 2021), Aronson's jigsaw classroom method, and the group game competition method created by Stevens et al. all provide rich methods and strategies for the practice of cooperative learning. In recent years, research on cooperative learning has not only deepened the understanding of its effectiveness but also pointed out the problems and challenges in practice. For example, scholars such as Harianingsih and Jusoh (2022) have critically analyzed the impact of cooperative learning on students' English performance and pointed out the problems of teachers' lack of control over group activities, while Karmina (2021) have explored the strategies and effects of implementing cooperative learning in different contexts, emphasizing the importance of teachers' attention and adjustments in the teaching process.

Cooperative learning has been thoroughly explored and developed in theory as a teaching mode, demonstrating its unique value and challenges in practice. Through continuous research and application, cooperative learning is expected to provide students with more effective and enriched learning experiences.

Collaborative Learning Related Measurement Factors Selection:

1) Assessment

In education, "assessment" usually refers to a set of methods and tools used to measure, collect, and analyze student performance and outcomes in the learning process (Kadri & Amziane, 2021). Traditional assessment is defined as single-occasion and timed exercises through which student performance is measured. It is primarily designed to grade students' performance and recognize their learning (Andrade & Cizek, 2010). However, in recent years, an increasing number of scholars have shifted the focus of "assessment" from a single type of assessment to a more authentic and multidimensional type of assessment, which includes the evaluation of students' knowledge, skills, attitudes, and values to improve the quality of education, guide student learning, and make instructional decisions (Schoor et al., 2015). These forms of assessment, which link classroom instruction to learners' real-world experiences, are formative and constructive because they motivate and engage students in the

assessment process through their ability to motivate and engage them in learning (Panadero & Alonso-Tapia, 2013)

In a collaborative learning environment, "assessment" was chosen as an important dimension to measure because the assessment process is a profound reflection of students' learning experiences, cognitive attitudes, and perceptions of the effectiveness of collaborative learning. "Assessment reveals not only students' knowledge but also their attitudes and values about the learning process (Lubbe, 2020). This includes students' perceptions of the fairness of the assessment system (Ion et al., 2023), their perceptions of the effectiveness of individual effort and teamwork (Strom & Wang, 2024; Liu, 2021), and their belief that they are getting the grades they deserve (Yan & Carless, 2021).

The Collaborative Learning Application Scale (CLAS), developed by scholars such as Atxurra (2015), provides a concrete framework and tool for assessing and optimizing the implementation of collaborative learning. The CLAS scale helps teachers and researchers assess the effectiveness of a collaborative learning environment by measuring key elements of the collaborative learning environment, such as the level of student involvement, the quality of the interactions, and the assessment's fairness; it helps teachers and researchers understand the application of cooperative learning strategies and provides a basis for improving and adapting instructional practices. Particularly on the assessment dimension, the CLAS scale emphasizes the importance of assessment, including ensuring that assessment methods fairly and accurately reflect the contributions and learning outcomes of each student and the role of the assessment process in promoting active student participation and individual responsibility. Therefore, the choice of "assessment" as a measurement dimension of cooperative learning variables is related to the quantification of academic achievement and, more importantly, to students' motivation, attitudes, and the overall effectiveness of cooperative learning. A fair and comprehensive assessment mechanism can stimulate students' motivation and enhance the spirit of teamwork, thus improving the effectiveness of cooperative learning. By applying CLAS scales, teachers and researchers can more precisely understand and improve assessment methods in cooperative learning to ensure they can effectively support students' learning and development.

2) Interpersonal Skills

In education and psychology, "interpersonal competence" is often called an individual's ability to communicate and interact effectively with others in social situations (McConnell, 2018; Han & Son, 2020). This encompasses a range of skills, such as listening, expressing, resolving conflict, respecting differences, and building and maintaining positive relationships in diverse social environments (Klinkosz et al., 2021). Interpersonal skills are fundamental in the context of cooperative learning because they have a direct impact on student's ability to communicate ideas in group work effectively (Skinner et al., 2016), solve problems together (Ghavifekr, 2020), and establish a mutually supportive learning environment (Lau et al., 2013).

The reason for choosing "interpersonal skills" as a key indicator of the effectiveness of cooperative learning is that this dimension reflects the fact that cooperative learning is not only about the accumulation of knowledge and skills but also about the development of social skills and personal qualities through group interactions (Ghavifekr, 2020), development and the shaping of personal qualities (Mendo-Lázaro et al., 2018). Through cooperative learning, students can practice and enhance these skills in authentic social situations, such as learning to listen to different points of view, express their ideas, find consensus in differences, and reflect personal values in cooperation. These skills have long-term significance for students' future career development and social adaptation. Therefore, incorporating "interpersonal skills" into the assessment system of cooperative learning can provide a more comprehensive evaluation standard for educational practice and emphasize the importance of personal growth and social skills development in the learning process.

3) Interaction

Based on the social perspective, the essence of interaction is the socialization pattern between individuals through the exchange of information. It refers to the communication patterns between teaching participants, students and students, and students and teachers (Tian, 2018). This paper combines the actual situation of third-grade art majors in secondary vocational schools in Dezhou City, Shandong Province, and chooses the measurement dimension of group interaction as an important aspect of cooperative learning research, mainly because "group interaction" profoundly reflects the practical value and educational goals of cooperative learning theory. Under the

guidance of cooperative education theory (Tian, 2018) and constructivism theory, interactive teaching activities aim to cultivate students' independent learning ability and emphasize information exchange and interaction between individuals in the learning process (Ma, 2011). Through group interaction, students are not only able to promote each other in knowledge acquisition, but more importantly, they can develop their critical thinking skills (Warsah et al., 2021), exploratory skills, collaborative skills, and creativity in a comprehensive way (Ramdani & Susilo, 2022). In this mode of teaching, students become the main body of learning in the classroom, and all aspects of teaching and learning need to be centered on students' needs and development.

However, the challenges faced in implementing group interactive teaching should not be ignored. For example, scholars such as Buchs (2017) have raised questions about ensuring that every student can participate effectively in a group in cooperative learning and how teachers can transfer more ownership to students while ensuring the quality of teaching and learning. These queries point to the need for further exploration and validation of the effectiveness and applicability of group interactive teaching. Therefore, selecting group interaction measurement dimensions can help assess and enhance the effectiveness of teaching activities and provide important feedback for educational practices to promote the continuous optimization and innovation of teaching methods.

4) Group Reflection

"Group reflection" is a process in which collaborative learning participants review and evaluate their teamwork experiences, work styles, problem-solving strategies, and learning outcomes (Jeppu et al., 2023). This reflection includes in-depth thinking about interactions within the group, individual contributions, challenges encountered, and team effectiveness (Subasman, 2024). Through group reflection, members can identify strengths and weaknesses in the collaboration to develop improvement strategies to increase the effectiveness and efficiency of future collaborations.

Group reflection was chosen as a key indicator of the effectiveness of cooperative learning because it is directly related to the quality of the learning process and the depth of teamwork (Radović et al., 2023; Ramachandran et al., 2024). Group reflection promotes students' self-evaluation and team evaluation and helps them learn

by doing and continuously improve their collaboration skills. This process helps improve students' critical thinking and problem-solving skills and reinforces teamwork and personal responsibility. More importantly, group reflection encourages students to actively participate in learning and optimize teamwork and learning strategies through self- and collective reflection. Therefore, incorporating "group reflection" into the assessment system of cooperative learning not only provides important information about students' learning effectiveness but also promotes students' personal growth and the development of teamwork skills.

5) Tutoring

"Mentoring" in an educational context, especially in cooperative learning, refers to the guidance, support, and feedback teachers provide to groups of students during the learning process (Loh & Ang, 2020). This includes helping students set learning goals, solving problems encountered during the collaborative process, providing necessary resources, and evaluating student learning outcomes (Iraola & Romero, 2024). Namaziandost (2020), in a study on the impact of collaborative learning, stated that the purpose of tutoring in collaborative learning is to promote students' cognitive development, social skills, and problem-solving. The purpose of tutoring in cooperative learning is to promote students' cognitive development, social skills, and problem-solving abilities, which in turn enhances learning and group work.

Tutoring was chosen as an indicator of the effectiveness of cooperative learning because it reflects the active role of the teacher in the learning process and the student's response to this support (Abramczyk & Jurkowski, 2020). Assessing the quality and frequency of tutoring provided by teachers provides insight into how teachers promote collaborative learning among students through a variety of strategies (Karmina et al., 2021), including how they encourage positive interactions among students, provide timely feedback to improve learning outcomes, and how they help students overcome learning challenges through mentoring (Muñoz-Martínez et al., 2020). In addition, teacher tutoring stimulates students' intrinsic motivation (Liu & Lipowski, 2021). It enhances their sense of involvement and belonging (Bećirović et al., 2022), which is essential for constructing positive learning environments and fostering students' holistic development. Thus, tutoring as a measure not only evaluates

the structure and process of cooperative learning but also reflects the effectiveness of educational practices in promoting active learning and students' personal growth.

2.2.2 Related Research on Learning Involvement

As an important indicator of students' involvement and commitment to the educational process, learning input has gradually become the focus of research in education, educational psychology, and occupational health psychology in recent years. Learning involvement covers the time and energy students spend on learning activities and includes students' psychological and emotional commitment to learning. Initial studies focused on the relationship between the time students devote to learning and knowledge acquisition, and it was believed that the time commitment is directly proportional to the learning effectiveness. However, as research progressed, scholars realized that it was not enough to focus on time investment alone and that learning investment should include deeper behavioral, emotional, and cognitive investment.

In the 1930s, psychologists and educators began to explore the concept of learning input. Taylor proposed the concept of "time-task" by investigating the learning situation of college students, emphasizing that in addition to the time spent on learning, the investment of students' energy is also an important part of learning commitment. Subsequently, Astin's (1979) theory of "learning involvement" further expanded the definition of learning commitment, proposing that learning involvement is the sum of students' psychological and physical commitment to learning activities. Three dimensions of vigor, dedication, and concentration reflect the joyous and fulfilling psychological states associated with learning.

Subsequent studies have further enriched the meaning of learning involvement, and (Fredricks et al., 2004) subdivided learning involvement into behavioral, emotional, and cognitive involvement, where behavioral involvement refers to the degree of an individual's active participation in school activities, emotional involvement focuses on students' emotional experiences in learning and interpersonal relationships, and cognitive involvement involves the learning strategies and psychological resources that students employ in the learning process. and psychological resources. This definition is widely accepted and has provided an important theoretical foundation for subsequent research on involvement in learning.

The relationship between learning inputs and academic achievement has also been the focus of research. Research has shown a significant positive correlation between cognitive input, behavioral input, and academic achievement. Aspects of learning inputs in online learning environments likewise significantly impact academic performance. These findings emphasize the importance of improving students' learning involvement in educational practices to promote students' academic achievement and personal development.

Scholars have developed a series of scales to accurately measure learning involvement, such as the Classroom Learning Involvement Scale developed by Fredricks and the Undergraduate Work Involvement Scale (UWES-S) proposed by Schaufeli et al. These scales assess students' involvement in learning from different dimensions and provide educators with important tools to evaluate and enhance students' involvement in the learning process. Thus, research on learning involvement deepens our understanding of students' learning behaviors and psychological states and provides important guidance for improving the quality of education and promoting students' overall development.

Although existing studies have provided methods for quantifying student involvement through tools such as the Classroom Learning Involvement Scale (CLES), there are still limitations in providing a deeper understanding of individual differences and complex contexts. Future research needs to adopt more diverse methods, such as qualitative and mixed methods, to explore the impact of emerging educational technologies on learning involvement and to design educational environments that support students' personalized learning to understand and promote learning involvement fully.

2.2.3 Research Related to Learning Emotional Involvement

In the research field of exploring students' emotional input, scholars at home and abroad have deeply analyzed the factors and dimensions of emotional input through different perspectives and methods. Appleton (2006) classified emotional input into three main dimensions, namely, identity, sense of belonging, teacher-student relationship, and peer relationship, from the perspective of psychological input and verified the credibility of the three factors through empirical research. However, such studies tend to ignore the influence of internal factors on emotional involvement, such

as the quality of students' learning and habits. On the other hand, the self-assessment scale of emotional involvement developed by Connel and Wellborn (1991) explored the influence of emotion on learning outcomes from the perspectives of both negative and positive emotions. Although this structural division method is unique, it does not fully consider the proactive nature of students' emotional involvement. Skinner and Belmont (1993) concluded that the school social environment has an important influence on students' emotional involvement, which mainly includes the two elements of peer belonging and teacher-student relationship, while Goodenow unified these two elements under the concept of school belonging, emphasizing the decisive role of belonging in emotional involvement.

