Enhancing Students' Creative Thinking and Expression of the Visual Arts in School-Based Curriculum: A mixed-methods study of one Chinese secondary vocational school

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ARTICLE INFO	ABSTRACT
	In order to equip students with 21st century competencies of critical thinking, problem solving, creative thinking and collaborative working skills. A popular strategy used by governments and schools around the world is to move from a less formal to a more engaging school environment through school-based curriculum development (SBCD). Given the acceptance of micro-videos by millennial students and the creativity demonstrated in many of them, some educators have also begun to integrate micro-videos into their classrooms. Secondary and higher education institutions in the West have begun to use micro-videos in educational contexts as a means for students to express their creativity and master subject matter, However, less attention has been paid to micro-video as a visual art form in art education in China. This study reports a case study of a secondary vocational school in China that used micro-video to develop an art school-based curriculum aimed at cultivating students' creative thinking skills and expressive abilities. The study used a mixed-methods design that allowed for the collection of both quantitative and qualitative data. The curriculum development was based on Wheeler's curriculum development model. Data collection tools included the Torrance Creative Thinking Test, teachers' and students' interview forms. The results showed that the activities significantly improved students' creative thinking skills and expressiveness. Students' interest in learning, creativity, collaboration, and artistic literacy improved. **Keywords:** School-based curriculum development; Visual art; Micro video; Secondary vocational school; Creative thinking; Expression.

1. Introduction

The term "school-based curriculum development" was first proposed by two scholars, Philip Mark and McClellan, at an international curriculum seminar (Hairon et al., 2018; Yue Deng1, 2022). Many scholars have put forward their own views since then. However, due to the differences in political systems and cultural traditions of countries around the world, a unified conceptual definition has not been formed. At the end of the 20th century, school-based curriculum development was introduced into China from the West, which attracted the attention of some curriculum researchers in China. Among them, the most representative views are the following scholars (Luo, 2023) believes that school-based curriculum development refers to the school 's curriculum development strategy suitable for the specific characteristics and conditions of the school based on its own educational philosophy, in order to meet the actual development needs of students, with school teachers as the main body. school-based curriculum development is a set of activities based on school-based curriculum planning, compilation, implementation and evaluation. It is a continuous and dynamic process of curriculum improvement (Li, 2006).

In the 21st century, in the context of globalization (Zhou, 2022) and the information society the information society (Nishant et al., 2009), new media art (Reffin, 2021; Seth, Adrian, & Adrian, 2022) has become one of the important disciplines of contemporary visual art. It is the result of innovative research and practice of human artistic expression, communication and connection through photography, videography, computers,

networks and digital virtual interactive media. In response to the current challenges of the digital age to society, education, and culture, the international art education community has actively changed its original educational philosophy by adding new media arts such as digital photography, stop-motion animation and web art to school art programs (Jitsupa et al., 2022). The types of videos created by adolescents and adults, and found that adolescents viewed online videos as a stage to capture their performances (Yarosh et al., 2016). While secondary and higher education institutions in the West have begun to use micro-videos in educational contexts as a means for students to express their creativity and to master subject matter. However, less attention has been paid to micro-video as a visual art form in art education in China (Wang,2019).

This paper focused on school-based curriculum for micro-videos visual arts aimed at improving students' creative thinking and expressiveness in a secondary vocational school in China. An experiment was conducted to test whether students' expressive and creative thinking skills were improved before and after taking this school-based program. This paper begins with a review of Chinese policies encouraging school-based curriculum development and the research literature on creative thinking and expression in visual arts. It then briefly describes our research objectives, methodology and findings. The final discussion explores how these findings contribute to current SBCD（school-based curriculum development）.

1.1 Creative thinking and expression in the visual arts education

Although the precise definition of creativity has been the subject of debate in many disciplines, one of the most common observations is that creativity is connected with imagination and innovation, and with the production of novel, unexpected solutions to problems (Daniel Fasko, 2000). However, "All who study creativity agree that for something to be creative, it is not enough for it to be novel: it must have value, or be appropriate to the cognitive demands of the situation", an idea that is shared by many researchers (Glăveanu,2020; Kaiser, 2019; Miriam, 2014). Based on these observations, we define a creative artifact as one that is novel (surprising, unexpected) and has value.

The visual arts provide a complex stimulus，making art an ideal medium for imparting creativity (Hagtvedt et al., 2008). Art education possesses some advantages to develop of the creative thinking, and one of them can be the non-routine problem-solving process, which consists of the structure of the art. The student in the beginning of an artwork's production has likely to encounter non-routine problems as a new situation during each of the production stages of thinking, designing, and application in terms of the solving process (Ulger, 2019). In this situation, there can be more opportunities for the visual arts student to experience novelty in terms of fostering creative thinking (Alter, 2009).

