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Enhancing Students' Team Creativity through Organization Development Interventions: A Case Study of Vocational Chinese Class, Beijing Polytechnic, China

Qianru Gao[1], Seongdok Kim[2]

[1]Corresponding Author, Lecturer, School of General Education, Beijing Polytechnic, Beijing, China. E-mail: qianrugao@qq.com
[2]Lecturer, Graduate School of Business and Advanced Technology Management, Assumption University, Thailand. E-mail: seongdokkim@gmail.com

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Abstract

This case study aimed to enhance students' team creativity by developing the individual creativity, team communication, knowledge sharing, and creative climate of the students carried on organization development interventions in the vocational Chinese class. There were four objectives of this research: to investigate the current situation of student team creativity in vocational Chinese classes, at Beijing Polytechnic; to design and implement appropriate organization development interventions(ODIs) to develop student team creativity, individual creativity, team communication, knowledge sharing, and creative climate in the vocational Chinese class; to determine the differences in these variables of the vocational Chinese class between pre-ODI and post-ODI; to design an OD project to sustain the results of a study based on the results of the quantitative and qualitative results findings. In the case study, questionnaire survey was used for quantitative analysis, semi-structured interview, observation and reflection report were used for qualitative data analysis. The actual samples were 60 students from the School of Art and Design. The group carried on organization development interventions. The same questionnaire was administered two times before and after ODIs to determine the change level. The paired-sample t-test proved there is a statistically significant difference in five variables between pre-ODI and post-ODI. There are 33 teachers and students as a sample for qualitative research. The semi-structured interviews, observation reports, and reflection reports were utilized for thematic analysis which were analyzed between pre-ODI and post-ODIs as well. Qualitative data showed that individual creativity developed, team communication and knowledge sharing frequently occurred, mutual support and encouragement within the team, and team creativity improved. According to the mixed quantitative and qualitative data analysis, individual creativity, team communication, knowledge sharing, team creative climate, and team creativity in vocational Chinese project-based learning classrooms were improved. Key recommendations are made to further foster individual and team creativity at the focal system organization at the individual, department, and university levels for sustainable development.

Keywords: team creativity, individual creativity, team communication, knowledge sharing, team creative climate, organization development intervention, vocational Chinese class

Introduction

Creativity is one of the key research topics constantly studied because it is the core of enterprise competitiveness and product innovation value. (Baik & Kang, 2020). Creativity is expressed in individual and team activities, and an increasingly large number of organizations have been building team-level working groups (Tjosvold et al., 2004). New organizational forms such as team activities can maximize flexibility and responsiveness in the dynamic corporate competitive environment (Byrne, 1993; Donnellon, 1996), and group effect is manifested more intensively than individual effect (De Vries et al., 2006).

Higher vocational colleges are the main training bases for directly conveying creative vocational and technical talents to enterprises. The curriculum teaching project is a concrete work of transformation by the requirements of vocational colleges in the context of professional practice activities (Dai, 2012). Based on cultivating students' vocational core competence and team creativity ability, and under the guidance of the teaching concept of "weakening knowledge, highlighting ability, and implementing quality", the reform of Vocational Chinese classes in higher vocational colleges has changed from the former "Chinese knowledge imparts theory" to the "vocational innovation ability enhancement theory", and the project is used to cultivate students' Chinese application ability (Wang, 2016). At present, the vocational Chinese project classes at Beijing Polytechnic emphasize the cultivation of students' career core and team creation ability, including nine comprehensive language application training projects and six theme humanistic spiritual activities. Vocational Chinese classes are facing many challenges in the process of reform. Through training in professional application writing, professional oral communication, and humanistic classics guidance, teachers and students at Beijing Polytechnic find that students' team creativity needs to be urgently improved in the process of project learning.

Research Problem

The researcher conducted a preliminary diagnosis by using the semi-structured interview method to identify critical problems for students who are taking vocational Chinese classes. The interview sample was 12 students from the College of Art and Design and 12 teachers from the vocational Chinese department. The interview content was conducted to analyze the problems in-depth and get the ranking of the problems. It is found that students have low team creativity, as the issue team creativity in learning mentioned 20 times, low individual creativity, as the issues individual creativity mentioned 18 times, lack of team communication in class mentioned 17 times, low knowledge sharing mentioned 16 times and the issues lack of creative climate in class mentioned 14 times.

Based on the preliminary diagnosis by strength, weakness, opportunity, threat, aspirat ions, and results, SWOT model and SOAR model analysis were shown as the following Table 1.

Table 1

SWOT&SOAR Analysis of Project-based Learning in Beijing Polytechnic

SWOT&SOAR Analysis	
Strength	1. Small-size vocational Chinese class 2. A novel form of team learning in the class 3. Multiple types of cross-disciplinary tasks 4. Vocational Chinese class per week
Weakness	1. Insufficient individual and team creativity 2. Poor team communication 3. Lack of shared willingness and behavior 4. Lack of creative team climate
Opportunities	1. Reform of vocational Chinese class 2. Various kinds of Vocational Chinese activities 3. National vocational skills competition 4. In-depth school-enterprise cooperation 5. Convenient Web Chinese literature and culture resources
Threats	1. Exam-oriented evaluation system 2. High power distance between teachers and students 3. Fierce competition between project-based teams 4. Neglected status in vocational education
Aspirations	1. High-quality professionals with creative ability and behavior 2. With international vision and good team communication skills 3. Have strong team coordination and knowledge-sharing ability 4. Create a creative team under the cross-professional integration
Results	1. To form a creative climate focusing on interactions between team members 2. To finish project-based tasks and make a creative production through knowledge sharing 3. To participate in various kinds of Vocational Chinese activities and competitions