On the other hand, Guo and Liu's (2016) study, based on a broad framework of learning involvement, proposed that emotional involvement includes both internal and external dimensions, where the external dimension is further subdivided into the school and the classroom levels. Through factor analysis, they proposed that emotional involvement in English learning consists of six sub-factors: self-confidence and interest in learning initiative. This division is particularly suitable for analyzing Chinese students' English learning contexts. These studies suggest that emotional involvement is a multidimensional construct that includes students' emotional connection to the learning content as well as students' emotional interactions with teachers, peers, and even the entire school environment. Thus, research on emotional involvement reveals the importance of complex emotional experiences and social interactions in student learning. Although existing studies have provided us with wealthy theoretical foundations and empirical results, there is a need to explore further the internal dynamics of emotional involvement and its specific manifestations in different disciplinary and cultural contexts. By deepening the understanding of emotional involvement, theoretical support can be provided for designing more inclusive and motivating learning environments that promote students' holistic development and academic achievement.

Learning about the selection of factors associated with emotional involvement:

Extrinsic Emotional Involvement

1) Satisfaction with school

"Satisfaction with school" refers to students' overall satisfaction with their school's educational resources, teaching and learning environment, extracurricular activities, and teaching and learning equipment (Vidić, 2021). This concept reflects the extent to which students recognize the school's support and conditions for learning, including the importance the school places on specific subjects, such as fine arts, and the extent to which the school successfully creates an environment conducive to student learning and development.

Satisfaction with school was chosen as an important indicator of emotional involvement in learning because it directly affects students' attitudes, motivation, and learning behaviors, as Li (2023) noted. He stated that when students are satisfied with the art education resources and support in their schools, they are more likely to demonstrate higher levels of emotional involvement and actively participate in learning activities, promoting improved learning outcomes. In addition, Kanwar and Sanjeeva (2022), in their study of student-based satisfaction surveys, noted that student satisfaction is important feedback for schools to assess and improve the quality of education. It can help schools identify and address problems and create more positive and supportive learning environments. Therefore, by measuring students' "satisfaction with school", it is possible to gain a more comprehensive understanding of the degree of students' emotional involvement in learning and the effectiveness of schools in meeting students' learning needs.

2) Sense of belonging to school

"Belonging to school" is defined as the degree to which students feel connected to the school community, including the emotional experience of feeling accepted, valued, and supported within the school (Ahn & Davis, 2023). This sense of belonging is reflected in students' identification with the school environment, participation in class and school activities, and positive relationships with teachers and students (Ibrahim & El Zaatari, 2020). Belonging is not only about the location of the individual in the physical space but also about inclusion and identification on an emotional and social level.

Sense of belonging to school was chosen as an important indicator of emotional involvement in learning because it directly impacts students' emotional states, motivation, and academic performance. Students who feel a sense of belonging and

acceptance at school are likelier to actively engage in learning activities and show higher academic involvement (Allen et al., 2021). In addition, a strong sense of belonging reduces students' anxiety and isolation and enhances their self-esteem and self-efficacy, promoting their emotional well-being and social adjustment. Therefore, understanding students' sense of belonging can provide schools with important information to help them create more inclusive and supportive learning environments that promote students' holistic development and academic success.

3) Identification with teachers

"Identification with teachers" refers to how students positively evaluate and internally accept their teachers regarding their personal qualities, pedagogical competence, emotional support, and professional image (Esteban & del Cerro, 2020). This concept involves not only students' recognition of their teachers' professional competence but also the strength of the emotional connection between teachers and students and the teacher's image and status in the students' minds. The strength of identification directly impacts students' acceptance of the content, their motivation to learn, and their emotional experience during the learning process.

The reason for choosing "identification with teachers" as an indicator of "emotional involvement in learning" is that teachers, as key players in the learning process, have a significant impact on students' emotional involvement through the positive relationships they establish with students, the psychological support they provide, and the professional competence and image they display students' emotional involvement (Jia et al., 2020). When students develop a high level of identification with their teachers, they are more likely to demonstrate higher levels of motivation and involvement because they feel supported, respected, and confident in their learning. In addition, a high level of identification enhances students' sense of belonging and promotes active participation in the learning process (Tao et al., 2022). Therefore, by measuring students' "identification with the teacher", the level of students' emotional involvement can be effectively assessed, providing an important basis for improving the quality of teaching and promoting the overall development of students.

Intrinsic Emotional Involvement

1) Confidence in learning

"Learning confidence is defined as a student's belief in his or her ability to complete learning tasks and master learning materials (Oktafiani & Yusri, 2021). This concept is closely related to self-efficacy and emphasizes an individual's assessment of his or her learning ability and confidence level when facing learning challenges. Manipol et al. (2024) and other scholars have pointed out in their studies that confidence in learning influences students' goal-setting, choice of learning strategies, and persistence in the face of difficulties, and it is an important driver of students' motivation and behavior.

The reason for choosing "confidence in learning" as a measure of "emotional involvement in learning" is that confidence in learning is directly related to students' attitudes, involvement, and, ultimately, learning outcomes. For example, Sadeghi and Ganji (2020) found in their study of students' self-efficacy and confidence in learning in cooperative learning that when students are confident in their ability to learn, they are more likely to participate in learning activities actively, adopt effective learning strategies and maintain perseverance and hard work in the face of learning challenges, which are important manifestations of emotional involvement. In addition, Almasri (2022) also pointed out that a high level of learning confidence promotes a more profound understanding and long-term retention of learning content and enhances students' satisfaction and sense of achievement in learning. Therefore, assessing students' learning confidence can provide educators with important information to help them design more effective teaching strategies to enhance students' learning outcomes and levels of emotional involvement.

2) Interest in learning

"Interest in learning" is defined as students' natural inclination and positive feelings towards learning a particular subject or topic, which reflects their intrinsic motivation to explore knowledge without external rewards or pressures. Interest in learning involves curiosity, a desire to explore, and a willingness to invest time and energy in an in-depth study of a particular area. This interest can range from a broad curiosity about the subject matter to a deep concern for a particular topic or skill.

The reason for choosing "interest in learning" as a measure of "emotional involvement in learning" is that interest in learning is a key factor in motivating students to participate actively in the learning process and enhancing the persistence and depth

of learning. Interest-driven learning is more likely to promote cognitive involvement, stimulate creative thinking, and increase learning efficiency. In addition, students' interest in learning can significantly affect their learning attitudes and academic performance because interest can stimulate their enthusiasm for exploring the unknown and solving problems, making the learning process enjoyable rather than burdensome. Therefore, understanding students' interest in learning is important for designing teaching content, methods, and activities that meet students' needs and promoting students' all-round development.

3) The value of art learning

The "value of learning" is students' awareness and evaluation of the importance, benefits, and significance of learning a particular subject or content. This concept relates to how students perceive the contribution of learning activities to their personal development, the achievement of future goals, and the fulfillment of their interests. The value of learning reflects not only the expected value of learning outcomes but also the perceived value of the learning process itself, such as learning as an important means of self-enrichment, skill enhancement, or the realization of personal potential.

The reason for choosing "value of learning" as an indicator of "emotional involvement in learning" is that the value of learning directly impacts students' motivation, involvement, and persistence in learning. When students recognize the value of learning a particular subject, they are more likely to feel optimistic about the learning process, put more effort into it, and demonstrate higher learning efficiency and deeper involvement. In addition, a high level of awareness of the value of learning helps students remain resilient when encountering learning difficulties, as they can see the long-term benefits of learning beyond the immediate challenges. Therefore, by assessing students' perceptions of the value of learning, educators can better understand students' learning needs and expectations and design teaching strategies that align with students' values, thereby improving teaching effectiveness and the overall learning experience for students.

2.2.4 Related Research on Artistic Creativity

Artistic creativity is a multifaceted subject extensively studied across multiple disciplines, including psychology, art history, and education. This section

reviews and analyzes the research conducted by various scholars in this field to lay the theoretical foundation for this study. One prominent theoretical framework is the "Geneplore model" proposed by Finke et al. (1992), which divides the creative process into two main phases: generation and exploration. During the generation phase, individuals produce preliminary structures or concepts, refined and expanded during the exploration phase. This model emphasizes creativity's dynamic and iterative nature, highlighting the importance of divergent and convergent thinking (Shimizu & Okada, 2021).

From a psychological perspective, Csikszentmihalyi's (1990) concept of "flow" is crucial in understanding artistic creativity. Flow refers to deep immersion and engagement in an activity where individuals experience heightened focus and enjoyment. Artists frequently report this state during the creative process, indicating that optimal creative performance is closely related to intrinsic motivation and flow experience (Abuhamdeh, 2021).

Additionally, educational research has explored methods to cultivate students' artistic creativity (Siya, 2023). Cremin and Chappell (2021) argue that creative teaching strategies such as open-ended projects and collaborative learning can significantly enhance students' creative abilities. These methods encourage experimentation, risk-taking, and the development of personal artistic styles. Furthermore, cultural and social factors play a significant role in shaping artistic creativity. Gao (2023) emphasizes that the goal of art education in universities is to cultivate students' innovative abilities, enhancing their artistic personality, aesthetic abilities, and correct values to provide high-quality talent for society.

Similarly, Li (2021) asserts that art education should focus on improving students' aesthetic qualities and creative abilities. Cultivating students' artistic creativity requires various teaching strategies and methods, including open-ended projects, collaborative learning, encouraging experimentation and risk-taking, and optimizing teaching environments and resources. These multifaceted insights collectively provide a comprehensive understanding of the factors that nurture and influence artistic creativity.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Research Design

This research adopts a quantitative approach to address objectives 1, 2, and 3. Therefore, this research utilizes tests (lesson plans) and questionnaires to investigate whether Cooperative Learning will impact students' Learning Emotional Involvement. Participants were selected from third-year students from the Art Department of Dezhou Yuehua Secondary Vocational School in Shandong Province.

3.2 Research Population and Samples

Part 1. Objective 1

To analyze the impact of the cooperative learning method on students' emotional involvement.

Population

The population was 1,400 students who study art majors at Yuehua Secondary Vocational in DeZhou City.

Samples

The data sample for this study was selected according to Krejcie and Morgan (1970). In empirical research, the need for a representative statistical sample was increasing. Hence, an efficient method was needed to determine the sample size. To address this problem, Krejcie Morgan (1970) proposed a table for determining sample size for a given population for easy reference (See Table 3.1).

1. Art major

2. The population for this study consists of 1,400 third-year students majoring in art at Yuehua Secondary Vocational School in Dezhou City.

3. This study focused on these 1,400 students across 28 classes. The classes are categorized into three types: Classes 1-5 are elite classes, Classes 6-15 are experimental classes, and Classes 16-28 are regular classes. Each class has between 25

and 65 students. A simple random sampling method was employed to select participants.

- Among the 5 elite classes, the researcher used a simple random sampling method by drawing the number of classes. As a result, Class no. 2, which has 60 students, and Class no. 4, which has 58 students, were selected as participants.

- From the 10 experimental classes, the researcher used a simple random sampling method by drawing the number of classes. As a result, Class No. 7, which has 54 students; Class No. 10, which has 52 students; Class No. 12, which has 55 students; and Class No. 14, which has 53 students, were selected as participants.

- From the 13 regular classes, the researcher used a simple random sampling method by drawing the number of classes. As a result, Class No. 17 has 48 students; Class No. 21 has 50 students, and Class No. 24 has 54 students. Class no. 27, which has 53 students, were selected as participants.

Sampling Methods

According to the sample size determination table, the following data sets were selected for this study. A total of 302 third-year art majors from different class types at Yuehua Secondary Vocational School in Dezhou City participated in the questionnaire survey.

The Krejcie and Morgan (1970) table was used to determine the appropriate sample size for the questionnaire survey. (Based on this formula, the calculated sample size for 1,400 individuals is 302.

Table 3.1 Krejcie and Morgan Table

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.
Source: Krejcie & Morgan, 1970

Part 2. Objectives 2 and 3

To explore the students' emotional involvement, which affects their learning outcomes by more than 70%.

Population

This study focuses on 1,400 third-grade students majoring in art in secondary, 28 classes. Grade three has 25-65 students in each class from 3/1-3/28.

Sample Group

A simple random sampling method was employed to select participants. This study selected 25 students from Class 7, third-year art majors at Yuehua Secondary Vocational School in Dezhou City, to participate in cooperative learning lesson plans and course testing.