Creativity requires openness to new experiences, and "openness to new experiences" should signify the creativity of the arts as a result of the new, which is essential for creativity in the visual arts. In this way, the visual arts are likely to be associated with creative development (Botella, 2013). The processes of developing and producing artwork may include uncertainty. This type of learning environment can nurture students' openness to uncertainty by probing the artwork. Therefore, it is possible that the visual arts students were able to easily address the open-ended problems in life by remaining open to uncertainty. Kaufman and colleagues (2016) stated that openness in the arts should be supported. In addition, uncertainty is essential for creativity (Ulger, 2018).

The visual arts curriculum, with micro-video production, enhances students' autonomy, sense of social belonging and self-confidence, and facilitates their intrinsic drive for creative thinking (Zhou, 2022). The widespread use of mobile devices and the ability to record and share micro videos on platforms such as Vine and Instagram have encouraged a new form of multimedia communication (Redi, 2014). Research has shown that integrating micro-videos into the curriculum captures students' attention, stimulates their curiosity, promotes their engagement, and increases their intrinsic motivation to learn (Chen, 2022; Ahmad, 2017; Zhu, 2016). Involvement in micro-video production allows students to acquire professional knowledge and competence and give positive feedback thus boosting their self-confidence and motivating creativity (Zhenqian, 2022).

1.2 Background of micro-video school-based curriculum development

Changing conditions in the information age have led to changes in education. These changes are innovations. They have transformed schools and programs. They have led individuals to acquire 21st century skills which are critical thinking, problem solving, creative thinking and cooperative thinking skills (Dilekçi, 2023). Many have doubted whether the traditional curriculum, developed and administered mainly by central offices, can be implemented effectively at the school level to meet the future development needs of students in the 21st century (Lee, 2017). One popular strategy adopted by education systems around the world to facilitate the transformation is School-Based Curriculum Development (SBCD).

SBCD as an effective way to deepen curriculum decentralization in China, as it could involve more stakeholders in curriculum development and could redistribute the decision-making power. It could be a potential solution to many educational problems in schools, especially against the background of educational reforms (Yang, 2017). When teachers are granted greater autonomy, flexibility and responsibility, they are able to respond quickly to situational issues and meet students' needs by innovating and developing school-based curricula for specific contexts (Lee, 2018; Sinnema, 2020; Hairon, 2022).

Given the receptivity of millennial students to micro videos and the creativity demonstrated in many of them, secondary and higher education institutions have begun to use micro videos in educational contexts as a means for students to express their creativity and master subject matter(Yarosh, 2016). At a high school in Pennsylvania, in the United States, Hilton and Oldakowsiki (2015) studied the vines of students in a literature class that demonstrated their understanding of Aldous Huxley's *Brave New World*. Over the course of reading the book, students creased micro-video interpretations its themes at regular intervals. They found that students, through the use of social media, increased their engagement and understanding of the text. The active participation and creative thinking skills encouraged by such activities can bring substantial benefits to students (Yarosh, 2016).

From the educational perspective, making micro-video provides students with opportunities to be creative, think critically, and demonstrate their capabilities as participants in a world of technology and digital literacy skills (Gerbaudo, 2021; Frydenberg, 2016). In China's secondary vocational education, outdated concepts make the development of secondary vocational art education face challenges. It still insists on educating students through excessive homework and classroom knowledge instillation (Liu, 2022; Ryan, 2019). In the past, the scope of art courses was mainly appreciation-oriented, emphasizing theoretical learning rather than practice (Liu, 2021; Deng, 2016; Li, 2019). Many primary and secondary school teachers are not very familiar with the concept of micro-video because they are mostly limited to traditional classrooms (Wang, 2018；Zeng, 2014). Many primary and secondary school teachers are limited to traditional classrooms and pay less attention to micro-video learning and production ((Liu, 2022；Hu, 2019). Although teachers in China are encouraged to develop school-based curricula, however, developing micro-video school-based curricula to enhance students' creative thinking remains challenging in the absence of professional guidance.

1.3 Purpose of the study
The aim of this study was to develop an art school-based curriculum using microfilm to develop students' creative thinking skills and expressive abilities, and to test whether there were significant differences in the creative skills and artistic expression of students who participated in the development of the micro-video school-based curriculum, and what were their experiences in developing the micro-video school-based process.

1.4 Research Questions
1. Is there a significant difference in the creative thinking of students in the intervention group after using the micro-video school-based curriculum?
2. Is there a significant difference in terms of artistic expression among the students in the intervention group using the micro-video school-based curriculum?
3. What are the opinions of experts and art teachers on micro-video school-based curriculum development?
4. What are the opinions of the student on micro-video school-based curriculum development?