The Table 1 SWOT and SOAR analysis showed that the team lacks creativity, and it is difficult to output creative ideas in the creative process to complete creative cross-professional work. Creativity is a risky task because its complex process can hardly guarantee that it can produce the expected results, so in the project-based learning team, it needs support, communication, and knowledge sharing from the team members. Therefore, the research problem is that students in vocational Chinese classes at Beijing Polytechnic had low levels of individual creativity, team communication, knowledge sharing, creative climate, and team creativity.

Research Objectives

1. To assess and analyze the current situation of art and design students' individual creativity, team communication, knowledge sharing, creative climate, and team creativity in the vocational Chinese class.

2. To design and implement appropriate organizational interventions to improve students' individual creativity, team communication, knowledge sharing, creative climate, and team creativity.

3. To determine the differences in students' individual creativity, team communication, knowledge sharing, creative climate, and team creativity in the vocational Chinese class between pre- and post-ODI.

4. To design an OD project including coaching, goal setting, dialogue, team building, and appreciative inquiry to sustain the results of a study based on the results of the quantitativ e and qualitative results findings.

Research Questions

1. What is the current situation of art and design students' individual creativity, team communication, knowledge sharing, creative climate, and team creativity in the vocational Chinese class?

2. What appropriate ODIs can be developed and implemented to enhance students' individual creativity, team communication, knowledge sharing, creative climate, and team creativity?

3. Is there a significant difference between the pre-ODI and post-ODI in regards to students' individual creativity, team communication, knowledge sharing, creative climate, and team creativity in the vocational Chinese class?

4. What OD project (coaching, goal setting, dialogue, team building, and appreciative inquiry) may be designed and proposed based on the results of the quantitative and qualitative result findings to sustain the results of the study?

Research Hypotheses

H1o. There is no significant difference in the individual creativity of students between pre-ODI and post-ODI.

H1a. There is a significant difference in the individual creativity of students between p re-ODI and post-ODI.

H2o.There is no significant difference in team communication of students between pre -ODI and post-ODI.

H2a. There is a significant difference in team communication of students between pre-ODI and post-ODI.

H3o. There is no significant difference in knowledge sharing among students between pre-ODI and post-ODI.

H3a. There is a significant difference in knowledge sharing among students between p re-ODI and post-ODI.

H4o. There is no significant difference in the creative climate of students between pre-ODI and post-ODI.

H4a. There is a significant difference in the creative climate of students between pre-O DI and post-ODI.

H5o: There is no significant difference in team creativity of students in the vocational Chinese class between pre-ODI and post-ODI.

H5a: There is a significant difference in team creativity of students in the vocational C hinese class between pre-ODI and post-ODI.

Literature Review

Through literature review, it was found that individual creativity is a component of team creativity according to the interaction theory of organizational creativity. It was confirmed by previous studies that individual creativity, team communication, knowledge sharing, and team creative climate had positive effects on team creativity according to social interaction theory, knowledge management theory, and the 4P model of creativity.

Interaction Theory of Organizational Creativity

Woodman et al. (1993) put forward the interaction perspective of creativity research. The interaction theory emphasizes that creativity comes from the interaction between individu als and their environment, and such interaction can occur not only at the individual level but a lso at the team level and even at the organizational level. At the individual level, individual cr eativity is influenced by the interaction of individual cognitive style, ability, personality, relev ant knowledge, motivation, external stimuli, and environmental factors. At the team level, tea m creativity is the result of the interaction of individual creative behavior, team norms, team c haracteristics, team process, and team context. Creativity at the organizational level comes fro m the interaction of individual and team creativity, team culture, and strategy.

Individual Creativity

The research on team creativity by Yuan and Daan van (2020) answers questions relate d to individual creativity and team creativity, and both are supported by empirical evidence: a dditive model (Steiner, 1972) holds that the sum or average of member creativity (the latter co ntrols team size) is positively correlated with team creativity (Navaresse et al., 2014), disjunct ive model (Steiner, 1972) believed that the creativity of the most creative member in a team w as positively correlated with team creativity (Gong et al., 2013).

Team Communication

Li et al. (2012) proposed that team communication is a means of information exchange and emotional exchange, and good communication is needed in teamwork arrangement, conflict resolution, and effective control. Social Interaction Theory (Ashforth, 1985) is an important theory of team communication. This theory is based on the interactionist perspective, which combines the view that members of the team must undergo socialization. The communication convergence model (Rogers et al., 1981) emphasizes that symmetrical relationships between team members formed by information sharing are ideal for communication.

In general, team communication makes team members more active and willing to share professional knowledge and work information with other team members. Team communicatio n helps team members collaborate to complete the work and enhance team creativity (Yang & Zhang, 2012).

Knowledge Sharing

Knowledge sharing refers to the process of communication, discussion, and sharing between the knowledge-sharing person and the knowledge receiver. This two-way communication improves the efficiency of organization members to understand each other's information, experience, and technical skills and triggers thinking and discussion within the organization to promote the emergence of new knowledge and team creativity (Qian, 2010). Knowledge management theory is the conscious management of organizational knowledge to maximize the value of knowledge and realize continuous innovation by using collective wisdom (Wang, 2004).