Sampling Methods

Selecting the 25 students for cooperative learning lesson plans and course testing.

3.3 Data Collection

The information-gathering tool is the designed questionnaire, lesson plan, and test.

Part 1. For Objective 1: Questionnaire

A questionnaire is a research instrument consisting of a series of questions designed to gather information from respondents. Questionnaires can be conducted face-to-face, over the phone, by computer, or by post. Questionnaires are a relatively cheap, quick, and efficient way of obtaining much information from a large sample. Data collection is relatively quick as the researcher does not need to be present when completing the questionnaire. This can be very useful for large groups of people where interviews are impractical. Questionnaires can effectively measure the behavior, attitudes, preferences, opinions, and intentions of a relatively large number of subjects more cheaply and quickly than other methods.

The questionnaire survey consists of 7 aspects as follows:

Cooperative Learning Approaches

1. Assessment
2. Interpersonal skills
3. Interaction
4. Group reflection
5. Counseling

Emotional Involvement

1. External Emotional Involvement
2. Intrinsic Emotional Involvement

Part 2. Objective 2-3: Testing and Lesson Plan

This study uses tests and lesson plans. As the researcher is not directly involved in these classes, she can view these experiences from a more objective and neutral perspective to analyze the influence of cooperative learning on students' performance. The tests and lesson plans were focused on "the influence of cooperative learning on the performance of third-year art majors." This flexible design allows participants to complete tasks as they wish, potentially providing new insights.

Tests and lesson plans were administered in familiar environments with no right or wrong answers, helping participants feel at ease. The process began with an introduction to the study's aims, ethical standards, and initial inquiry, followed by distributing the participant information sheet and consent form. Participants were reminded of anonymity and assured that results would be used solely for this study. Questions and feedback were exchanged openly, and participants received a copy of the results to confirm the accuracy and avoid misunderstandings.

This study selected 25 students for cooperative learning training and course testing. These students were from Class 7, third-year art majors at Yuehua Secondary Vocational School in Dezhou City. The tests and lesson plans focused on "the influence of cooperative learning on the performance of third-year art majors." This flexible design allows participants to complete tasks as they wish, potentially providing new insights into their learning experiences. This approach ensures the scientific validity and reliability of the collected data, contributing to a comprehensive understanding of the impact of cooperative learning on student performance.

3.4 Research Instrument

Part 1. Objective 1: Questionnaire for students

A questionnaire was used to collect data from the student section. The questions were designed based on the research objectives of the article as well as the relevant literature. Before using the questionnaire, the advice of relevant experts was taken, and the questionnaire was tested to ensure its validity.

The questionnaire survey consists of 7 aspects as follows (See Table 3.2):

Cooperative Learning Approaches

1. Assessment (6 items)
2. Interpersonal skills (7 items)
3. Interaction (4 items)
4. Group reflection (7 items)
5. Counseling (7 items)

Emotional Involvement

1. External Emotional Involvement (12 items)

2. Intrinsic Emotional Involvement (12 items)

Total (55 items)

There are 3 parts in the questionnaire as follows:

Part 1：Background information (4 items)

Part 2：Cooperative learning (31 items)

Part 3：Emotional Involvement (24 items)

Total 59 items

Table 3.2 Questionnaire Structure

			Subject	Item	Reference Source
Demographic Variables			Gender, Age, Urban/Rural Background	4	Guo (2018)
Cooperative Learning		Assessment	V1-V6	6	Atxurra (2015) and Guo (2018)
		Interpersonal Skills	IS1-IS7	7	
		Interaction	I1-I4	4	
		Group Reflection	GR1-GR7	7	
		Counseling	GA1-GA7	7	
			total	31	
Emotional Involvement	External Emotional Involvement	Satisfaction with School	JS1- JS5	5	Guo (2018)
		Sense of Belonging to the School	SB1- SB3	3	
		Sense of Identification with Teachers	SI1- SI4	4	
	Intrinsic Emotional Involvement	Confidence in Learning	CL1- CL4	4	
		Interest in Learning	IL1- IL3	3	
		Value of learning	VL1- VL5	5	
			total	24	
The overall questionnaire consists of 59 measurement items.					

1.1）Data Collection

The researcher designed the questionnaire based on the framework of the study, where all the questions were in declarative sentence form, and the sampled students were allowed to choose their answers based on their ideas. The Likert (1932) 5 scale will be used in this study because the participants are 16-18 years old. There are

59 questions divided into three dimensions, with each dimension measuring a variable number of questions as follows:

A rating of 5 means “completely agree.”

A rating of 4 means “agree.”

A rating of 3 means “not sure.”

A rating of 2 means “disagree.”

A rating of 1 means “completely disagree.”

1.2）Data Analysis

Quantitative data are analyzed using frequencies, percentages, means ($\bar{x}$), and standard deviations (S.D.). The mean value of the suitability score of expert opinions is calculated and compared with the following criteria:

A mean score of 1.00-1.50 means “completely disagree,” interpreted as " very low."

A mean score of 1.51-2.50 means “disagree,” interpreted as "low."

A mean score of 2.51-3.50 means " not sure,” interpreted as “moderate.”

A mean score of 3.51-4.50 means “agree,” interpreted as “high.”

A score of 4.51-5.00 means “completely agree,” interpreted as "very high."

The Development Process of the Questionnaire

The Development Process of a Semi-structured Questionnaire Form About Investigating the Effects of Cooperative Learning Approaches on Emotional Involvement Among Third-Grade Art Students in Chinese Secondary Vocational Schools

1) Studied the concept and development process of questionnaire form of Investigating the Effects of Cooperative Learning Approaches on Emotional Involvement Among Third-Grade Art Students in Chinese Secondary Vocational Schools.

2) Drafted questionnaire form.

3) Verified questionnaire form by advisers.

4) Modified the questionnaire form according to suggestion.

5) Three experts verified the validity of the questionnaire form. Three come from China. The test consistency index of congruency is 0.50. - 1.00.

6) Modified the questionnaire form according to suggestion and selected 10 questions for the teacher to arrange them into questionnaire form to implement the instruments.

Part 2. Objective 2 Lesson Plan

There are 4 lesson plans for 4 weeks, and the total time for teaching was 20 hours.

1) Lesson Plan for Week 1: Basic Theoretical Knowledge of Art Color (5 hours)

- Purpose: Enhance artistic appreciation, understand color theory, and develop color expression.

- Focus: Hue, lightness, purity, and color analysis.

2）Lesson Plan for Week 2: Composition Training (5 hours)

- Purpose: Stimulate aesthetic sense, master compositional methods, and improve creativity.

- Focus: Object placement, compositional aesthetics.

3）Lesson Plan for Week 3: Copying Excellent Works of Art (5 hours)

- Purpose: Learn color mixing tonal composition and recognize diversity in color still life.

- Focus: Copying techniques, color relationships.

4）Lesson Plan for Week 4: Still Life Drawing (5 hours)

- Purpose: Develop color modeling and creativity and understand still life techniques.

- Focus: Gouache painting techniques, overall picture relationships.

The Development Process of the Lesson Plan

The Development Process of a Semi-structured Lesson Plan Form About the Investigation of the Effects of Cooperative Learning Approaches on Emotional Involvement Among Third-Grade Art Students in Chinese Secondary Vocational Schools

1) Studied the concept and development process of the Lesson Plan form of Investigating the Effects of Cooperative Learning Approaches on Emotional Involvement Among Third-Grade Art Students in Chinese Secondary Vocational Schools.

2) Drafted Lesson Plan form.

3) Verify the Lesson Plan form from advisers.

4) Modified the Lesson Plan form according to suggestion.

5) Three experts verified the validity of the Lesson Plan form. Three come from China. The test consistency index of congruency is 0.50. - 1.00.

6) Modified the Lesson Plan form according to suggestion and selected 10 questions for the teacher to arrange into Lesson Plan form to implement the instruments.

Part 2.1 The Test

This study selected 25 students from Class 7, third-year art majors at Yuehua Secondary Vocational School in Dezhou City, to participate in cooperative learning lesson plans and course testing.

Compositional skills = (20 items)

Use of color = (20 items)

Realistic Technique Expression = (20 items)

Innovation and individuality = (40 items)

Total 100 items

Test Development Process of the Test

1) Goal Setting: Assess senior art students' skills in color use, compositional design, realistic techniques, and creativity through still-life portrayal.

2) Material Preparation: Prepare art paper, watercolors, watercolor pastels, acrylics, black signing pens, and images of physical materials (e.g., daffodils, lilies, spray cans).

3) Test Content Design: Students use realistic techniques to organize compositions based on provided images, focusing on daffodils and other objects.

4) Test Steps:

- Fill in exam room information.
- Design composition.
- Apply color.

- Submit work and answer sheet.

5) Evaluation Criteria:

- Compositional Skills: Reasonable composition and correct structure.
- Use of Color: Rich, varied colors with clear transitions.
- Realistic Technique Expression: Hierarchical presentation and detailed brushwork.
- Innovation and Individuality: Original, unique treatment with visual impact.

2.1) Data Collection

The researcher conducted tests and implemented lesson plans with the selected students during their scheduled class times. Art materials were provided, and students were guided through the test steps and lesson plan activities. The data collection was from 100 items, as shown in Table 3.3.

Table 3.3 The Test Score

Evaluation Projects	Criteria for Evaluation		Assessment Score
Compositional Skills	The composition of the work is reasonable.	10	20
	The structure of the work is correctly proportioned.	10	
Use of Color	The use of color is rich and varied, and the color combinations are reasonable.	10	20
	There is a clear distinction between light and dark colors, and there are transitions in colors.	10	
Realistic Technique Expression	There is a sense of hierarchy in the presentation.	10	20
	There are apparent brushstrokes in the picture, and the details are well-handled.	10	
Innovation and Individuality	The treatment of the subject matter is original and unique.	20	40
	The work has a visual impact, attraction, and uniqueness.	20	

2.2）Data Analysis

The Quantitative data analysis divided the percentage into 4 parts according to the assessment score.

3.5 Content Validity and Reliability

Part 1. To ensure the validity of the content of the student questionnaires, a panel of educational research experts will review the questionnaires.

The Process for Developing a Validated Evaluation Form for the Questionnaire on the Impact of Cooperative Learning on the Emotional Involvement of Third-Year Art Majors at Yuehua Secondary Vocational School in Dezhou City

1) Studied the concept and development process of assessment form for validity of questionnaire form

2) Drafted an assessment form for the validity of the questionnaire on factors influencing the emotional involvement of third-year art majors at Yuehua Secondary Vocational School in Dezhou City. The levels of consideration are as follows:

The rating is +1. There is an opinion that “Corresponds to content.”

The rating is 0. There is an opinion that “Not sure it corresponds to content.”

The rating is -1. There is an opinion that “Inconsistent with content.”

At the end of each section, there is a space for experts to write suggestions that can help improve.

3) Verified assessment form for validity of questionnaire form by advisers.

4) Modified the assessment form to ensure the validity of the questionnaire form according to the suggestion.

Find the IOC (Index of Objective Congruence). The content consistency standards index should be greater than or equal to 0.5 to be considered suitable for use in research. The analysis result of the IOC for the questionnaire on factors influencing the emotional involvement of third-year art majors at Yuehua Secondary Vocational School in Dezhou City is 1.00.

Check the reliability of the questionnaire. The analysis results are as follows: the reliability is 0.853, and the influence on emotional involvement is 0.52, as measured by Cronbach's alpha.

Part 2. A panel of educational research experts will review the lesson plan to ensure its validity.

The Process of Developing a Validated Evaluation Form for a Teacher's Lesson Plan and the Test on Factors Affecting the Emotional Involvement of Third-year Art Majors at Yuehua Secondary Vocational School in Dezhou City

1) Studied the concept and development process of the assessment form for the validity of the lesson plan and the test.

2) Drafted an assessment form for the validity of the lesson plan and the test on factors influencing the emotional involvement of third-year art majors at Yuehua Secondary Vocational School in Dezhou City. The levels of consideration are as follows:

The rating is +1. There is an opinion that "Corresponds to content."

The rating is 0. There is an opinion that "Not sure it corresponds to content."

The rating is -1. There is an opinion that "Inconsistent with content."

At the end of each section, there is a space for experts to write suggestions that can help improve.

3) Verified assessment form for validity of lesson plan and the test by advisers.

4) Modified the assessment form for the validity of the lesson plan and the test according to the suggestion.