2.0 Research Methodology
This study by nature employs the mixed method approach in which quantitative and qualitative data are collected, analyzed, and their findings are integrated to obtain a more comprehensive picture. The quantitative phase of the study used a randomized experimental and control group consisting of students with similar characteristics. The experimental design involved the manipulation of the independent variable. In this study, the independent variable (IV) was the developed school-based curriculum and the dependent variable (DV) was students' creative thinking skills.

At the stage of school-based curriculum development, the method of action research was used, which is one of the methods of qualitative research. Action research is a research method that seeks topics from actual work, with the participation of actual workers and researchers, so that the results of the research can be understood, grasped and applied by actual workers to achieve the purpose of solving practical problems (Jefferson, 2014).

2.1 Data Collection Procedure
This study decided to adopt Wheeler's model of curriculum development（Figure 1）, The model consists of five interrelated stages: 1. Aims, goals and objectives 2. Learning experiences 3. Selection of content 4. Organization and integration of learning experiences and content 5. Evaluation （Wheeler,1967 ）. The curriculum development procedure is as follows.

Fig.1：The Curriculum Development Model of Wheeler

Firstly, we investigated the students' learning experience and creative thinking. This research adopts the form of questionnaire. The questionnaire was administered to 8 art teachers, 2 specialists, and 600 students, grades 1 to 3, with 200 randomly selected from each grade (Table 1). The analysis results are as follows.

Table 1：information about the participants in the questionnaire at the learning experience stage Participants F Information

Expert	2	Teaching specialist		
Art teacher	8	Graduate students		
Student	97 girls-103 boys	Secondary	vocational student (grade one)	school
	112 girls-88 boys	Secondary	vocational student (grade two)	school
	94 girls-106 boys	Secondary	vocational student (grade three)	school

☐ **Part 1 Research results**

The survey results of middle school students ' understanding of visual art show that 9.8 % of secondary vocational school students have a good understanding of visual art, 15.6 % of secondary vocational school students have a good understanding of visual art, 30.8 % of secondary vocational school students have a general understanding of visual art, 23.6 % of secondary vocational school students do not know much about visual art, and 20.2 % of secondary vocational school students do not know much about visual art (Figure 2).

Fig.2: Survey results of secondary vocational school students ' understanding of visual art
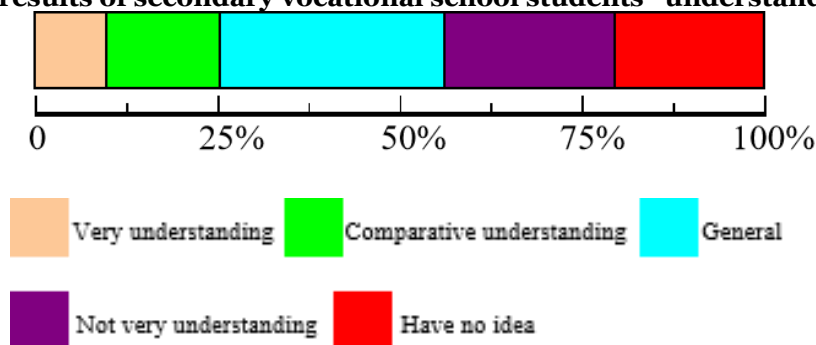
☐ **Part 2 Research results**

For the investigation of visual art forms, the questionnaire lists seven kinds of clothing art, painting art, sculpture art, photography art, environmental art, film and television art and three-dimensional printing. Among them, 40.8 % of secondary vocational school students have the most understanding of film and television art in various visual art forms (Figure 3).

Fig. 3: What kind of visual art form do middle school students know best
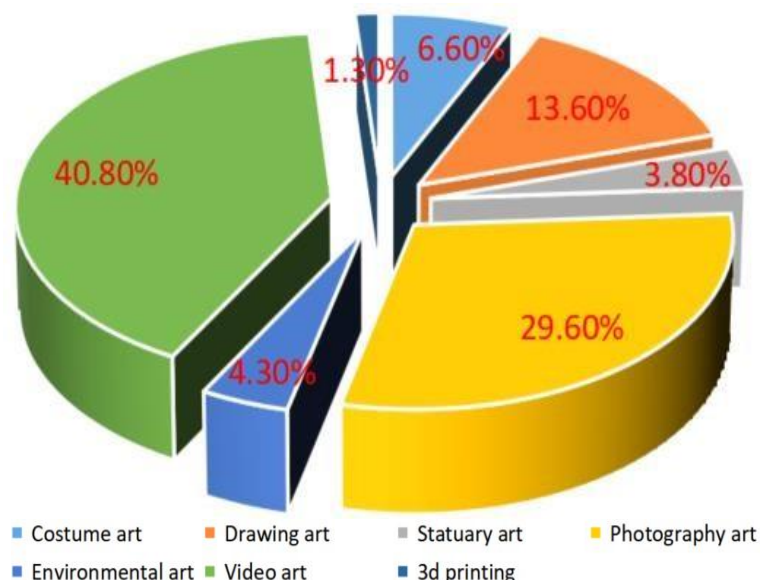
☐ **Part 3 Research results**

Creative thinking is decomposed into curiosity, imagination and challenge. The total score of each item is 50. After the students ' questionnaires are collected, the data are analyzed by SPSS software. The following (Table 2) is a statistical table of curiosity, imagination and challenge of students in the first, second and third grades of secondary vocational school.

