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Enhancing Students' Academic Engagement at Beijing Polytechnic (BP) Through Organization Development Intervention (ODI)

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Abstract

According to the organizational diagnosis, it was found that the students of Beijing Polytechnic (BP) have problems in the areas of autonomy, competence, relatedness, students' self-efficacy and academic engagement. In order to improve the situation, the study was carried out on the 38 students majoring in Business English at the School of Economics and Management (SEM) in BP. This study utilized four intervention methods including Appreciative Inquiry (AI), Team Building (TB), Goal Setting (GS), and Collaborative Learning (CL) with participants over a four-month period.In this study, two questionnaire collections as well as group interviews were conducted before and after the intervention. A mixed-methods approach was employed to collect and analyze data, as well as to test the hypotheses. The results of the paired samples t-test and qualitative analysis of results showed that there was a significant increase in students' autonomy, competence, self-efficacy and academic engagement pre and post the intervention. These findings suggest that targeted ODIs can enhance academic engagement and provide actionable insights for educational institutions.

Keywords: Autonomy, Competence, Relatedness, Self-efficacy, Academic Engagement

Introduction

In recent years, many countries have begun to apply the theory of learning engagement to the practice of undergraduate education quality assessment, and design corresponding survey scales to measure and assess the learning and practice of college students during their school years. This theoretical framework aligns with the core principles of Self-Determination Theory (SDT), which posits that students' intrinsic motivation and sustained engagement are fundamentally driven by the fulfillment of three basic psychological needs: autonomy, competence, and relatedness. Self-determination theory is a decision that overturns the long-held belief that rewards are the best way to motivate behavior and finds that internal motivation can only be satisfied by satisfying the three most fundamental psychological needs: autonomy, competence, and relatedness. SDT acknowledges the relevance of competence in the

motivational procedure, saying that the need for competence is a fundamental human psychological need. (Deci & Ryan, 2000). Both of these countries use annual large-scale national surveys (i.e., NSSE (U.S.) and AUSSE (Australia)) to understand student engagement (Trowler, 2010). Australia has improved student engagement and learning outcomes by analyzing data from the Assessment of the Quality of Education in Australian Universities (AUSSE) (Coates, 2010). The global expansion of higher education has brought with it more ambitious educational goals that require new curricula, teaching and learning methods. While higher education in East Asia is no exception, it has been observed that teachers and learners in the region have adhered to a strong lecture-based tradition. In China, the higher education system has undergone a major transformation in recent years as a result of the development of a knowledge-based economy and the government's radical reforms to decentralize, market and popularize the higher education system. Especially in higher vocational schools, there is a growing emphasis on developing practical skills that are relevant to the labor market. This adjustment has had a significant impact on student engagement with learning. Students must be more involved in the learning process in order to use the knowledge and skills they acquire in the work market.

Beijing Polytechnic (BP) is a public vocational college organized by the Beijing Municipal People's Government, and was awarded “National Model Higher Vocational College”in 2007. (Beijing Polytechnic, 2007). The school has a number of national and provincial training bases providing education in a wide range of specialties, including electromechanical, aviation, automotive, telecommunications, biology, economic management and art and design. Although the school has made great progress in its education and training system, in recent years, students' interest in learning and classroom participation have generally been low, which has become one of the main problems in the development of the school. In order to clarify this specific problem, the researcher conducted a diagnosis of student learning in BP through group focus interviews. The interviews were attended by four teachers of basic subjects and four students. The study compiled the interviews and analyzed them using SWOT analysis. Among the weaknesses, the interviewees repeatedly mentioned low learning autonomy, lack of self-efficacy, low/inactive academic engagement in the classroom, low competence, low relatedness with classmates and teachers, and poor learning attitudes.

Research Problem

The problem to be addressed in this study is how to improve the autonomy, relatedness, competence and academic engagement of the students. This study designed four interventions based on the current status of students' learning, with the aim of helping students through effective interventions to improve their autonomy, relatedness, competence and academic engagement.

Research Objectives

Based upon the diagnostic results of the students in BP, the researcher proposed the following four intervention programs, AI (Appreciative Inquiry), Goal Setting (GB), Team Building (TB), and Cooperative Learning (CL). The researcher addressed the following

research objectives.

1.To investigate current situation of self-efficacy, autonomy, competence, relatedness and engagement of students in BP.