Find the IOC (Index Objective Congruence). The content consistency standards index should be greater than or equal to 0.50 to be considered suitable for use in research. The result of the IOC analysis for the lesson plan and the test on factors influencing the emotional involvement of third-year art majors at Yuehua Secondary Vocational School in Dezhou City is 1.00.

Part 2.1. A panel of educational research experts will review test content to ensure the validity of the results.

Compositional skills = (20 items)

Use of color = (20 items)

Realistic Technique Expression = (20 items)

Innovation and individuality = (40 items)

Total 100 items

The Process of Developing a Validated Test on Factors Affecting the Emotional Involvement of Third-year Art Majors at Yuehua Secondary Vocational School in Dezhou City

1) Studied the concept and development process of the assessment form for the validity of the test.

2) Drafted an assessment form for the validity of the test on factors influencing the emotional involvement of third-year art majors at Yuehua Secondary Vocational School in Dezhou City. The levels of consideration are as follows:

The rating is +1. There is an opinion that "Corresponds to content."

The rating is 0. There is an opinion that "Not sure it corresponds to content."

The rating is -1. There is an opinion that "Inconsistent with content."

At the end of each section, there is a space for experts to write suggestions that can help improve.

3) Verified assessment form for validity of the test by advisers.

4) Modified the assessment form for the validity of the test according to the suggestion.

Find the IOC (Index Objective Congruence). The content consistency standards index should be greater than or equal to 0.50 to be considered suitable for use in research. The result of the IOC analysis for the test on factors influencing the emotional involvement of third-year art majors at Yuehua Secondary Vocational School in Dezhou City is 1.00.

3.6 Data Analysis

Part 1. The data were analyzed as follows.

Quantitative data are analyzed using frequencies, percentages, means ($\bar{x}$), and standard deviations (S.D.). The mean value of the suitability score of expert opinions is calculated and compared with the following criteria:

A mean score of 1.00-1.50 means “completely disagree,” interpreted as " very low."

A mean score of 1.51-2.50 means “disagree,” interpreted as "low."

A mean score of 2.51-3.50 means “not sure,” interpreted as “moderate.”

A mean score of 3.51-4.50 means “agree,” interpreted as “high.”

A mean score of 4.51-5.00 means “completely agree,” interpreted as "very high."

Part 2. The data were analyzed as follows.

The Quantitative data analysis used percentages in 4 parts according to the assessment score.

Compositional skills = (20 items)

Use of color = (20 items)

Realistic Technique Expression = (20 items)

Innovation and individuality = (40 items)

Total 100 items

Part 2.1

The Quantitative data analysis used the mean score and SD to compare the difference between and after implementing the emotional involvement affected their learning outcomes of artistic creativity. The test is divided into 4 parts according to the Pretest and Posttest scores.

CHAPTER IV
ANALYSIS RESULT

This study focused on the Yuehua Secondary Vocational School students in Dezhou City. The objectives of this research were two-fold: 1) to analyze the impact of cooperative learning methods on students' emotional involvement, and 2) to explore how students' emotional involvement affected their learning outcomes of artistic creativity, aiming for at least a 70% positive impact, and 3) to compare the difference between and after implementing the emotional involvement affected their learning outcomes of artistic creativity. The analysis results revealed as follows:

4.1 Analysis of Student Questionnaire

This section presented the analysis results for objective 1 using tables and descriptions. It includes the mean, standard deviation, and coefficient of variation. Subsequently, the items of all factors are presented similarly.

Part 1:

For research objective 1 presented the information as follows:

To analyze the impact of the cooperative learning method on students' emotional involvement.

The questionnaire survey consists of 7 aspects as follows:

Cooperative Learning Approaches

1. Assessment
2. Interpersonal skills
3. Interaction
4. Group reflection
5. Counseling

Emotional involvement

1. External Emotional Involvement
2. Intrinsic Emotional Involvement

4.1.1Basic Information About the Participants in the Questionnaire

This study explores demographic variables such as gender, age, and the educational background of student parents among 302 respondents. Examining frequency percentages for each demographic variable transforms complex data into accessible proportions. This process enables a deeper understanding of the distribution characteristics of gender, age range, and parental education background within the student population, as illustrated in Table 4.1.

Table 4.1 The Background Information of the Sample Group (n=302)

Classification Indicators		Frequency	Percent	Cumulative Percent
Gender	Male	156	51.70	51.70
	Female	146	48.30	100.00
Age	16 years old	52	17.20	17.20
	17 years old	124	41.10	58.30
	18 years old	91	30.10	88.40
	18 years old and above	35	11.60	100.00
Father's Educational Background	High School and below	37	12.30	12.30
	College	93	30.80	43.00
	Bachelor's degree	132	43.70	86.80
	Undergraduate and above	40	13.20	100.00
Mother's Educational Background	High School and below	58	19.20	19.20
	College	134	44.40	63.60
	Bachelor's degree	86	28.50	92.10
	Undergraduate and above	24	7.90	100.00

Table 4.1 provides a detailed account of the distribution of gender, age, and parental education backgrounds among the students surveyed. The data revealed a nearly even gender distribution within the study population, with males constituting 51.70% (156 respondents) and females accounting for 48.30% (146 respondents), totaling 100%. This balanced representation indicated a diverse gender composition, which was essential for generalizing the study's findings.

The age distribution demonstrated a significant concentration of students aged 17, who represented 41.10% (124 respondents) of the total population. Following this, 16-year-olds comprised 17.20% (52 respondents), and 18-year-olds comprised 30.10% (91). The smallest age group included students aged 18 years and above,

accounting for 11.60% (35 respondents). The cumulative percentages illustrated a progressive increase across the age groups, highlighting the characteristics of age distribution within the student body.

Regarding the parents' educational background, most fathers possessed a Bachelor's degree, representing 43.70% (132 respondents) of the sample. Fathers with a college education followed at 30.80% (93 respondents), and those with a high school education or below at 12.30% (37 respondents). Fathers with an undergraduate education level and above were the least represented at 13.20% (40 respondents), cumulatively reaching 100%. Similarly, the largest group of mothers had a college education, at 44.40% (134 respondents), followed by those holding a Bachelor's degree at 28.50% (86 respondents). Mothers with a high school education or below accounted for 19.20% (58 respondents), and those with undergraduate and higher education were the smallest group at 7.90% (24 respondents), with the totals again cumulating to 100.00%. These findings provided a comprehensive overview of the demographic characteristics of the student population, emphasizing a balanced gender distribution, a concentration of students in the mid-age range, and a significant representation of parents with college and Bachelor's degrees. The analysis indicated a level of educational background diversity among the students' parents, offering crucial contextual information for further research.

4.1.2 Means and Standard Deviation Analysis for Each Study Variable

This study employed SPSS statistical software to calculate the mean and standard deviation for the primary variables under investigation And assess respondents' perceptions of each research variable. The questionnaire in this research utilized the Likert five-point scale method, where a higher mean value for a given research variable suggested more substantial capabilities or positive attitudes among respondents in that area. Conversely, a mean value of 3 indicated a neutral or medium level of perception towards the variable. Table 4.2 presented the mean and standard deviation for each primary research variable, facilitating an understanding of respondents' attitudes and capabilities related to the study's focus.

Table 4.2 Means and Standard Deviation Analysis for Each Study Variable (n=302)

Items	N	($\bar{x}$)	S.D.
Assessment	302	3.73	0.96
Interpersonal Skills	302	3.56	0.99
Interaction	302	3.88	0.90
Group Reflection	302	3.84	0.91
Counseling	302	3.85	0.90
External Emotional Involvement	302	3.79	0.72
Intrinsic Emotional Involvement	302	3.69	0.77
Total	302	3.76	0.88

Table 4.2 shows the results from

All Variables: The mean score is 3.76, with a standard deviation of 0.88. Which means "Agree," which is interpreted as high.

Assessment: The mean score is 3.69, with a standard deviation of 0.97. The score is 3.69. Which means "Agree," which is interpreted as high.

Interpersonal Skills: The mean score is 3.56, with a standard deviation of 0.99. Which means "Agree," which is interpreted as high.

Interaction: The mean score is 3.88, with a standard deviation of 0.90. Which means "Agree," which is interpreted as high.

Group Reflection: The mean score is 3.84, with a standard deviation of 0.91. Which means "Agree," which is interpreted as high.

Counseling: The mean score is 3.85, with a standard deviation of 0.90. Which means "Agree," which is interpreted as high.

External Emotional Involvement: The mean score is 3.79, with a standard deviation of 0.72. Which means "Agree," which is interpreted as high.

Intrinsic Emotional Involvement: The mean score is 3.69, with a standard deviation of 0.77. Which means "Agree," which is interpreted as high.

4.2 Analysis of Test

Part 2:

Research objective 2 presented the information as follows:

To explore the students' emotional involvement, which affects their learning outcomes by more than 70%.

Compositional skills = (20 items)

Use of color = (20 items)

Realistic Technique Expression = (20 items)

Innovation and individuality = (40 items)

By analyzing the interview data, the results of the analysis of Objective 2, "In what ways does students' emotional involvement influence their learning outcomes of artistic creativity in the context of cooperative learning methods?". By testing 25 students, four main themes can be formed.

The test content includes compositional skills, the use of color, the expression of realistic techniques, and the display of innovation and individuality. The maximum score for each section is 20 points, 20 points, 20 points, and 40 points, respectively, with a total score of 100 points.

Table 4.3 Results from the Experiment

Student	Compositional Skills (20)	Use of Color (20)	Realistic Technique Expression (20)	Innovation and Individuality (40)	Total Score (100)	Teacher Evaluation
1	17	18	18	35	88	Excellent
2	19	18	19	38	94	Excellent
3	18	15	15	33	81	Very Good
4	16	19	17	37	90	Excellent
5	19	19	18.50	38	94.50	Excellent
6	15	13.50	14	32	74.50	Good
7	17	16.50	15	31	79.50	Good
8	15.50	17	16	30	78.50	Good
9	17.50	16	17.50	35	86	Excellent
10	15	16	18	33.50	82.50	Very Good
11	18	18	17	34	87	Excellent
12	19	17.50	16.50	36	89	Excellent
13	15	18	16	38	87	Excellent
14	16.50	18	18	37	89.50	Excellent
15	19.50	17	18	36.50	91	Excellent

Table 4.3 (Continued)

Student	Compositional Skills (20)	Use of Color (20)	Realistic Technique Expression (20)	Innovation and Individuality (40)	Total Score (100)	Teacher Evaluation
16	20	19	17.50	38	94.50	Excellent
17	16.50	17	18	36	87.50	Excellent
18	17	18	16.50	36	87.50	Excellent
19	17	16	15	32	80	Very Good
20	18	16	16.50	35	85.50	Excellent
21	20	18.50	18	37	93.50	Excellent
22	17.50	16	16	31	80.50	Very Good
23	15.50	16	15.50	33	80	Very Good
24	16	17.50	17	36	86.50	Excellent
25	18	18	17	37	90	Excellent

A total of 25 students participated in this test. Among them, 3 students scored between 70 and 79.50, receiving a teacher evaluation grade of "Good." A total of 15 students scored between 80 and 89.50, receiving a teacher evaluation grade of "Very Good." Lastly, 7 students scored between 90 and 94.50, receiving an " Excellent " teacher evaluation grade."