Team Creative Climate

The creative climate refers to the subjective perception of the members of the organiza tion, directly or indirectly, on the creative elements of the organization's internal policies, proc esses, and management behaviors (Gu &Peng, 2010; Liu & Shi, 2009). Researchers have foun d that team members can be encouraged in the contextual learning climate, and have enough t ime to create ideas in the team. In addition, team creative climate could receive corresponding feedback, and recognition to enhance team creativity (Mathisen et al., 2004).

Team Creativity

Team creativity refers to the innovative ideas of products, services, and processes for team projects and tasks generated by team members' cooperation (Shin & Zhou, 2007). Therefore, it is generally regarded as a process of cross-integration of individual ideas within a team. Gumusluoglu and Ilsev (2009) measure creativity as the ability to generate creative ideas and divergent thinking at different levels of individuals or teams. When an organization successfully uses creative ideas, those ideas are called innovative capabilities.

Based on the interaction theory of organizational creativity (Woodman et al., 1993) and the 4P model of creativity (Rhodes, 1961), this study defines the concept of team creativity as integrating different knowledge of team members in a way of teamwork and then promoting new ideas and new ways in project tasks through effective communication to complete creative works.

Organizational Development Interventions

This case study designed coaching, goal setting, dialogue, team building, and appreciative inquiry as organizational development interventions to improve individual creativity, team communication, knowledge sharing, creative climate, and team creativity in the project-based learning vocational Chinese class with the evaluations of pre-ODI and post-ODI results.

Coaching

The CALLA model (Csikszentmihalyi, 2014) proposes five stages in the creative work process: preparation, presentation, practice, evaluation, and extension. In participation action research, preparation is a process that requires students to reflect on past learning experiences and prepare for future development. Students gain beneficial experience and knowledge through brainstorming and case analysis in coaching, linking prior knowledge to the task at

hand and then reassessing the possibility and value of applying prior knowledge to the task at hand.

Goal Setting

The creative learning mode is guided by the team learning theory (Kaewprasith, 2019), based on the democratic cooperative learning relationship, guided learning teaching procedures as the main line, fully stimulate students' awareness of problems, and through the optimization of various elements of the teaching system, to achieve the functional goal of "improving students' self-study ability, creative ability and overall quality"(Gu, 2011).

Dialogue

Creative work requires creativity, and taking dialogue can add to an individual's ideas (Dokko et al., 2014). Students become proficient in the discussion of project processes and the work of project implementation through interactive dialogue (Ross, 1994). After formulating a specific learning plan and assigning different tasks to a group, students are asked to participate in the creative process and make suggestions for the completion of project tasks (Li & Kim, 2020). In this stage, the frequency and efficiency of team communication are improved mainly through dialogue, to effectively carry out team creative activities.

Team Building

Team building, as one of the means of intervention in organizational development, means that team building activities are used to help the team improve the way (knowledge-sharing) to complete tasks, especially the use of creative ways to solve problems. In addition, team building also helps team members improve team skills, such as interpersonal communication skills and problem-solving skills, to improve the completion of team action plans. (Cummings, 2004).

Appreciative Inquiry

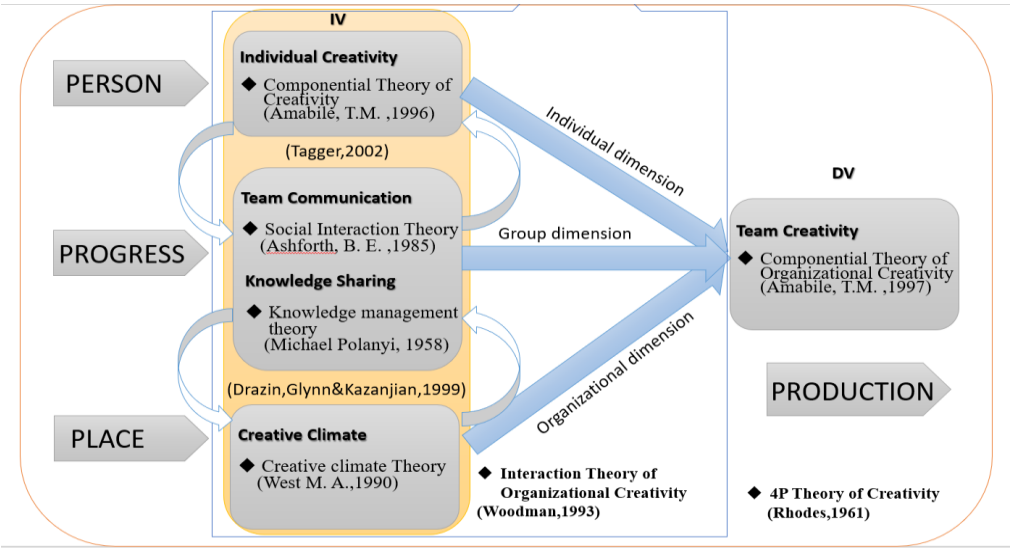
Appreciative inquiry is regarded as an important tool for the development and transformation of organizations, which can help organizations build advantages from successful experiences (Cooperrider & Srivastva, 1987). Ratanaphunsri (2014) showed that the main task of appreciative inquiry as OD intervention is to create an "appreciative learning organization" with a good creative atmosphere.