Table 2：Data statistics of each dimension scale in each grade grade sexuality head curiosity imagination challenging

First grade Second grade Third grade	Male	97	42.81	38.82	40.29
	Female	103	43.41	41.73	39.26
	Male	112	43.09	41.08	38.96
	Female	88	43.13	41.12	38.99
	Male	94	42.51	40.36	39.11
	Female	106	43.17	39.86	39.56

The above data observe the influence of different grade students on creative tendency from three dimensions. From the total score of the test, the average score of the first grade is 123.16, the average score of the second grade is 123.19, and the average score of the third grade is 122.29, ($p > 0.01$), indicating that there is no significant difference in students ' creative tendency among the three grades.

☐ **Part 4 Research results**

As shown in (Figure 4), the survey results of the mastery of artistic expression for secondary vocational school students by grade show that 74.17 % of secondary vocational school students have only a superficial understanding or never understanding of artistic expression. Therefore, how to cultivate the expression of secondary vocational school students is one of the centers of the follow-up school-based curriculum design.

Fig.4: Survey results of secondary vocational school students ' mastery of artistic expression
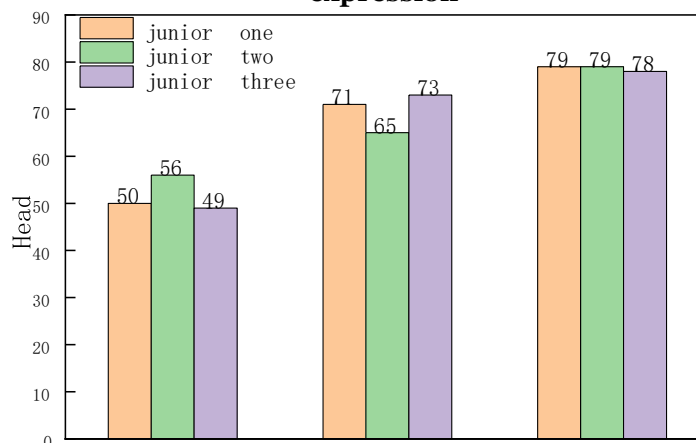
LearnedHave a superficial understanding Never understood

After that, we have developed an action plan which includes the identification of teaching objectives, the design of content, teaching activities and the evaluation of teaching. The action plan was based on the work of 5 art teachers and 2 teaching specialists.

The teaching objectives of the curriculum are to enable students to understand the basics of photography and apply them to practical shooting, so as to cultivate their habit of observing and recording life, improve their aesthetic appreciation, practical ability and teamwork spirit, and stimulate their spirit of innovation and creative thinking ability.

The teaching content as well as the teaching activities are designed based on the teaching objectives. In order to enable students to participate effectively in the classroom, the teaching content (Table 3) was chosen to capture the environment that students are familiar with on a daily basis.

Table 3： Teaching content of school-based curriculum integrating visual art Course curriculum Activity activity number Number

1	What is micro-video?	1	The origin, development and application of micro-video
2	The shooting process of microvideo?	2	Excellent examples to understand the video production process and the division of roles
3	How to write a script?	3	Write and draw original scripts
4	How to be a photographer	4	Composition skills，Colour Photography in
5	How to retouch photos	5	I'm a photo beautician
6	How to do videography	6	Practical videography tips
7	How to make micro- video？	7	I'm one of the crew
8	How to edit video	8	Editing Skill
9	How to set the background music	9	The role of background music
10	How to add narration captions	10	I'm a caption designer.
11	How to do micro-video debriefing	11	I'm the introducer of the work.

The implementation phase consisted of two 45-minute class periods per week for a total of 20 weeks. Two groups of students showing typical characteristics of average first-year secondary students were assigned to the experimental group (19 girls - 16 boys) and the control group (18 girls - 17 boys). A pre-test was administered to the experimental group. The two groups of students were similar in terms of personal variables (Table 4).