Part 3:

To compare the difference between and after implementing the emotional involvement affected their learning outcomes of artistic creativity, the results shown in the table as follows:

Table 4.4 Comparison of Test Scores Before and After

Student	Compositional Skills (20)		Use of Color (20)		Realistic Technique Expression (20)		Innovation and Individuality (40)		Total Score (100)		Difference Score
	Before	After	Before	After	Before	After	Before	After	Before	After	
1	15	17	17	18	15.50	18	30	35	77.50	88	10.50
2	14	19	15	18	17	19	36	38	82	94	12
3	14	18	15	15	15	15	28.50	33	72.50	81	8.50
4	15	16	16	19	16	17	32	37	79	90	11
5	15	19	18	19	17.50	18.50	35	38	85.50	94.50	9
6	13	15	13	13.50	14	14	28	32	68	74.50	6.50
7	12	17	14	16.50	14	15	30	31	70	79.50	9.50
8	12.50	15.50	15	17	14	16	27.50	30	69	78.50	9.50
9	15.50	17.50	15	16	17	17.50	33	35	80.50	86	5.50
10	12	15	14	16	16.50	18	30	33.50	72.50	82.50	10
11	16	18	17	18	16	17	32	34	81	87	6
12	16	19	16	17.50	15	16.50	32	36	79	89	10
13	15	15	18	18	15	16	30	38	78	87	9
14	13.50	16.50	15.50	18	18	18	34	37	80	89.50	9.50
15	16.50	19.50	16	17	15	18	32	36.50	79.50	91	11.50
16	17	20	17	19	16	17.50	35	38	85	94.50	9.5
17	14.50	16.50	14	17	15.50	18	31	36	75	87.50	12.50
18	16	17	16	18	15	16.50	34	36	81	87.50	6
19	15	17	13	16	14	15	28	32	70	80	10
20	16	18	15	16	15	16.50	32	35	78	85.50	7.50
21	13	20	17	18.50	17.50	18	33	37	80.50	93.50	13
22	14	17.50	12	16	14	16	27	31	67	80.50	13.50
23	15	15.50	15	16	15	15.50	31	33	76	80	4
24	13	16	15	17.50	14.50	17	26	36	68.50	86.50	18
25	17	18	15	18	15.50	17	35	37	82.50	90	7.5

Table 4.5 Comparative Analysis Before and After Testing

No.	Pretest Score	Posttest Score	Difference Score
1	77.50	88	10.50
2	82	94	12
3	72.50	81	8.50
4	79	90	11
5	85.50	94.50	9
6	68	74.50	6.50
7	70	79.50	9.50
8	69	78.50	9.50
9	80.50	86	5.50
10	72.50	82.50	10
11	81	87	6
12	79	89	10
13	78	87	9
14	80	89.50	9.50
15	79.50	91	11.50
16	85	94.50	9.50
17	75	87.50	12.50
18	81	87.50	6
19	70	80	10
20	78	85.50	7.50
21	80.50	93.50	13
22	67	80.50	13.50
23	76	80	4
24	68.50	86.50	18
25	82.50	90	7.5
$\bar{x}$	76.70	86.30	9.58
S.D.	0.52	0.48	0.98

This study aimed to explore how students' emotional involvement affected their learning outcomes of artistic creativity, targeting 70% effectiveness. Analysis of 25 students' test scores before and after implementing a cooperative learning approach showed significant improvements. Pre-test scores averaged 76.70 with a standard deviation of 0.52, while post-test scores averaged 86.30 with a standard deviation of 0.48. The average improvement was 9.58 points, S.D.=0.98.

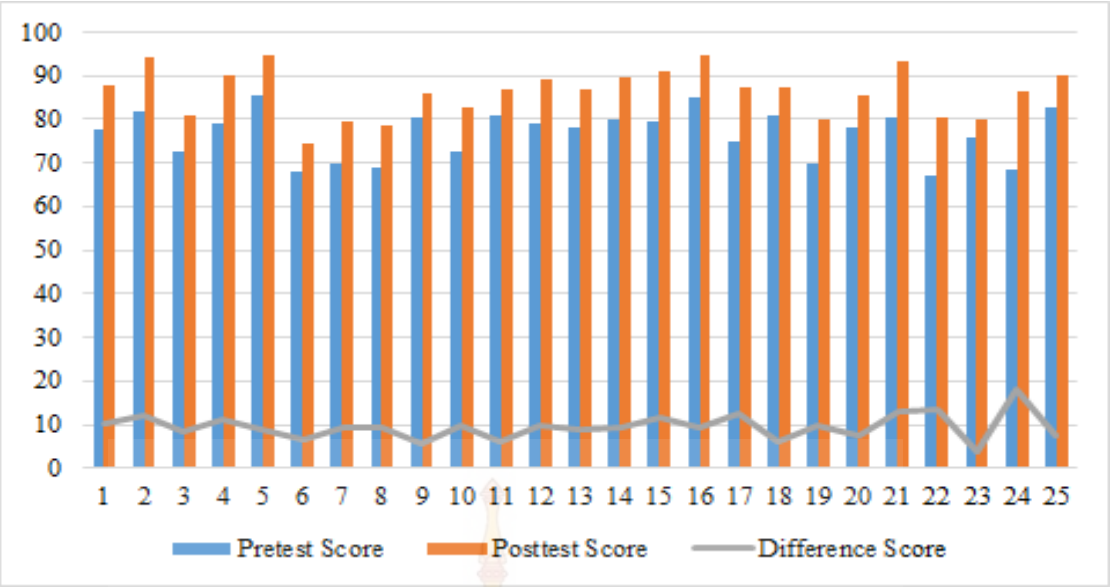

Figure 2 Student Score Statistics and Difference Comparison Chart

Figure 2 compares test scores for 25 students before and after implementing a cooperative learning approach. The horizontal axis represented the student numbers, while the vertical axis represented the test scores. The figure included two lines indicating each student's pre-test and post-test scores.

The figure shows that most students improved their test scores after applying the cooperative learning approach. The average pre-test score was 76.70, with a standard deviation of 0.52, while the average post-test score was 86.30, with a standard deviation of 0.48. On average, students' scores increased by 9.58 points, with a standard deviation of 0.98.

These results indicated that the cooperative learning method significantly enhanced students' learning outcomes in artistic creativity, achieving the target effectiveness of 70%.

CHAPTER V
CONCLUSION AND DISCUSSION

This study focused on the Yuehua Secondary Vocational School students in Dezhou City. The objectives of this research were 1) to analyze the impact of cooperative learning methods on students' emotional involvement, 2) to explore the students' emotional involvement affects their learning outcomes of artistic creativity by more than 70%, and 3) to compare the difference between and after implementing the emotional involvement affected their learning outcomes of artistic creativity. The conclusion and discussion are presented as follows:

5.1 Conclusion

The purpose of this study is as follows: 1: To analyze the impact of cooperative learning method on students' emotional involvement. 2. To explore how the students' emotional involvement affects their learning outcomes by more than 70%. The selected samples are from Yuehua Secondary Vocational School in Dezhou City. The sample was selected from 302 third-year art students for the questionnaire survey and 25 third-year art students for the tests and lesson plans. The study was divided into two parts: a questionnaire survey of the students and tests with lesson plans.

Part 1. Research Objective 1: To analyze the impact of the cooperative learning method on students' emotional involvement.

This study aimed to analyze the impact of cooperative learning methods on students' emotional involvement. The study involved a questionnaire survey among 302 third-year art students at Yuehua Secondary Vocational School in Dezhou City. The questionnaire covered seven aspects: assessment, interpersonal skills, interaction, group reflection, counseling, external emotional involvement, and intrinsic emotional involvement.

The age distribution demonstrated a significant concentration of students aged 17, who represented 41.1% (124 respondents) of the total population. Following this, 16-year-olds comprised 17.2% (52 respondents), and 18-year-olds comprised 30.1% (91). The smallest age group included students aged 18 years and above, accounting for

11.60% (35 respondents). The cumulative percentages illustrated a progressive increase across the age groups, highlighting the characteristics of age distribution within the student body.

Regarding the parents' educational background, most fathers possessed a Bachelor's degree, representing 43.70% (132 respondents) of the sample. Fathers with a college education followed at 30.80% (93 respondents), and those with a high school education or below at 12.30% (37 respondents). Fathers with an undergraduate education level and above were the least represented at 13.20% (40 respondents), cumulatively reaching 100%. Similarly, the largest group of mothers had a college education, at 44.40% (134 respondents), followed by those holding a Bachelor's degree at 28.50% (86 respondents). Mothers with a high school education or below accounted for 19.20% (58 respondents), and those with undergraduate and higher education were the smallest group at 7.90% (24 respondents), with the totals again cumulating to 100.00%. These findings provided a comprehensive overview of the demographic characteristics of the student population, emphasizing a balanced gender distribution, a concentration of students in the mid-age range, and a significant representation of parents with college and Bachelor's degrees. The analysis indicated a level of educational background diversity among the students' parents, offering crucial contextual information for further research.

All Variables: The mean score is 3.76, with a standard deviation of 0.88. Which means "Agree," which is interpreted as high.

Assessment: The mean score is 3.69, with a standard deviation of 0.97. The score is 3.69. Which means "Agree," which is interpreted as high.

Interpersonal Skills: The mean score is 3.56, with a standard deviation of 0.99. Which means "Agree," which is interpreted as high.

Interaction: The mean score is 3.88, with a standard deviation of 0.90. Which means "Agree," which is interpreted as high.

Group Reflection: The mean score is 3.84, with a standard deviation of 0.91. Which means "Agree," which is interpreted as high.

Counseling: The mean score is 3.85, with a standard deviation of 0.90. Which means "Agree," which is interpreted as high.

External Emotional Involvement: The mean score is 3.79, with a standard deviation of 0.72. Which means "Agree," which is interpreted as high.

Intrinsic Emotional involvement: The mean score is 3.69, with a standard deviation of 0.77. Which means "Agree," which is interpreted as high.

In conclusion, these findings suggested that cooperative learning methods positively influenced students' emotional involvement by fostering a supportive and interactive learning environment. The variations in standard deviations indicated some diversity in students' experiences and perceptions, which pointed to the importance of addressing individual needs and preferences in implementing cooperative learning strategies.

Part 2. Research Objective 2: To explore how students' emotional involvement affects their learning outcomes by more than 70%.

A total of 25 students participated in this test. Among them, 3 students scored between 70 and 79.50, receiving a teacher evaluation grade of "Good." A total of 15 students scored between 80 and 89.50, receiving a teacher evaluation grade of "Very Good." Lastly, 7 students scored between 90 and 94.50, receiving an " Excellent " teacher evaluation grade."

In conclusion, this study demonstrated that cooperative learning methods significantly enhanced students' emotional involvement, leading to improved learning outcomes of artistic creativity. Cooperative learning strategies helped students develop better communication, collaboration, and creative skills by fostering a supportive and interactive learning environment. These findings underscored the importance of incorporating cooperative learning methods in art education to promote emotional and academic development. The achievement of the 70% target in improved learning outcomes of artistic creativity validated the effectiveness of these methods in enhancing student performance.

Part 3: Research Objective 3: To compare the difference between and after implementing the emotional involvement affected their learning outcomes of artistic creativity, the results showed that the difference after implementing the mean score was 9.58 and S.D.= 0.98.

5.2 Discussion

Part 1: Research Objective 1: To analyze the impact of cooperative learning methods on students' emotional involvement.

All Variables: The mean score is 3.76, with a standard deviation of 0.88. Which means "Agree," which is interpreted as high.

The study employed SPSS statistical software to analyze each research variable's means and standard deviations from the survey. The results indicated that the overall mean score for all variables was 3.76 with a standard deviation of 0.88, suggesting that respondents generally held a positive attitude toward the impact of cooperative learning methods on students' emotional involvement. Specifically, variables such as assessment, interaction, group reflection, and counseling had high mean scores (ranging from 3.73 to 3.88), indicating that students widely recognized the importance of these factors in promoting emotional involvement. However, the relatively high standard deviations (around 0.90) revealed variability in participants' perceptions, likely due to differences in individual experiences and backgrounds. Theoretically, these findings supported the perspectives of constructivism, social interdependence theory, and learning involvement theory, as emphasized by scholars such as Vu (2021) and Wong (2022). These theories highlighted the significance of interaction, reflection, and emotional involvement in effective learning environments. Therefore, the study's findings validated these theories and underscored the necessity of considering student diversity and individual needs when implementing cooperative learning methods to enhance their effectiveness.

In detail, explained as follows:

1) Assessment

The analysis in "Table 4.2 Means and Standard Deviation Analysis for Each Study Variable" underscored the respondents' generally positive perception of the research subject, evidenced by a mean score of 3.73 and a standard deviation of 0.96. This indicated that most respondents viewed the research content as valuable, surpassing the neutral midpoint in their evaluations. However, the standard deviation close to 1 signified a certain level of opinion diversity among participants, likely arising from individual experiences or different interpretations of the concept. This observation

highlighted the respondents' overall affirmative attitude and the importance of further exploring the underlying reasons for these divergent viewpoints.

In the context of constructivist theory, as emphasized by Arık and Yılmaz (2020), the positive perception of assessment reflects the active meaning construction process, where students are not passive recipients but active constructors of knowledge. This aligns with the findings of Narciss and Körndle (2015), who emphasized that formative assessments, which engage students actively, are more effective in enhancing learning outcomes. Thus, the study's results reinforce the importance of assessment as a critical dimension in cooperative learning, validating the conclusions drawn by Kadri and Amziane (2021) regarding the need for multidimensional and authentic assessment methods in educational settings.