Theoretical Framework

Figure 1 shows the theoretical framework. Based on the interactive theory of organizational creativity (woodman et al., 1993), this study divides independent variables into three levels: individual (individual creativity), group (team communication & knowledge sharing), and organizational environment (creative climate).

Figure 1

Theoretical Framework

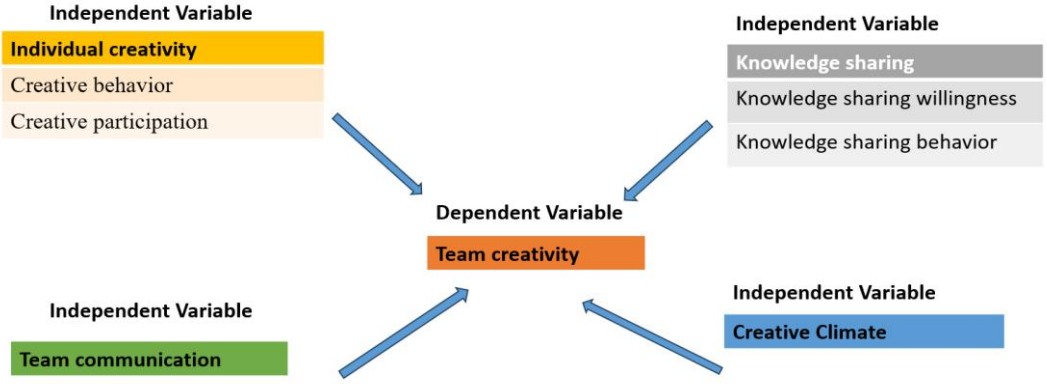


Conceptual Framework

Figure 2 shows the independent variables and dependent variable.

Figure 2

Conceptual Framework

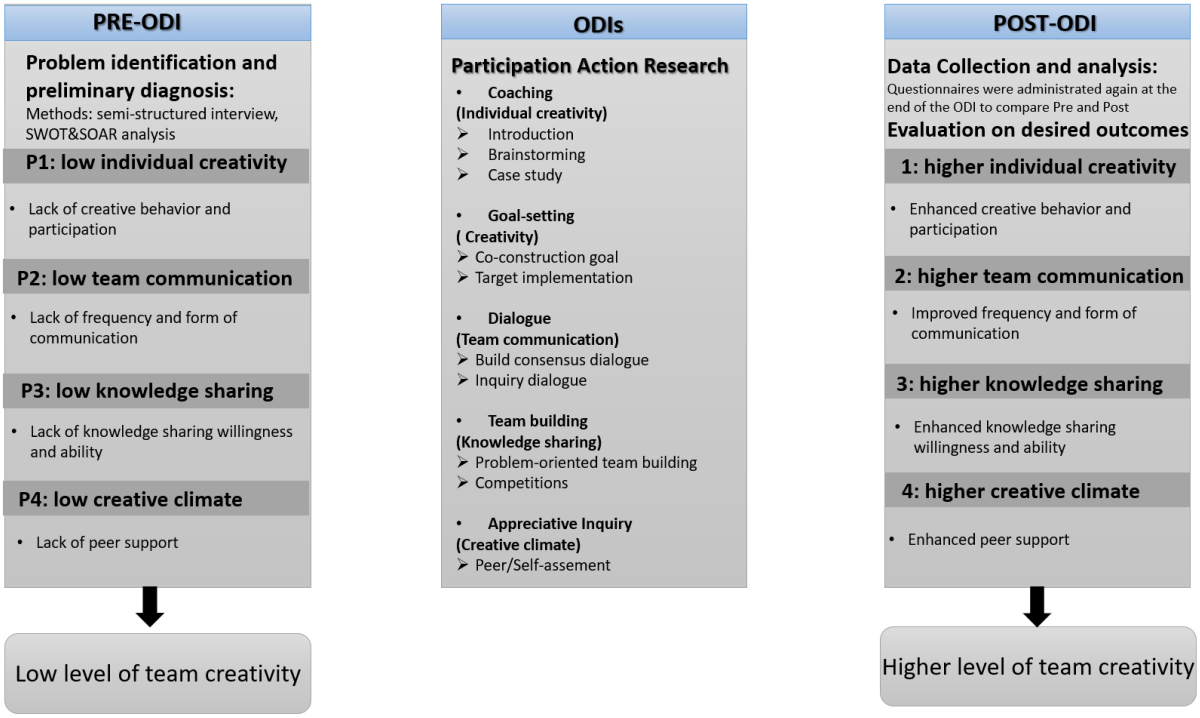


Action Research Framework

Based on the problems identified during the pre-ODI stage, the researcher designed five organization development interventions to enhance the variables. Figure 3 shows the framework.

Figure 3

Action research Framework



Research Methodology

Research Design

The purpose of this research is to enhance individual creativity, team communication, knowledge sharing, creative climate, and team creativity through participatory action research methods (Leykum et al., 2009; Mackay, 2016), a mixed method combining quantitative and qualitative research. A quasi-experimental design was used for interventions in this research. The researcher applied questionnaires (quantitative research), interviews, classroom observation, and reflective reports (qualitative research) to answer research questions.