Table 4： Pre-test of Creative thinking experimental group and control group index group average standard Average significance deviation standard error

		average	standard deviation	standard error	significance
Processivity Flexibility Originality	Experimental Group	47.95	5.574	1.219	0.749
	Control Group	48.86	5.731	1.203	
	Experimental Group	22.68	2.417	0.615	0.192
	Control Group	21.97	2.625	0.668	
	Experimental Group	29.86	4.362	1.027	0.487
	Control Group	29.91	4.124	1.026	

The teacher integrated the theoretical learning, activity experience and creative practice of micro-video production. We encourage students to use mobile phone software like TikTok or Cap Cut to edit videos (Figure 5). This software is relatively familiar to students and easy to use.

Fig 5: The process of editing micro-video by students using Cap Cut software

Evaluation is also an effective way to motivate students. We can motivate students to participate and be active through evaluation. In evaluation, we prepare a democratic classroom environment, adopt multiple evaluation methods, teacher evaluation, students' self-assessment (Qiua, 2019) and mutual evaluation (Wang, 2021), and combine process evaluation with result evaluation to encourage students' innovative practice.

At the end of the implementation of the program he experimental and control groups were tested for creative thinking and expressiveness. Individual interviews with my colleagues and teachers, group interviews and individual interviews with students in the experimental group. To find out their views on the school-based curriculum developed.

2.2 Instruments
2.2.1. Torrance Test of Creative Thinking
Evaluating the ability of students to think creatively before and after the implementation of the process is the "Torrance Test of Creative Thinking". The test was developed by Torrance, a professor of psychology at the University of Minnesota (1966). It is by far the most widely used test of creativity for individuals from kindergarten to graduate level. The test has been translated into Chinese. Validity and reliability tests were conducted on the Chinese version; a pilot study of reliability analysis was conducted on 126 first-year secondary vocational school students. The Cronbach's Alpha internal consistency coefficients for the fluency part of the scale were 0.80, flexibility was 0.79, and originality was 0.78. The internal consistency of the scale was 0.79. Any Cronbach's Alpha internal consistency coefficients higher than 0.70 indicate that the scale is reliable (Büyüköztürk, 2017; Durmuş et al. 2013; Liu, 2003; Şencan, 2005). Therefore, the Chinese version of TTCT is reliable.

2.3.2. Micro-video product evaluation card
The micro-video evaluation card primarily focuses on the artistic expression of micro-video composition in its performance part. The product evaluation card for arts skills was also developed based on a number of previous researches such as Elfeky and Elby Aly (Abdellah Ibrahim Mohammed Elfeky, 2022; Anazifa & Djukri, 2017). It consisted of four aspects: content (2 items), creative (2 items), production technology (6 items) and Reporting performance（3 items）. Likert scale is a research scale used to measure attitudes and opinions (Ervianti1, 2023). The Likert scale was used in the evaluation of micro-video works. Prior to employing the product evaluation card in this research, it was necessary to conduct a pilot testing to guarantee its reliability and validity. The dependability coefficient of Cronbach's Alpha was 0.92.

2.3.4. Tape-Recorded Interviews of Students and Teachers
The advantage of semi-structured interview is that it is flexible for different respondents and can increase the depth of data and analysis (Ruslin,2022). Conduct individual interviews with my colleagues and teachers, and conduct group interviews and individual interviews with students. To obtain their opinions on the effectiveness of the school-based curriculum developed and the activities that were used in the implementation phase.

2.4 Data analysis

The quantitative data collected through the Torrance Test of Creative Thinking were analyzed using the software SPSS. ANOVA was then used to calculate the differences between the pre-test and post-test scores of the two groups of students in terms of creative thinking and performance. In addition, effect sizes were calculated for variables that showed significant differences after implementation.

For qualitative data, data collected through teacher and student interview forms were content analyzed.

To protect the anonymity of the participants, students were coded as P1, P2, and the teachers were coded as T1, T2, and Thematic analyses were conducted for this study (Attride-Stirling, 2001). To ensure reliability of the interview data, two experts evaluated the interview transcripts. Miles and Huberman's (1994) formula for reliability, which is "Reliability = consensus+ disagreement", was used. The experts evaluated the opinions of the teacher and the students separately and established the themes. Both experts used MAXQDA version 18.2 to identify the emerged themes, features and descriptions. Similarities in textual descriptions was identified, coded and categorized to form emerging themes. Two experts reconsidered the items that they disagreed and decided to encode them under the related themes and thus, achieving consensus.

3. Findings

3.1. Findings obtained for the first research question

3.1.1 The Creative thinking pre-test scores comparison of the groups

The analyses of the groups' scores in terms of the 3 dimensions of the TTCT showed that the mean processivity score of the experiment group was 47.95 and it was 48.86 for the control group; the mean flexibility score of the experiment group was 22.68 while it was 21.97 for the control group. The final originality mean score of the experiment group was 29.86 and it was 29.91 for the control group. In the pre-test of creative thinking (Table 6), there was no significant difference between the experimental group and the control group.