2) Interpersonal Skills

Interpersonal Skills reflected a moderately positive assessment of respondents' interpersonal communication abilities. This suggested that while most respondents considered themselves proficient in interpersonal interactions, a notable fraction remained reserved or perceived a lack of skill. This variance highlighted the complexity of self-assessment in interpersonal skills, pointing to the diversity in individual confidence and perceived competencies.

According to Vu (2021), effective cooperative learning is predicated on positive interdependence and facilitative interactions, which include mutual encouragement and feedback. The moderately positive rating of interpersonal skills aligns with their findings, underscoring the role of social interdependence in fostering these skills. Furthermore, Mendo-Lázaro et al. (2018) emphasize the importance of developing social skills through cooperative learning, reinforcing the study's findings on the critical role of interpersonal skills in educational settings.

3) Interaction

The Interaction variable received one of the highest ratings among all variables examined, indicating respondents' firm positive valuation of interactivity within the scope of the study. This high mean score suggested that participants valued interactivity highly, reflecting its significance in the research context. However, a standard deviation close to 1 also revealed variations in the evaluation of interactivity,

pointing to differing levels of appreciation or experience with interactive elements among respondents.

The high valuation of interaction is consistent with Vygotsky's Zone of Proximal Development (ZPD) theory, which emphasizes the importance of social interaction in cognitive development (Vygotsky & Cole, 1978). Warsah (2021) found that interactive learning environments significantly enhance critical thinking and collaborative skills. This supports the study's findings on the importance of interaction in cooperative learning, validating the emphasis on interactive teaching methods, as highlighted by Ramdani and Susilo (2022).

4) Group Reflection

Group Reflection, with a mean score of 3.84 and a standard deviation of 0.91, was perceived similarly to Interaction, with respondents generally viewing group reflection as a positive activity. This perception underscored the value of group activities for fostering learning and development. The slightly high mean indicated that most participants recognized the beneficial impact of reflective practices within a group setting, promoting a collective learning experience. Nevertheless, the standard deviation suggested varying appreciation for group reflection among respondents.

Group reflection is crucial for the learning process, as it allows students to review and evaluate their teamwork experiences, supported by Subasman (2024). The findings align with Radović (2023), who emphasizes the importance of reflection in enhancing teamwork and learning outcomes. This suggests that group reflection fosters critical thinking and problem-solving skills and reinforces cooperative learning by promoting self and collective evaluation.

5) Counseling

The variable "Counseling," with a mean score of 3.85 and a standard deviation of 0.90, garnered a high positive evaluation among all variables examined, indicating a widespread consensus on the importance and value of giving advice. This high mean score suggested that providing advice was universally regarded as a significant and beneficial behavior. The relatively low standard deviation pointed to a firm agreement among respondents about the value of giving advice, highlighting its perceived importance across the board.

As Namaziandost (2020) described, counseling is essential in promoting cognitive development and social skills in cooperative learning environments. The study's findings echo this by highlighting the universal appreciation of counseling in educational settings. Liu and Lipowski (2021) further support this by emphasizing the role of mentoring in enhancing student motivation and involvement, reinforcing the importance of counseling in cooperative learning.

6) External Emotional Involvement

The "External Emotional Involvement" variable, with a mean score of 3.79 and a standard deviation of 0.72, revealed that respondents had a uniformly positive and consistent perspective towards engaging emotionally with external factors. The relatively low standard deviation indicated a close alignment in opinions among participants regarding this variable. This suggested that the study's respondents broadly recognized external emotional involvement as beneficial or significant.

Appleton(2006) classified emotional involvement into several dimensions, including peer and teacher-student relationships, which are crucial for fostering a supportive learning environment. The study's findings align with this classification, highlighting the importance of external emotional involvement in promoting student involvement and well-being. This is further supported by Liu and Guo (2016), who emphasized the multidimensional nature of emotional involvement in educational contexts.

7) Intrinsic Emotional Involvement

The "Intrinsic Emotional Involvement " variable, with a mean score of 3.69 and a standard deviation of 0.77, indicated a generally positive attitude among respondents towards engaging with their emotions. Compared to "External Emotional Involvement," this suggested that internal and external emotional involvement was considered important. However, there appeared to be a slightly greater consensus on the value of intrinsic emotional involvement.

As Sadeghi and Gan (2020) described, intrinsic emotional involvement is critical for fostering self-awareness and personal growth. The study's findings support this by highlighting the significance of internal emotional processing in the learning experience. Almasri (2022) further emphasizes the role of intrinsic emotional

involvement in enhancing learning satisfaction and achievement, validating the study's conclusions on its importance.

The analysis results revealed a predominantly positive attitude among respondents towards the study's variables, particularly in areas such as giving advice, interactivity, and group reflection. However, the significant standard deviations highlighted that participants' opinions differed despite the positive evaluations. This underscores the need for further exploration into the individual and contextual factors influencing these perceptions, as highlighted by various scholars such as Vu (2021) and Narciss and Körndle (2015).

Part 2: Research Objective 2: To explore how the students' emotional involvement affects their learning outcomes by more than 70%.

Based on the test results, more than 70% of the students who participated demonstrated that emotional involvement positively affected their learning outcomes of artistic creativity, as evidenced by the majority receiving grades of "Very Good" or "Excellent".

The test results indicated that more than 70% of the students who participated demonstrated that emotional involvement positively affected their learning outcomes of artistic creativity, as evidenced by the majority receiving grades of "Very Good" or "Excellent." This high level of performance can be attributed to the significant role that emotional involvement plays in motivating students to invest more effort, take risks, and persist in their tasks. When emotionally engaged, students are more likely to immerse themselves fully in the learning process, resulting in improved skills and creative expression.

1) Compositional Skills

High scores in compositional skills, with many students scoring between 15 and 20 points, suggest that emotional involvement helps students effectively organize and structure their artwork. Engaged students tend to be more attentive to detail and adept at applying principles of composition, resulting in cohesive and well-balanced artworks. This indicates that emotional involvement enhances students' ability to harmonize various elements in their creative projects. This finding aligns with the

constructivist theory proposed by Arik and Yilmaz (2020), which emphasizes active meaning construction through involvement and interaction.

2) Use of Color

High scores in the use of color, ranging from 13.5 to 19 points, reflect that emotionally engaged students are more willing to experiment with and effectively use color. This willingness to explore different color palettes and techniques allows students to express their ideas more vividly and creatively. The emotional involvement fosters a deeper connection to the artistic process, encouraging students to be bold and innovative in their use of color. According to the social interdependence theory by Vu (2021), positive interdependence in cooperative learning environments can enhance facilitative interactions, such as experimenting with color, which is critical for artistic development.

3) Realistic Technique Expression

Scores in realistic technique expression, which ranged from 14 to 19 points, show that emotional involvement is crucial for developing technical proficiency. Students who are emotionally invested in their work dedicate more time and effort to honing their technical skills, resulting in more accurate and realistic depictions in their artwork. This technical refinement is essential for achieving higher evaluations and demonstrates the positive impact of emotional involvement on skill development. The learning involvement theory by Wong (2022) supports this finding, emphasizing that more excellent investment in learning activities leads to better outcomes.

4) Innovation and Individuality

The innovation and individuality category had the highest scores, ranging from 30 to 38 points. This highlights the significant impact of emotional involvement on fostering creativity and personal expression. Emotionally engaged students are more inclined to think creatively and bring unique perspectives to their work, resulting in innovative and distinctive pieces that stand out in evaluations. Emotional involvement encourages students to express their individuality and creativity, leading to higher artistic originality. The research by Fredricks (2004) on learning involvement, which includes behavioral, emotional, and cognitive involvement, further corroborates the importance of emotional involvement in promoting creativity and individual expression.

Part 3: Research Objective 3: To compare the difference between and after implementing the emotional involvement affected their learning outcomes of artistic creativity.

The analysis of test scores before and after implementing cooperative learning methods revealed significant improvements in students' learning outcomes. The pretest scores averaged 76.70 with a standard deviation of 0.52, while posttest scores averaged 86.30 with a standard deviation of 0.48. The average improvement of 9.58 points demonstrates the effectiveness of the cooperative learning approach.

The enhancement of the learning outcome of artistic creativity could be discussed in 3 aspects as follows:

1. Active Involvement and Social Interaction

These findings align with Jean Piaget's constructivist theory, which posits that learners construct knowledge through active involvement and social interaction (Arık & Yılmaz, 2020). In this study, cooperative learning provided students with opportunities to engage actively and collaboratively, thus enhancing their understanding and skills.

Furthermore, the enhancement aligns with Vu's (2021) social interdependence theory, which emphasizes the importance of positive interdependence and cooperative interactions in achieving higher academic outcomes. This theory asserts that when students perceive their goals to be linked with the success of their peers, they are more likely to engage in behaviors that promote mutual learning and support. The significant increase in posttest scores suggests that the cooperative learning environment fostered such interdependence and collaborative efforts among students.

Additionally, the findings support George Wong's learning involvement theory, highlighting the critical role of student involvement and institutional support in achieving adequate learning outcomes (Wong, 2022). The cooperative learning approach increased students' time and effort invested in learning activities and created a supportive environment facilitating deeper involvement and interaction. This is evident in the improved scores across various assessment categories, indicating that the cooperative learning method effectively enhanced both the academic and creative aspects of students' performance.

2. Impact of Cooperative Learning on Emotional Involvement

The cooperative learning approach significantly enhanced students' emotional involvement, positively influencing their learning outcomes. According to Appleton (2006), emotional involvement includes dimensions such as a sense of belonging, teacher-student relationships, and peer relationships, all of which contribute to a supportive and motivating learning environment. In this study, the cooperative learning approach fostered positive emotional connections among students and between students and teachers, as reflected in the increased test scores and positive teacher evaluations.

As articulated by Lewin and further developed by Vu (2021), social interdependence theory underscores the role of emotional involvement in cooperative learning. The theory posits that cooperative learning environments, which emphasize shared goals and interdependence, enhance students' emotional involvement and motivation. The findings of this study support this assertion, as students demonstrated higher levels of involvement and improved academic performance following the implementation of cooperative learning strategies.

Moreover, Wong's (2022) learning involvement theory emphasizes that emotional involvement is crucial for sustained involvement and academic success. By creating a learning environment that promotes emotional connections and mutual support, cooperative learning helps students invest more deeply in their educational activities. This study's results, showing significant improvements in test scores and high levels of teacher evaluations, indicate that students' emotional involvement was effectively enhanced through cooperative learning, leading to better learning outcomes and increased artistic creativity.

3. Emotional Involvement Influencing Learning Outcomes and Creativity

The significant enhancement in students' learning outcomes of artistic creativity can be attributed to the enhanced emotional involvement fostered by cooperative learning. According to Skinner (Skinner & Belmont, 1993), emotional involvement is critical to students' academic achievement and personal development. Their research highlights that positive emotional interactions and a supportive learning environment are essential for motivating students and improving their performance.

This study's cooperative learning approach created such an environment, resulting in higher test scores and greater creativity in students' artistic expressions.

Furthermore, the findings align with the research by Guo and Liu (2016), which emphasizes the multidimensional nature of emotional involvement, including factors such as self-confidence, interest, and learning initiative. The cooperative learning approach implemented in this study effectively addressed these dimensions by encouraging active participation, fostering a sense of community, and providing opportunities for creative expression. This holistic approach to learning improved students' academic performance. It enhanced their creative abilities, as evidenced by the significant improvements in compositional skills, use of color, realistic technique expression, innovation, and individuality.

In conclusion, the study's findings demonstrate that cooperative learning significantly enhances students' emotional involvement, leading to improved learning outcomes of artistic creativity. By fostering active involvement and social interaction, cooperative learning impacts emotional involvement, and emotional involvement influences learning outcomes and creativity. They were supportive and collaborative learning environments, and cooperative learning helps students develop deeper emotional connections, increased motivation, and greater academic and creative success. These results underscore the importance of integrating emotional and collaborative elements into educational practices to achieve better learning outcomes and promote holistic student development.

5.3 Recommendation

Based on the findings and analysis of this study, several recommendations can be made to enhance the impact of cooperative learning methods on students' emotional involvement and to explore how this involvement affects their learning outcomes of artistic creativity.

5.3.1 Recommendations for Enhancing Emotional Involvement

The study revealed that cooperative learning significantly enhances students' emotional involvement. To further improve this, the following strategies are recommended:

Personalized Learning Approaches: Tailoring cooperative learning activities to meet students' diverse needs and preferences can enhance their emotional involvement. This can include varied group compositions, differentiated tasks, and incorporating students' interests into learning activities.