Research Sampling

The research population is 300 students from the College of Art and Design at Beijing Polytechnic. In 2023, Beijing Polytechnic recruited freshmen majoring in digital media art, film and television, fashion design, and environmental art into 10 natural classes, with a total number of 300 students.

The Academic Affairs Office of the school will inform the freshmen to choose vocational Chinese courses in the school network system, and the first 60 students will be assigned to vocational Chinese courses. Therefore, 60 students were purposive sample as an ODI program specially designed for this study. The demographics of the focus groups are shown in Table 2.

Table 2

Demographic Characteristics of Respondents of Quasi-Experiment Group

Demographic Variables	Content	Frequency	Percentage
Gender	Male	34	56.67%
	Female	26	43.33%
Age	18 years old	52	86.67%
	19 years old	8	13.33%
Major	Digital media art	20	33.33%
	Films and television	18	30.00%
	Fashion design	15	25.00%
	Environment art	7	11.67%

In this research, 20 students majoring in digital media art, 18 students majoring in films and television, 15 students majoring in fashion design, and 7 students majoring in environment art. 56.67% of the samples were male and 43.33% were female. The students were all freshmen, their ages were not more than 20 years old.

Research Instruments

The componential theory of creativity (Amabile, 1996) was measured by Zhao's (2017) Creativity Scale (Liu et al., 2010). The purpose of this scale is to assess an individual's basic level of creative ideas, creative behavior, and creative participation (Liu et al., 2010).

Componential theory of organizational creativity and innovation (Amabile, 1997) measured by the Team Creativity Scale (Amabile, 1997). This scale contains four items from the dimension of creative works. It focuses on the output of team creative works (Zou, 2021).

Social Interaction Theory (Ashforth, 1985) was evaluated by the Team Communication Scale (Earley & Mosakowski, 2000). This scale focuses on three subscales that contribute to team communication including communication behavior and feedback (Cheng, 2012).

Knowledge Management Theory (Michael, 1958) was assessed by Knowledge Sharing Scale (Wang & Zhu, 2012). This scale measures two main components that led to a successful knowledge-sharing practice including knowledge-sharing willingness and knowledge-sharing ability (Zhang et al., 2016).

Creative climate theory (West, 1990) is measured by the Team Creativity Climate Scale (Anderson & West, 1998). This scale measured situations of peer support, team leader support, and teacher support, and whether psychological perceptions of team members' creativity are encouraged.

Validity and Reliability of the Instruments

To test the validity of the above questionnaire before it was administered to the subject of the study, the researcher sought five experts (Ph. D holders, 3 experts in OD, 1 expert in liberal arts teaching, 1 expert in vocational College Chinese education). Five professors scored Item Objective Congruence (IOC), and the result showed that for items 4,8, and 16, the average score was 0.8, and for others, the average score was 1(see Table 3). The result proved evidence for content validation of the survey instrumentation.

Table 3

Validity Result (n=5)

Variables	Dimensions	Nu of Questions	Questions	IOC
Individual Creativity	Creative behavior	8	Q1-Q4	1.00, 1.00, 1.00, 0.80,1.00
	Creative participation		Q5-Q8	1.00, 1.00, 1.00, 0.80,1.00
Team Communication		4	Q9-Q12	1.00, 1.00, 1.00, 1.00,1.00
Knowledge Sharing	Knowledge sharing willingness	8	Q13-Q16	1.00, 1.00, 1.00, 0.80,1.00
	Knowledge sharing behavior		Q17-Q20	1.00, 1.00, 1.00, 1.00,1.00
Creative Climate		4	Q21-Q24	1.00, 1.00, 1.00, 1.00,1.00
Team Creativity		4	Q25-Q28	1.00, 1.00, 1.00, 1.00,1.00

To test the reliability of the questionnaire, 30 respondents participated in the pilot test. After 30 respondents finished the questionnaire, the data were analyzed by a statistical analysis program to test reliability as the following Table 4.

Table 4

Reliability Result (n=30)

Variables	Conbrach's Alpha
Individual Creativity	0.889
Team Communication	0.757
Knowledge Sharing	0.915
Creative Climate	0.874
Team Creative	0.880

Data collection and analysis

This study adopts mixed methods research data from the quasi-experiment group in pre- and post-ODI. In the quantitative research part, the researcher collected data via questionnaire from the research samples and analyzed the data by standard deviation, mean value, and paired-samples t-test.

In the qualitative research part, the researcher collected data through interviews, class observation, and reflection reports. The researcher used content analysis to code the transcribed interviews. To avoid bias, three coders were invited to code the interview transcripts together with the researcher following the method proposed by Braun and Clarke (2019). First, they identified the phrases relevant to team creativity variables, namely individual creativity, team communication, knowledge sharing, and creative climate. Then they summarized the data into meaning categories. After that, they reorganized the categories and abstracted themes from them for further interpretation.

Results and Discussion

Quantitative Research Results

This case study utilized descriptive statistics including means, standard deviations, and t-sample tests to analyze the data in the pre-and post-ODI process for quantitative research as Table 5.

Table 5

Quantitative Data

Mean		Std.Deviation	T	P
Pair 1 Individual Creativity	1.217	.649	14.53	.000
Pair 2 Team Communication	1.060	.641	12.82	.000
Pair 3 Knowledge Sharing	1.073	.628	13.23	.000
Pair 4 Creative Climate	1.113	.602	14.32	.000
Pair 5 Team Creativity	1.104	.607	14.09	.000

In Table 5, the first pair of values was used to compare means of individual creativity values; the result shows the mean value is 1.217, Std. The deviation value is 0.649, the t value is 14.53, and the p value is <0.01. So, there is a statistically significant difference between pre-and post-ODI regarding individual creativity.