Table 6：Pre-test of Creative thinking experimental group and control group index   group N average standard Average significance deviatiostandard errorn

|						
Processivity Flexibility Originality	Experimental Group	35	47.95	5.574	1.219	0.749
	Control Group	35	48.86	5.731	1.203	
	Experimental Group	35	22.68	2.417	0.615	0.192
	Control Group	35	21.97	2.625	0.668	
	Experimental Group	35	29.86	4.362	1.027	0.487
	Control Group	35	29.91	4.124	1.026	

After one semester of experimental teaching of integrated visual art school-based curriculum, the scores of fluencies, flexibility and originality in the creative thinking test of the experimental group were 59.18,33.16 and 35.86 respectively, which were 12 %, 19 % and 12 % higher than those of the control group. Therefore, it can be verified that the integrated visual art school-based curriculum can effectively cultivate students' creative thinking（Table 7）.

Table 7：Post-test of creative thinking experimental group and control group index   group N average standard Average significance deviation standard error

processivity flexibility originality	experimental group	35	59.18	4.324	0.956	0.749
	control group	35	52.08	4.574	1.012	
	experimental group	35	33.16	3.952	0.786	0.192
	control group	35	26.98	2.356	0.518	
	experimental group	35	35.86	4.268	0.957	0.487
	control group	35	31.55	4.152	0.974	

Through the comparison of the pre-test and post-test in the vocabulary test of the experimental group (Finger 6), it can be seen that the creative thinking of the post-test of the experimental group is smooth. Propensity, flexibility and originality were significantly higher than those in the pre-test. It shows that the teaching experiment of school-based curriculum integrating visual art for 1 semester has effectively improved the creative thinking level of students in the experimental group.

Fig.6: Comparison of pre-test and post-test of creative thinking test in experimental group
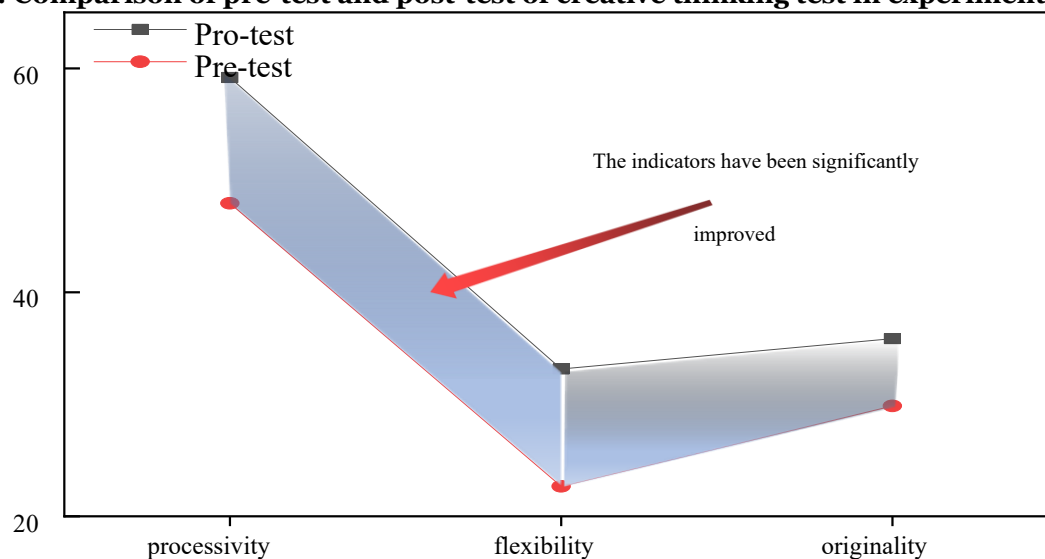
3.2. Findings obtained for the second research question
3.2.1 The Performance pre-test scores comparison of the groups
From the performance test, it can be seen that there is no significant difference between the experimental group and the control group in the combination of color and composition, the fusion of sound and composition (Table 8).

Table 8：Pre-test of Performance experimental group and the control group index　group　N average Standard Average significanc

				deviation	**standard error**	**e**
The combination of color and composition	experimental group	35	19.68	4.087	1.243	0.849
	control group	35	19.76	3.798	1.059	
The fusion performance of sound and composition	experimental group	35	10.54	2.518	0.497	0.712
	control group	35	10.23	2.237	0.499	

3.2.2 The Performance post-test scores comparison of the groups
After one semester of experimental teaching, the scores of the combination of color and composition, the fusion of sound and composition in the performance test of the experimental group were higher than those of the control group, and the difference between the two groups was significant (Table 9). From the pre-test and post-test tables of the experimental group and the control group of the expressiveness test, it can be seen that after one semester of teaching experiment of the school-based curriculum of visual art in middle schools, it is indeed helpful to the cultivation of students ' expressiveness, which makes the experimental group far more than the control group in the combination of color and composition, and the integration of sound and composition.