Strengthening Teacher-Student Relationships: Teachers should build strong relationships with students to create a supportive and trusting classroom environment. Regular feedback, one-on-one interactions, and understanding of students' challenges can foster a sense of belonging and involvement.

Professional Development for Teachers: Providing training and professional development for teachers on effective cooperative learning strategies can ensure they have the skills and knowledge to implement these methods successfully. Workshops, seminars, and collaborative planning sessions can be beneficial.

Incorporating Technology: Utilizing educational technologies can enhance cooperative learning experiences. Online collaborative tools, virtual group projects, and interactive platforms can provide dynamic and engaging learning environments.

5.3.2 Recommendations for Enhancing Learning Outcomes of Artistic Creativity

The following recommendations are made to meet the research objective of exploring how students' emotional involvement affects their learning outcomes of artistic creativity:

Emphasizing Innovation and Creativity: Cooperative learning activities should be designed to encourage creativity and originality. Open-ended projects, creative problem-solving tasks, and opportunities for students to express their artistic abilities can promote higher levels of creativity.

Frequent and Diverse Assessments: Implementing various assessment methods, including formative assessments, peer evaluations, and self-assessments, can provide a comprehensive understanding of students' progress and areas for improvement. This aligns with the findings of Vu (2021), who highlighted the importance of diverse assessment strategies in cooperative learning environments.

Supportive Learning Environment: Creating a classroom atmosphere that values and supports artistic expression is crucial. Providing access to art materials,

encouraging risk-taking in artistic endeavors, and celebrating artistic achievements can motivate students and enhance their creative outcomes.

Longitudinal Studies: Conducting long-term studies to assess the sustained impact of cooperative learning on emotional involvement and creativity can provide deeper insights. This can help understand the long-term benefits and areas requiring ongoing support and intervention.

5.4 Recommendation for Future Research

Several recommendations are proposed for expanding research in cooperative learning within vocational art education. Future studies should consider longitudinal approaches to track the long-term impacts of cooperative learning on students' academic and emotional development. Such studies would provide valuable insights into the sustained effects of these learning environments on student outcomes over time, including their career success and personal growth post-graduation. Additionally, comparative research across various educational settings and disciplines would be beneficial. These studies could elucidate the effectiveness of cooperative learning in vocational schools compared to traditional academic settings, potentially revealing distinct advantages or challenges inherent to each context.

Moreover, as technology continues to advance, exploring the integration of cutting-edge tools like virtual reality, augmented reality, and AI-driven platforms in cooperative learning strategies becomes essential. Such research could identify innovative ways to enhance collaborative learning and emotional involvement, which are particularly pivotal in art education due to their visual and interactive nature. Furthermore, investigating cooperative learning's impact on diverse students, including those with special educational needs, different cultural backgrounds, or varying levels of prior achievement, would enable the customization of cooperative learning methods to be more inclusive and effective for all students. Lastly, there is a need for focused research on developing and evaluating assessment methods tailored for cooperative learning environments. This includes pioneering assessment strategies that accurately and fairly measure individual and group contributions, which are crucial for ensuring accountability and equity in educational outcomes.

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APPENDICES

APPENDIX 1

Student Questionnaire

Dear Professor:

The purpose of this questionnaire is to assess its validity; note that you are not required to answer the following questions, but rather, you are asked to judge the validity of each question.

+1: represents that the measurement question meets its objectives

0: represents the uncertainty that the measurement question meets its objectives

-1: represents that the measurement question did not meet its objectives.

Question		Rating			Suggestion
		+1	0	-1	
1. What is your gender?	Male Female				
2. Your age is:	16 years old 17 years old 18 years old 18 years old and above				
3. What is your father's educational background?	High school and below College Bachelor's degree Undergraduate and above				
4. What is your mother's educational background?	High school and below College Bachelor's degree Undergraduate and above				
Cooperative Learning Application					
Assessment	V1. In this subject, students get the grades they deserve, no more and no less.				
	V2. In this subject, the assessment system is fair.				
	V3. If we work hard in this subject, we can get good results				
	V4. We can all get good grades in this subject if we put our minds to it.				
	V5. in this subject, group work is assessed to prevent any group member from being absent.				

	V6. the marking system in this subject considers each member's contribution to the group work.				

Question		Rating			Suggestion
		+1	0	-1	
Interpersonal Skills	IS1. Teachers teach us how to function properly in group situations.				
	IS2. Teachers provide guidelines for resolving conflicts that may arise in a group.				
	IS3. In this theme, improving skills in interacting with others is a goal.				
	IS4. In this theme, respect in group relationships is promoted.				
	IS5. This subject helps us to express our views freely.				
	IS6. This subject fosters opportunities to socialize with others.				
	IS7. In this subject, we exercise our social skills.				
Interactivity	I1. In this topic, we had the opportunity to share our opinions amongst our group members.				
	I2. This subject allows me to interact with my classmates.				
	I3. In this subject, we communicate and share information with our classmates in different ways (face-to-face, virtually).				
	I4. In this subject, interaction with classmates is necessary to accomplish tasks.				
Group Reflection	GR1. The teacher helped us to identify and define difficulties in group work.				
	GR2. In class, we have some time to reflect on how we work in groups and how we can improve.				
	GR3. In this subject, the teacher suggests activities to encourage individual reflective learning.				
	GR4. The teacher provides us with copying still lifes (tools) so that we can reflect on the way we work in groups.				
	GR5. In all group members, we identify which actions help the group and which do not.				
	GR6. In the group, we value each person's performance and give guidance for improvement.				
	GR7. The teacher helps us determine the effectiveness of the group's functioning.				
Counseling	GA1. We receive feedback from our teacher as we complete our drawing work to help us improve it.				
	GA2. The teacher monitors the group work as we do it.				
	GA3. The teacher is available to answer questions during group work.				
	GA4. The teacher intervenes when we need to in order to help us move forward in the group task.				
	GA5. The teacher guided us and helped us complete the group task.				
	GA6. The teacher motivated us to move forward with the group task.				

Question		Rating			Suggestion
		+1	0	-1	
Counseling	GA7. The teacher monitors the group and each member's tasks to help us improve.				
Emotional Involvement					
External Emotional Involvement	JS1. The school's emphasis on art teaching and learning satisfies me.				
	JS2. The teaching resources provided by the school meet my needs for art learning.				
	JS3. The extracurricular activities offered by the school meet my needs for art learning.				
	JS4. I am satisfied with the atmosphere of art learning in the school.				
	JS5. I am satisfied with the various art teaching equipment in the school.				
	SB1.I feel like an outsider in this school.				
	SB2. I feel part of the school.				
	SB3. I feel at home in my art class.				
	SI1. The art teacher and I get along well and happily.				
	SI2. The art teacher helped me more mentally and psychologically.				
	SI3. The art teacher's academic level and teaching ability are satisfactory.				
	SI4. The art teacher's demeanor and attire show professionalism and approachability in teaching.				
Intrinsic Emotional Involvement	CL1.I cannot learn art well.				
	CL2. I am confident in learning art.				
	CL3. I am better at learning art (basic sketching specialization).				
	CL4. I am confident in accomplishing all learning (drawing) tasks.				
	IL1. I like Chinese fine arts and national culture (especially interested in traditional Chinese painting, calligraphy, and folk art).				
	IL2. I like to read or watch art books, movies, and television works to study with interest.				
	IL3.I am deeply interested in Chinese and foreign art history, especially painting, sculpture, and design. I hope to study and develop deeply in this field.				
	VL1. I do not think it is necessary to study art.				
	VL2. I think it is important to study art.				
	VL3. Learning art will help me in the future.				
	VL4. I think it is a waste of time to study art.				
	VL5. I think studying art can improve my overall quality and artistic level.				

Recommendation……
……

Sign..... Assessor

(.....)

Date...../...../.....

APPENDIX II

Lesson Plan Design

This four-week intensive course explores painting skills using cooperative learning methods. We will integrate the five core elements of cooperative learning (assessment, interpersonal communication, interaction, group reflection, and suggestions) into daily teaching activities. The course will cover the basics of color theory, the principles of color generation and changes, composition principles and methods, and the ability to use colors to shape forms, foster creativity, and enhance aesthetic and artistic skills. The course aims to promote students' understanding and mastery of creating color artwork through theoretical study and practical activities.

Week 1: Basic Theoretical Knowledge of Art Color

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day1	Basic concepts of color	1. The teacher explains formation, classification, and three elements of color.	1. Assessment: The teacher checks understanding through questions.	The group completes making color cards for primary, secondary, and tertiary colors.				
		2. Group activity: find primary, secondary, and tertiary colors using real-life color cards.	2. Interpersonal: Using color cards, each group finds primary, secondary, and tertiary colors.					
		3. Group presentation and evaluation.	3. Interaction: Group members cooperate in finding, recording, and presenting.					
			4. Reflection: Reflect on the division of labor and cooperation and discuss improvements.					

Week 1: Basic Theoretical Knowledge of Art Color （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day1	Basic concepts of color		5. Suggestions: Groups display their findings, peer review, and teacher comments, and suggest more efficient cooperation and communication techniques.					
Day2	Principles of color matching	1. The teacher explains the principles of color matching and color psychology	1. Assessment: The teacher asks questions to check understanding of color matching principles.	Draw a color contrast and harmony palette.				
		2. Group activity: choose images and analyze their color-matching principles	2. Interpersonal: Each group chooses images, analyzes their color-matching principles, and presents.					
		3. Presentation and evaluation.	3. Interaction: Group members take turns in different parts of the analysis, learning from each other.					
			4. Reflection: Reflect on the strengths and weaknesses of presentations and record improvement suggestions. The teacher provides detailed feedback, and groups suggest constructive improvements.					

Week 1: Basic Theoretical Knowledge of Art Color （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day3	Application and design of color	1. Case study: use of color in famous paintings.	1. Assessment: The teacher questions students to check their understanding of color application.	Draw a still-life sketch in cool and warm tones.				
		2. Group creation: choose a theme for color creation.	2. Interpersonal: Each group chooses a theme for color creation.					
		3. Presentation and explanation.	3. Interaction: Group members collaborate on creating a clear division of labor.					
			4. Reflection: Groups present and explain their color choices. Teachers and students evaluate works and provide suggestions for improvement.					
			5. Suggestions: The teacher advises creation techniques and team collaboration improvements.					
Day4	Practical color exploration	1. Hands-on practice: free theme creation.	1. Assessment: Students choose themes for creation teacher guidance.					

Week 1: Basic Theoretical Knowledge of Art Color （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day4	Practical color exploration	2. Group assistance: solve color problems.	2. Interpersonal: Group members help each other solve color problems in creation.	Collect famous paintings and discuss color issues in groups.				
		3. Sharing and discussion: present and discuss works.	3. Interaction: Enhance trust and cooperation through mutual help.					
			4. Reflection: Groups evaluate each other and suggest strengths and improvements. Discuss the effectiveness of group assistance and suggest improvements.					
			5. Suggestions: The teacher advises improving creation efficiency and team cooperation.					
Day5	Summary and presentation	1. Exhibition: display student works and invite other classes or parents.	1. Assessment: Students fill out evaluation forms, rate each other, and write improvement suggestions.					
		2. Self-evaluation and peer evaluation: fill out evaluation forms.	2. Interpersonal: Students suggest improvements and share best practice works.					

Week 1: Basic Theoretical Knowledge of Art Color （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day5	Summary and presentation	3. Summary reflection: discuss experiences and gains from cooperative learning.	3. Interaction: The teacher summarizes the week's achievements and praises excellent teams and individuals.	Write a summary of color theory knowledge and complete a spring-themed work with color practice.				
			4. Reflection: Groups summarize the week's learning process and discuss experiences and gains from cooperative learning.					
			5. Suggestions: The teacher provides specific improvement suggestions for each group to help future learning.					

Week 2: Composition Training

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day1	Introduction to basic concepts of composition	1. Introduction, group discussion: What is a composition	1. Assessment: Students write about their understanding and expectations of composition before starting. The teacher observes students' initial understanding and expression abilities.	Draw a simple still-life composition on A4 paper using the rule of thirds.				
		2. Appreciate textbook paintings, and think about the impact of different composition methods.	2. Interpersonal: Students discuss their understanding of composition in groups, share their views, and listen to each other.					
		Introduction, group discussion: What is a composition	3. Interaction: Teacher and students explore the concept and importance of composition together.					
		Appreciate textbook paintings, and think about the impact of different composition methods.	4. Reflection: Students reflect on their understanding and group composition expectations.					