The second pair of values was used to compare before and after team communication values; the result shows the mean value is 1.060, Std. The deviation value is 0.641, the t value is 12.82, and the p value is <0.01. So, there is a statistically significant difference between pre-and post-ODI regarding team communication.

The third pair of values was used to compare before and after knowledge-sharing values; the result shows the mean value is 1.073, Std. The deviation value is 0.628, the t value is 13.23, and the p value is <0.01. So, there is a statistically significant difference between pre-and post-ODI regarding knowledge sharing.

The fourth pair of values was used to compare before and after team creative climate values; the result shows the mean value is 1.113, Std. The deviation value is 0.602, the t value is 14.32, and the p value is <0.01. So, there is a statistically significant difference between pre-and post-ODI regarding team creative climate.

The fifth pair of values was used to compare before and after team creativity values; the result shows the mean value is 1.104, Std. The deviation value is 0.607, the t value is 14.09, and the p value is <0.01. So, there is a statistically significant difference between pre-and post-ODI regarding team creativity.

From the mean value and std. deviation value results, the independent and dependent variables all improved after the organization development interventions. The paired-sample t-test (p value is <0.01) proved there is a statistically significant difference in five variables between pre-ODI and post-ODI.

Therefore, the research hypotheses result as following in Table 6.

Table 6

Results of Research Hypotheses

Part	Hypotheses o	Result	Hypotheses a	Result
Individual Creativity	H1o	Rejected	H1a	Accepted
Team Communication	H2o	Rejected	H2a	Accepted
Knowledge Sharing	H3o	Rejected	H3a	Accepted
Creative Climate	H4o	Rejected	H4a	Accepted
Team Creativity	H5o	Rejected	H5a	Accepted

Qualitative Research Results

In this case study, the qualitative data analysis was composed of semi-structure interview, observation reports and reflection reports. The data were analyzed by three doctors of OD area using thematic analysis.

Interview Results

Through the semi-structured interview after ODI, the students shared positive feedback. They started to perceive that project-based task learning is not only the performance of team cooperation but also the process of team creativity enhancement and output. They generally believe that individual creativity has increased, and they are willing to express their creative ideas and forms. Most of them stated that their team communication behavior has increased in team knowledge sharing, and they thought about multiple rich forms of increasing effective team communication and knowledge sharing. They felt that the team creativity of their project team group had improved compared to pre-ODI as Table 7.

Table 7

Interview Results

Questions	Themes & Explanation
Q1. How did the current Chinese classroom project-based team activity go? Any interesting or wow moments regarding 'team creativity' with specific examples?	***Theme:*** team activity; individual creativity; team creativity *Explanation:* At present, the Chinese project-based course is progressing smoothly and is widely recognized and loved by students. Both individual and team creativity are enhanced in the course.
Q2. Do you think the classroom project team creates a certain atmosphere for 'team creativity'? If so, can you share exactly how you feel? If not, please share the reasons as well.	***Theme:*** creative climate; encourage; support; trust; respect *Explanation:* In the process of students' practice, the creative climate was gradually formed, because the team began to know and trust each other, so everyone completed the task in the form of cooperation. If the members of the team can encourage, respect, and support others, the atmosphere of the team will be very good.
Q3. What do you think of the communication in class project teams?	***Theme:*** team communication; display; expression; discussion Explanation: The current situation of team communication is much better than before, the internal communication of the team has increased, and the communication will be carried out in different forms such as display, expression, and discussion.

Questions	Themes & Explanation
Q4. How did you share knowledge with your project team? Was there any difference between Pre-ODI and Post-ODI? If so, please describe it. If not, why do you think not much difference in knowledge sharing?	***Theme:*** share knowledge; share ideas; share experiences Explanation: In project-based group learning, students often share knowledge through discussions or WeChat groups, and the content they share is also very rich, with their knowledge, ideas, and experiences, as well as knowledge and information learned online.
Q5. Do you think your creativity has developed during the training? If so, can you describe it with specific examples? If not, how your creativity could have been developed better?	***Theme:*** Individual creativity; creative idea Explanation: Individual creativity is enhanced in the project team training, which also enhances the thinking and innovation ability, and helps the team to complete the team task in a new way to create and promote the team creativity.
Q6. Anything that you want to share besides the 5 questions above?	***Theme:*** team cooperation; team creativity Explanation: The implementation process of project-based tasks focuses on the ability of team cooperation and the output and improvement of team creativity.

Participatory Observation Results

This study invited three teaching supervisors to observe the vocational Chinese classroom in the pre- and post-ODI, which followed detailed elaboration of the three sides of the students' participation, student learning behavior and student practice. The participative observation analysis of these three teaching supervisors objectively and impartially stated what they saw, heard, and felt. There were four themes about the classroom observation in the pre-ODI and three themes in the post-ODI identified respectively as Table 8.