Table 9：Pro-test of Performance experimental group and the control group index group N average Standard Average significanc e deviation standard error e

The combination of color and composition The fusion performance of sound and composition	Experimental Group	35	38.7	5.076	1.183	0.684
	Control Group	35	29.06	4.718	1.045	
	Experimental Group	35	30.48	2.163	0.512	0.157
	Control Group	35	20.85	2.184	0.505	

3.3. Findings obtained for the third research question
8 teachers and 2 experts participated in the interviews and expressed their views on the curriculum, which were summarized in the following 6 themes.

Contemporary and characteristic：4 teachers and 2 experts stated that this curriculum is contemporary and characteristic. One teacher stated her opinion as follows Micro video, as an art form emerging in the era of new media, is a widespread cultural phenomenon nowadays, reflecting the times（T2）. Another teacher who

shared the same opinion expressed his view in the following words Nowadays short videos are very popular and students are eager to learn. It is good that the curriculum follows the development of the times in this way (T3). One teacher states her opinion using the following words Schools have developed school-based curricula, which, in combination with the characteristics of students, teachers' strength, teaching environment and other factors, have demonstrated the philosophy and ideas of each school. (T1).

Stimulating student interest：6 teachers and 2 experts agreed that the curriculum was able to interest students in learning, and one of them explained why it was able to interest students as follow the micro video course uses a mobile phone as a filming tool and each student has a mobile phone and they are eager to learn filming with a familiar tool, which increases their interest in learning（（T5）. Another teacher shared his opinion in the following words The school-based curriculum uses problem-oriented teaching methods such as showing case studies and analyzing and communicating to make the learning process interesting which stimulates students' interest（T2）.

Artistic literacy of students：All teachers state that the curriculum improved the artistic literacy of the students. One teacher expressed her view as follows. Through the micro-video course, students appreciate the camera language of the video and identify the good and bad micro-videos, then students' artistic literacy is improved (T2). Another teacher stated. The composition of the screen, the use of color, how to shoot can be better to shoot the script, students in the process of production, subconsciously improve the artistic literacy" (T8).

Creative thinking：6 teachers and 2 experts taught students creative thinking skills improved. One teacher explains how it can be seen that students' creative thinking has improved in the following words. We provided students with diversified learning resources and adopted flexible teaching methods to help them generate many ideas for solving problems. Through studying, students generate novel ideas and become more flexible in their thinking, and the creativity of each child is displayed, which can be seen in their work and in their performance （T2）. Another teacher stated: "In the process of production, they encountered many problems, like how to write scripts, how to shoot, how to make videos, etc. In the process of solving each stage of production, such as thinking, designing and applying, students' creativity is cultivated（T5）

Professional competence：4 teachers and 2 experts indicated that their participation in curriculum development had enhanced their personal competencies. One of the teachers explained how those competencies of theirs increased during the school-based curriculum development as follows. The development of the micro video school-based curriculum has honed teachers' curriculum development skills, problemsolving abilities and improved their professional competence in the research（T2）. Another teacher stated. The development of a micro-video school-based curriculum is a very meaningful thing. Growth is not only for the students, but also for the teachers, who are growing in our professional competence（T8）.

3.4 Findings obtained for the fourth research question

Sense of achievement：10 students said that they gained a sense of achievement during the curriculum, and one student expressed his views as follows. Before attending the micro-video course, I didn't believe I could do something so professional When the video was produced, I felt a special sense of achievement（P3）. Another student elaborated on her point with the following words. When I saw the finished product created by my group during the presentation session, I saw my own effort and contribution and felt a great sense of achievement and love for the creation of micro-video（P8）.

Creative thinking：18 students reported that their creative thinking had improved. They added that these teaching and learning activities generate new ideas and solutions and apply the extra learning to other lessons and life. One student explained it this way Through the curriculum, when I encounter a problem, I think about whether there would be a better solution, give several sets of options and then choose the best way（P3）. Another student said. I use different perspectives to observe life and express it. I feel that I have a lot of creative ideas, not only in art classes, but also in math and languages courses (P18).

Cooperation capacity：15 students reported that their co-operation skills had improved as a result of the curriculum. One student explained how the curriculum had helped to improve cooperation. We had to communicate with each other to determine the theme of the work, and after that we determined the division of labor among us, who would film, who would perform, who would edit, etc. During the process, we had to express our ideas, and we also had to make compromises and concessions, so I know how to work better together（P3）. Another student said. In the process of making the video, everyone contributed according to what they are good at and also tried their best to complete their tasks. In this course, I feel the power of teamwork and know how to co-operate with others（P5）.