Week 2: Composition Training （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day1	Introduction to basic concepts of composition		5. Suggestions: Students suggest learning content and support needs within the group. The teacher adjusts subsequent teaching content and methods according to students' suggestions and expectations.					
Day2	Explanation and discussion of composition methods	1. Unveil the topic: Composition training.	1. Assessment: Students discuss and express their understanding and expectations of different composition methods. The teacher observes students' participation and understanding.	Draw still-life paintings using diagonal and S-shaped compositions.				
		2. Watch slides to learn about different composition methods and their applications.	2. Interpersonal: Students discuss various group composition methods' characteristics and application scenarios.					

Week 2: Composition Training （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day2	Explanation and discussion of composition methods		3. Interaction: The teacher explains and demonstrates various composition methods, leading students to consider their pros and cons.	Draw still-life paintings using diagonal and S-shaped compositions.				
			4. Reflection: Groups summarize and reflect on the discussion results, analyzing the characteristics and applicability of different composition methods.					
			5. Suggestions: Students suggest how to use composition methods in the group better.					
Day3	Analysis and summary	1. Discuss and summarize composition methods: triangular, rule of thirds, S-shaped, diagonal.	1. Assessment: Students create paintings using learned composition methods, demonstrating their abilities and techniques.	Draw still-life paintings using triangular and S-shaped compositions.				

Week 2: Composition Training （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day3	Analysis and summary	2. Group presentations on discussion results.	2. Interpersonal: Students share and discuss their practice works within the group.	Draw still-life paintings using triangular and S-shaped compositions.				
			3. Interaction: The teacher organizes interactive painting evaluations, facilitating student feedback and suggestions.					
			4. Reflection: Students evaluate and reflect on their practice works within the group, summarizing the strengths and weaknesses of composition methods.					
			5. Suggestions: Students propose suggestions for themselves and others within the group.					
Day4	Creative practice and communication	1. Group discussion on the composition of artworks.	1. Assessment: The teacher observes and evaluates students' creation process.	Draw a creative still-life painting with learned composition methods.				

Week 2: Composition Training （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day4	Creative practice and communication	2. Exchange personal creation plans and composition choices.	2. Interpersonal: Students exchange and cooperate on composition methods and creation experiences.	Draw a creative still-life painting with learned composition methods.				
			3. Interaction: The teacher provides one-on-one or group guidance.					
			4. Reflection: Students evaluate and reflect on their work within the group.					
			5. Suggestions: The teacher provides personalized suggestions and guidance.					
Day5	Work presentation and evaluation	1. Students practice composition creation, and the teacher supervises.	1. Assessment: Students present their works, teacher, and peers evaluate and provide feedback.	Create a work with a unique composition concept.				
		2. Group presentation and mutual evaluation.	2. Interpersonal: Students interact and share their creative insights and experiences.					

Week 2: Composition Training （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day5	Work presentation and evaluation		3. Interaction: Teacher and students discuss works' composition and color application.	Create a work with a unique composition concept.				
			4. Reflection: Students reflect on their works and summarize their experiences.					
			5. Suggestions: Students suggest improvements for future work.					

Week 3: Copying Excellent Art Works

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day1	Understanding still life works	1. Complete a still-life sketch.	1. Assessment: Students complete a simple still-life sketch. The teacher observes and questions to understand their knowledge.	Collect and prepare several favorite still-life paintings for sharing and discussion.				
		2. Watch videos or slides of color still life paintings.	2. Interpersonal: Students share their understanding and experiences of still-life paintings.					
		3. Discuss the characteristics and techniques of still-life paintings of color.	3. Interaction: Discuss works' characteristics.					
			4. Reflection: Groups share initial understanding and reflect on their skills.					
			5. Suggestions: The teacher provides feedback and suggestions for improvement.					
Day2	Still life arrangement and observation	1. Practice arranging still-life objects.	1. Assessment: The teacher checks students' understanding.					

Week 3: Copying Excellent Art Works （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day2	Still life arrangement and observation	2. Create still-life sketches.	2. Interpersonal: Groups discuss still-life arrangements and share observations.	Complete a still-life sketch focusing on composition.				
		3. Share arrangement and sketching experiences.	3. Interaction: The teacher guides discussion on arrangement effects.					
			4. Reflection: Groups summarize and reflect on their experiences.					
			5. Suggestions: The teacher offers improvement suggestions.					
Day3	Color analysis and technique practice	1. Explain color relationships.	1. Assessment: The teacher checks sketches and understands color relationships.	Choose a work to copy and start preliminary color practice.				
		2. Demonstrate painting techniques.	2. Interpersonal: Groups discuss their sketches and techniques.					
		3. Practice and discuss results.	3. Interaction: The teacher demonstrates techniques, and students practice.					

Week 3: Copying Excellent Art Works （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day3	Color analysis and technique practice		4. Reflection: Groups summarize and reflect on practice results.	Choose a work to copy and start preliminary color practice.				
			5. Suggestions: The teacher offers advice on improving techniques.					
Day4	Copy practice	1. Analyze chosen work.	1. Assessment: The teacher checks color practice and analysis.	Continue improving the copied work record insights.				
		2. Begin copying practice.	2. Interpersonal: Groups discuss their chosen works and share copying tips.					
		3. Share progress in class.	3. Interaction: The teacher guides practice and addresses questions.					
			4. Reflection: Groups summarize and reflect on their copying experiences.					
			5. Suggestions: The teacher offers improvement tips.					

Week 3: Copying Excellent Art Works （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day5	Work improvement and presentation	1. Improve copied works	1. Assessment: The teacher checks the completed work and techniques.	Write a summary of the week's copying practice.				
		2. Present works, self, and peer evaluation.	2. Interpersonal: Groups share and discuss improvement strategies.					
		3. Summarize weekly learning.	3. Interaction: Present works and receive feedback.					
			4. Reflection: Groups summarize weekly learning.					
			5. Suggestions: The teacher offers improvement suggestions.					

Week 4: Still Life Painting

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day1	Review and observation	1. Assess assignments.	1. Assessment: Check students' sketch assignments.	Arrange still-life setups and observe their differences.				
		2. Teacher demonstrates.	2. Interpersonal: Groups discuss their observations.					
		Adjust practice. 3.	3. Interaction: Teacher guides still life observation.					
		4. Display and evaluate works.	4. Reflection: Groups share and reflect on their observations.					
			5. Suggestions: The teacher summarizes key points and offers improvement tips.					
Day2	Composition and sketching	1. Review and discussion.	1. Assessment: Check observation assignments.	Complete three still-life compositions and sketches.				
		2. Demonstrate composition and sketching.	2. Interpersonal: Groups discuss composition and sketching methods.					
		3. Practice sketching.	3. Interaction: Teacher demonstrates methods.					

Week 4: Still Life Painting （Continued）

Day	Content	Activities	Cooperative learning process	Assignment	Rating			Suggestion
					+1	0	-1	
Day2	Composition and sketching	4. Teacher's feedback and suggestions.	4. Reflection: Groups share and reflect on their sketching experiences.	Complete three still-life compositions and sketches.				
			5. Suggestions: The teacher offers improvement tips.					
Day3	Coloring and underpainting	1. Assess and evaluate works.	1. Assessment: Check compositions and sketches.	Complete the underpainting of a still life.				
		2. Demonstrate coloring techniques.	2. Interpersonal: Groups discuss color schemes and underpainting techniques.					
		3. Practice painting.	3. Interaction: Teacher demonstrates techniques.					
		4. Teacher's feedback and suggestions.	4. Reflection: Groups share and reflect on their coloring practice.					
			5. Suggestions: The teacher offers advice on improving coloring techniques.					
Day4	Detailed rendering	1. Group discussion on composition.	1. Assessment: The teacher checks coloring practice.	Continue refining still life painting and note problems encountered.				

Week 4: Still Life Painting （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day4	Detailed rendering	2. Share personal creation plans and composition choices.	2. Interpersonal: Groups discuss techniques and share ideas.	Continue refining still life painting and note problems encountered.				
			3. Interaction: The teacher provides guidance.					
			4. Reflection: Groups reflect on their rendering experiences.					
			5. Suggestions: Groups provide improvement suggestions.					
Day5	Work creation and presentation	1. Students create work, and the teacher supervises.	1. Assessment: Teacher evaluates completed works.	Independently create a still-life painting.				
		2. Group presentation and evaluation.	2. Interpersonal: Groups discuss still life angles and creation plans.					
			3. Interaction: Present works, self and peer evaluation.					

Week 4: Still Life Painting （Continued）

Day	Content	Activities	Cooperative Learning Process	Assignment	Rating			Suggestion
					+1	0	-1	
Day5	Work creation and presentation		4. Reflection: Groups reflect on feedback and adjust work.	Independently create a still-life painting.				
			5. Suggestions: The teacher offers improvement tips.					

Recommendation……
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Sign..... Assessor
(.....)
Date...../...../.....

The Test :

	Element	Rating			Suggestion
		+1	0	-1	
Goal	Evaluate the level of understanding and expression in the use of color, compositional design, expression of realistic techniques, and creativity of senior art students at Leapfrog Intermediate Vocational School in Leapfrog, Dezhou, Shandong, through the portrayal of specific still-life assemblages.				
Test Subject	Senior art student at Leapfrog Intermediate Vocational School in Dezhou, Shandong.				
Materials and Equipment	Art paper (limited horizontal use), watercolors, watercolor pastels or acrylics, black signing pens, pictures of physical materials (daffodils, lilies, spray cans, teacups, radios, fans, fresh dates, table tops, blue-gray fabric).				
Test Content	Candidates are required to organize their compositions based on images of the physical material provided, with daffodils as the primary material and other objects in varying angles and orientations, describing objects in conventional proportional relationships and using realistic techniques for expression 				
Test Step	1. Preparation stage: Fill in the information about the examination room. 2. Composition design: organize your composition. 3. Color Application: Choose appropriate paints for coloring. 4. Completion and Submission: Submit your work and answer sheet.				

The Test (Continued)

<table>
<tr><th></th><th>Element</th><th colspan="3">Rating</th><th>Suggestion</th></tr>
<tr><th></th><th></th><th>+1</th><th>0</th><th>-1</th><th></th></tr>
<tr><td>Evaluation Criteria</td><td>Compositional skills, use of color, expression of realistic techniques, creativity, and individuality.
<table>
<tr><th>Evaluation Projects</th><th>Criteria for Evaluation</th><th></th><th>Assessment Score</th></tr>
<tr><td rowspan="2">Compositional skills</td><td>The composition of the work is reasonable.</td><td>10</td><td rowspan="2">20</td></tr>
<tr><td>The structure of the work is correctly proportioned.</td><td>10</td></tr>
<tr><td rowspan="2">Use of color</td><td>The use of color is rich and varied, and the color combinations are reasonable.</td><td>10</td><td rowspan="2">20</td></tr>
<tr><td>There is a clear distinction between light and dark colors, and there are transitions in colors.</td><td>10</td></tr>
<tr><td rowspan="2">Realistic Technique Expression</td><td>There is a sense of hierarchy in the presentation.</td><td>10</td><td rowspan="2">20</td></tr>
<tr><td>There are apparent brushstrokes in the picture, and the details are well-handled.</td><td>10</td></tr>
<tr><td rowspan="2">Innovation and individuality</td><td>The treatment of the subject matter is original and unique.</td><td>20</td><td rowspan="2">40</td></tr>
<tr><td>The work has a visual impact, attraction, and uniqueness.</td><td>20</td></tr>
</table></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Caveat</td><td>The exam is 180 minutes long and has a maximum score of 100 points. All work must be original and not plagiarized. The exam code needs to be followed; violations will result in invalid grades.</td><td></td><td></td><td></td><td></td></tr>
</table>

Recommendation……
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Sign..... Assessor
(.....)
Date...../...../.....

Picture Display of Collaborative Learning Class Process

Figure 3 Teaching Course 1

Figure 4 Teaching Course 2

Figure 5 Teaching Course 3

Picture of Water Powder Testing Process

Figure 6 On-site Testing 1

Figure 7 On-site Testing 1

BIOGRAPHY

NAME	Ms. Huimin Wang
TELEPHONE	+8615053499922
EDUCATIONAL BACKGROUND	Bachelor's Degree Major: Fine Arts China West Normal University
GRADUATION APPROVAL DATE	June 15, 2018
WORK EXPERIENCE	March 2019 Art teacher Yuehua School in Dezhou City, Shandong Province 2021 to 2022 Secretary Youth League Committee of Yuehua School in Dezhou City, Shandong Province