Table 8

Participatory Observation Results

Checklist	Pre-ODI Themes & Explanation	Post-ODI Themes & Explanation
Students' participation 1.Students are willing to produce creative ideas. 2.Students are willing to share their in-depth information and knowledge. 3.Students show a willingness to improve. 4.Students show eagerness for the next session.	Theme 1: Break traditional thinking and encourage creativity. Theme 2: Lack of team communication and knowledge sharing during team creation. Theme 3: Questioning and a negative team creative climate are common. Theme 4: Team creative works are not ideal.	Theme1: Individual and team creativity is improved. Theme 2: Team communication and knowledge sharing enhanced team creativity. Theme 3: Team support is also a part of enhancing team creativity.
Students' behavior 5.Students come to the class on time and well prepared. 6.Students will actively face problems and work together to find solutions. 7.Students demonstrate good manners and good ideas. 8.Students demonstrate an appropriate tone of voice and good interpersonal communication. 9.Students stay focused during the session.		

Checklist	Pre-ODI Themes & Explanation	Post-ODI Themes & Explanation
Students' practice 10.Students could complete creative works in the PBL. 11.Students can apply team creativity in real life.		

The thematic analysis of the observation report showed the students' lack of creativity, lack of communication and knowledge sharing in the class, and full of questioning of the team climate. After carrying out ODIs, the teams in the class supported each other, the creativity of the individual and the team was improved, and team communication and knowledge sharing were frequent. There is an improvement in independent variables and dependent variables in the post-ODI.

Reflection Report Results

After each ODI activity, five students were selected randomly to do a reflection report on ODI training and requested to take a memo of what they observed and thought during the training process. The theme analysis results are as follows.

Table 9

Reflection Report Results

ODI Activities	Themes & Explanation
Coaching	Theme: Individual creativity
1. Introduction 2. Brainstorming 3. Case study	Explanation: Individual creativity can be enhanced by individuals coming up with new ideas and solutions that individuals have expressed their intention to create when they come up with new ideas and solutions, and their creative behavior is formed when they implement them.
Goal Setting	Theme: Creativity
1.Co-construction goal 2.Target implementation	Explanation: In the eyes of students, creative works are interdisciplinary and cross-cultural products, which should have the appreciation value of literature, culture, and art, or have the practical value of serving society.
Dialogue	Theme: Team communication
1. Build consensus dialogue 2. Inquiry dialogue	Explanation: Discussion, exchange of views, problem-solving, and conflict resolution are all ways and platforms to enhance team communication. Students have a strategy for how to communicate each question.
Team Building	Theme: Knowledge sharing
1.Problem-oriented team building 2. Competitions	Explanation: Strong willingness and behavior of knowledge sharing help the team to complete the project task and promote the development of team creativity.
Appreciative Inquiry	Theme: Creative Climate
Peer evaluation & Self-evaluation	Explanation: The support, encouragement, and recognition of team members help the team to create a good creative atmosphere so that students can find their value in teamwork.

From the qualitative content analysis of the reflection report, students' individual creativity, team communication, knowledge sharing, team creative climate, and team creativity were all improved after ODI activities. Students consciously generated new ideas and designs, and they were also willing to express their ideas and made use of new methods to complete team creative work. Then when they encounter difficulties, students would change the communication methods to solve the problems, to help the team carry on the project task. At

the same time, knowledge-sharing behavior appeared within the team. The trust and support within the team were greatly enhanced. Finally, the embodiment of team creativity was presented from the team's creative works.

Discussion

Juxtaposed data results prove that individual creativity and team creativity were improved significantly after organizational development intervention. It verifies that individual creativity is the basic element of team creativity (Amabile, 1985) and confirms the theoretical framework of organizational creativity (Amabile, 1997).

Although previous studies have shown that team communication can promote individual creative psychology and behavior, it is difficult to generalize that this effect is the same for different levels of team communication situations. This research confirms that according to Lam and Chin (2005) and Lu (2006), with the continuous improvement of communication level, the understanding between team members will become deeper, and the common views of each other will be strengthened, thus enhancing the team's creativity.

The results proved that team knowledge sharing was significantly improved before and after ODI, which has a significant effect on team creativity. This is consistent with the existing research. This research proves that team knowledge sharing is critical and has a significant impact on the output and innovation of the knowledge team (Boon et al., 2016). Team knowledge sharing increases the amount of knowledge of members, makes knowledge systematized and standardized, elevates knowledge from individual level to team level and organization level, further integrates team knowledge, generates new knowledge, and continuously improves team creativity ability (Dong et al., 2017).

This also proves Zhao's point (2017) that the influence of team creative climate on team creativity should not be underestimated through the organizational creativity model of Amabile. As an environmental variable, the atmosphere needs a psychological variable to affect the behavior and attitude of team members. The more an organization is willing to provide an atmosphere of creativity, the more it can motivate team members both internally and externally.

Research data proves that individual creativity, team communication, knowledge sharing, and team creative climate are all improved, and thus team creativity is also improved after ODI. Therefore, juxtaposed data results of team creativity confirm the theoretical framework proposed by Zhang and Yu (2022) that individual creativity and team communication have an impact on team creativity. It also validates the research of Mathuki and Zhang (2022), who propose that knowledge sharing and team creative climate have a direct impact on team creativity.