Familiar content：13 students said they enjoyed the lessons that were close to their lives. Students noted that they enjoyed the familiar thematic format of a youthful campus as content, as well as the use of mobile phones as a photographic tool. One student expressed his opinion. Youth and campus are familiar scenes of our lives, and through the course, I felt that the video our group made about everyone's dreams was very meaningful, and I was happy to be able to express the daily life around us in such a form（（P3）. Another student added. Smartphones are very powerful; with familiar tools we will soon be able to use them proficiently and continue to make microfilms in the future（P2）.

Artistic literacy：20 students mentioned that their artistic literacy had improved as a result of the teaching activities. One student explained: I now know what kind of video production is good, and when I watch videos, I unconsciously analyze the composition and the use of colors（P3）. Another student said. I now go to see the works of some famous directors, famous photographers and painters. Taking photos looks better than before, and now I like to take photos, record them, make videos to express myself, and post them on the Internet to share（P15）.

5. Discussion

The results of this study provide the process and perceived outcomes of how secondary vocational schools in China have used micro-video, a visual art form, in attempting to initiate the development of school-based curricula that cultivate students' creativity and expressiveness. As systems and technologies continue to change, creativity encourages society to keep up with the fast-paced labor adjustments in all sectors (Edmond Law, 2010). Although academic subjects often focus on increasing students' knowledge, knowledge alone is no longer sufficient for future success, and fostering students' creativity ensures competitive social and economic advancement in the future (Dagiene et al., 2021). The results of this study show that the school-based curriculum developed in this study is effective in cultivating students' creativity and expressiveness. This is consistent with some previous studies on the development of school-based curriculum in the arts to develop students' abilities (Hairon et al., 2018; Tan et al., 2017). It can be explained that the development and implementation of the curriculum, through the identification of teaching objectives, the selection of appropriate content, and the implementation of relevant teaching activities, thus affecting the creativity of students.

The study results show that curriculum content that is close to the students' living environment is more stimulating, including the use of learning tools." Everyday Creativity is based on the idea that "all students can think well and be creative"(Connie, 2020). Centered on personal changes to ordinary people, such as personalizing appearances, activities or environments (Connie, 2020; Kaufman & Beghetto, 2009). This form of creativity education emphasizes "creative ways of thinking and behaving in observable and replicable processes and practices in everyday economic and social life" (McWilliam, 2009, p. 282). This may provide ideas for teachers on how to select curricular content for developing a school-based curriculum that fosters students' creativity.

When it is desired to develop creativity through any curriculum, it can be said that creativity is developed through the use of appropriate methods and techniques (Dilekçi & Karatay, 2023). In order to design instruction, teachers select tasks and modes by navigating various instructional resources and are expected to plan instructional activities that are meaningful and relevant to students (Dagiene et al., 2021). Existing research reports that curricula must be prepared to support the use of active, collaborative, project-based, student-centered approaches appropriate for developing students' 21st century skills (Cansoy, 2018; Fairman, 2004; Johnson et al., 2012). As young students are at a critical time in their development, the teachers in this study used flexible and varied teaching methods such as project-based, problem-based, and example-based approaches to provide opportunities to stimulate student innovation. This may provide teachers with ideas on how to teach and improve these skills.

Meanwhile, the results of the study show that in the process of developing school-based curriculum, teachers and students grow together and teachers' professionalism skills are improved. Curriculum development is inevitably a complex endeavor. As teachers develop externally created curriculum materials in and for the classroom, they work across five intersecting domains in terms of students, curriculum materials, instructional resources, learning environments, and school settings (Cohen, 1996). Teachers identified problems and solved them in order to complete their projects, and in the process their creative thinking was enhanced. This study goes beyond the literature and successfully adopts a case study approach (Hedegaard, 2009) to explain the experience of exploring school-based curriculum development in visual arts in the Chinese context, which will provide an important methodological reference for secondary vocational school research.

6. Conclusion and recommendations

In this article the school-based curriculum was developed using visual arts-microfilm. There was a positive and significant difference between the pre-test scores and the post-side scores of the students in the experimental group on the flexibility and originality dimensions of the TTCT. Therefore, it can be said that the developed school-based curriculum is effective in improving students' creative thinking skills again. It may also provide a valuable reference for secondary vocational school educators to reflect on and enhance curriculum implementation and innovation. Although firmly rooted in data from multiple sources and yielding consistent results, this mixed study has some limitations. Because the cases were selected using criteria-based purposive sampling, caution is warranted in generalizing the findings to other contexts. In addition to constructing a similar case study to complement the qualitative findings of the current study, future researchers should conduct a quantitative investigation of arts school-based curriculum development in Chinese secondary schools. A larger and more diverse sample would undoubtedly provide additional insights into curricular

practices and help determine the generalizability of the theoretical findings in this in-depth and informative case study.

☐ **Disclosure statement**
No potential conflict of interest was reported by the author.

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