According to the qualitative and quantitative data results, four research objectives were fulfilled as shown in Table 10:

Table 10

Discussion and Summary

Discussion and Summary			
Research Questions	**Results**	**Explanation**	**Summary**
1. What is the current situation of art and design students' individual creativity, team communication,	Lack of individual creativity, team communication, knowledge sharing, creative climate and	Students mentioned that they didn't know how to improve their team creativity in the vocational Chinese class.	In summary, the current situation of team creativity, individual creativity, team communication,

Discussion and Summary			
Research Questions	**Results**	**Explanation**	**Summary**
knowledge sharing, creative climate, and team creativity in the vocational Chinese class?	team creativity (SWOT & SOAR Analysis)	 (Semi-structured Interview)	knowledge sharing, and team creative climate is low level.
2. What are appropriate Organizational Development Interventions (ODIs) to improve the student's individual creativity, team communication, knowledge sharing, creative climate, and team creativity in the vocational Chinese class?	Coaching, Goal Setting, Dialogue, Team Building, Appreciative Inquiry. (Literature Review)	(1) Coaching improved individual creativity (2) Goal setting enhanced team creativity (3) Dialogue increased team communication (4) Team building improved knowledge sharing (5) Appreciation inquiry enhanced team creative climate (Literature Review)	The variables that students' creativity, team communication, knowledge sharing, creative climate, and team creativity through the ODIs (coaching, goal setting, dialogue, team building, and appreciation inquiry) activities are improved.
3. Is there a significant difference between the pre-ODI and post-ODI regarding students' individual creativity, team communication, knowledge sharing, creative climate, and team creativity in the vocational Chinese class?	There is a significant difference between the pre-ODI and post-ODI regarding variables. (Quantitative &Qualitative Research)	H1a is accepted H2a is accepted. H3a is accepted. H4a is accepted. H5a is accepted. (Quantitative Research)	The results of the data verified the hypothesis of the study and also verified the previous literature theories and studies.
4. What (OD project) may be designed and proposed based on the results of the quantitative and qualitative result findings to sustain the results of the study?	The 5-step intervention measures (coach, goal setting, dialogue, team building, and appreciative inquiry) can be proposed. (Juxtaposed Data Results)	The qualitative and quantitative data results verified the previous literature research results, so this case study has the significance and value of reference and recommendation. (Literature Review)	According to the participative action research method, the 5-step intervention measures are formed into a closed loop and become an OD project specially built for the language reform curriculum in higher vocational colleges.

Conclusions and Recommendations

This case study aims to investigate the current situation and improve students' individual creativity, team communication, knowledge sharing, creative climate, and team creativity in the vocational Chinese class at Beijing Polytechnic. The quantitative data analysis of the questionnaire survey proved that the students' individual creativity, team communication, knowledge sharing, creative climate and team creativity in post-ODI were statistically improved. At the same time, the qualitative data analysis of interviews, classroom observation,

and reflection reports proved the conclusion of quantitative data analysis, and the students' individual creativity, team communication, knowledge sharing, creative climate, and team creativity in the post-ODI were improved. This case study confirms coaching, goal setting, dialogue, team building, and appreciation inquiry as organizational development interventions to effectively promote and improve variables (individual creativity, team communication, knowledge sharing, creative climate, and team creativity).

Recommendations

Recommendations for Students:

Get involved in creative student clubs and activities.

The results of this case study indicates that project-based tasks that interest students will make them more actively engaged in creativity. By participating in creative student clubs and activities, students can develop their creativity according to their interests and hobbies. At the same time, club activities are all collective activities, in which students can communicate with each other, share knowledge, find like-minded partners, establish their social groups, and form a good team to create an atmosphere.

Recommendations for Chinese Course Lecturers at BP:

Design cross-disciplinary project tasks.

This case study selected students from different majors to learn interdisciplinary project tasks, and found that they did improve team creativity after ODIs. Chinese teachers are suggested to design more interdisciplinary project tasks to encourage students of different majors to join the project team. Depending on their professional background, students can share knowledge while completing project tasks, and fostering creativity in their teams. This research still needs to continue to be verified round by round, because each group of students has different majors and different situations, so it cannot be generalized.

Recommendations for Beijing Polytechnic:

Carry out long-term intensive training courses in "Chinese + vocational education" project-based learning.

The school should consider revising the talent training program and strengthening the proportion of project-based learning courses in the talent training program according to the current requirements of enterprises for creative talent. Only based on the curriculum can the learning results of team creativity be effectively and long-term enhanced and consolidated. It is recommended that cross-disciplinary, creative, project-based learning courses continue in the second year.

Recommendations for Future Research:

Expand the research of team creativity in the field of education and curriculum reform.

The research on team creativity in the Chinese project learning class of higher vocational college is a case study, which can continue to broaden the study of team creativity in other majors or public basic courses. Team creativity research can continue to find research directions and methods in the field of education and curriculum reform.

From the perspective of team diversity, continue to deepen the research of team creativity

This case study focuses on the improvement of team creativity from the perspective of team interaction. It should continue to explore in depth the impact of team diversity on team creativity. Team diversity can be divided into two aspects: professional heterogeneity and group fault. Some studies also point out that team diversity is team cognitive diversity. Therefore, the research on team creativity can further explore team diversity and find out whether team diversity has a positive or negative impact on team creativity.

Limitations

Although the study was designed and carefully conducted, it has limitations. This study is a case study, and the interventions used in vocational Chinese courses may not be fully matched and applicable to other professional courses. In addition, the samples of the research were only freshmen, because only freshmen took project-based vocational Chinese courses, and the follow-up results of team creativity development in their sophomore and junior years could not be tracked.

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