2. To design appropriate ODI based on the initial diagnosis.

3. To explore the difference of students' self-efficacy between pre- and post-ODI

4. To explore the difference of students' autonomy between pre- and post-ODI

5. To explore the difference of students' competence between pre- and post-ODI

6. To explore the difference of students' relatedness between pre- and post-ODI

7. To explore the difference of students' engagement between pre- and post-ODI

Literature Review

Autonomy

The capacity of students to feel that they have contributed to the learning process while also having independent decision-making power over the learning activities is known as their sense of autonomy. Students' motivation and interest in learning are enhanced when teachers are able to go over the top to make them feel autonomous in the process. Students have the option to pursue more goals in an environment where they can feel autonomy. In such a setting, students are actively involved in their education (Smit et al., 2014).

The phrase "need for autonomy" refers to the requirement for people to act on their own initiative and according to their own self-interest without external control. Autonomy is specifically the ability to choose and psychological independence that students experience throughout learning activities in educational situations. According to the basic psychological needs hypothesis, autonomy is an essential precondition for the organism's optimal functioning and that humans have a natural desire to self-regulate their behavior. When a person feels in control of their choices and decisions and that their actions are in line with their sense of self, their need for autonomy is satisfied. When one's desire for autonomy is met, it typically results in autonomous motivation and adaptive personal conduct; when it isn't, it usually results in controlling motivation and non-adaptive behavior (Ryan & Deci, 2017).

Competence

Competence needs refer to the need for an individual to believe that he or she can successfully perform a certain task (Deci & Ryan, 1985). In addition, an individual's needs are more likely to be met if the ways and means of achieving the desired goal are known to the individual. (Ryan & Deci, 2017). Competencies help learners improve their knowledge, skills and attitudes (Zainuddin & Perera, 2017). The need for competence, often known as the need to be competent, describes the drive for people to expand their current talents and practice activities in an effective way. Students that feel efficacy are able to control their academic tasks in their relationships with the environment and perceive the successful functioning of their functions. Stroet et al. (2015) noted that the need for competence provides motivational support for individuals' learning. When an individual feel that his or her actions are effective, his or her personal need for competence is satisfied. Students that have a high feeling of competence have

more perseverance when they run into learning hurdles, and they will be more motivated to learn (Smit et al., 2014).

Relatedness

The concept of relatedness is characterized by happiness and social engagement. Having a feeling of connection with other people satisfies this need (Ryan & Deci, 2011). Being in intimate, solid relationships with others is necessary for people to feel a sense of belonging, which is another term for the need for relationships. Depending on the situation, relatedness can either be proximal or distant in promoting intrinsic drive. The need for relatedness means the feeling of dependence on others as well as the ability to gain a sense of security in others. Relatedness between students and teachers includes trust in the teacher, which makes them feel at ease. Relatedness also has a relationship with students' well-being (Deci & Ryan, 2000). There is evidence connecting intrinsic motivation and emotion to need fulfillment in the educational environment (White et al., 2021). In academic situations, students are expected to build relationships with peers, teachers, etc. Good interpersonal relationships can help students relieve stress and create a positive emotional state (Hsu et al., 2019). A sense of belonging enhances students' desire to succeed and stimulates their internal recognition of the meaning of learning (Ryan & Deci, 2017).

Student Self-efficacy

Another social cognitive variable is self-efficacy. Self-efficacy to be specified as "the belief in one's ability to organize and execute the course of action needed to produce a given achievement" (Bandura, 1997, p. 3). It focuses on whether or not a person can use a skill to achieve his or her intended goal when he or she has it. (Bandura, 1986, p.391). Self-efficacy is an important part of Bandura's social cognitive theory, which assumes that learning and social experiences can observe personality development (Pellas, 2014). Wright et al. (2013) argued that self-efficacy emerges from continuous learning from the environment in which an individual is located, and after several cognitive processes, a person will form beliefs that will influence the person's behavior. If the person has a high sense of self-efficacy, then he or she will be better able to handle various situations that arise in life (Macakova & Wood, 2020). considered self-efficacy as a belief in the value of one's own abilities, which has an impact on whether one sticks to something, what one tries to do, what one chooses, and whether one achieves something (Christenson et al., 2012). identified self-efficacy as the student's belief in their capability to organize and execute learning and complete it successfully. Research on self-efficacy in educational settings has shown that students who feel effective in their learning set learning goals for themselves and utilize effective learning methods in their learning (Schunk & Pajares, 2005).

Academic Engagement

In the previous two decades, a vast quantity of scholars has begun to study student learning engagement. (Fredricks et al., 2016). However, different scholars have different definitions of student engagement. Christenson et al. (2012) think of student academic

engagement as students taking the initiative to do academic and extracurricular or school-related things that they participate in for the purpose of learning or their own educational purposes. Henrie et al. (2015) consider student engagement as serious participation in a course of study or in certain learning activities, with academic achievement and learning outcomes associated with student engagement. According to Pellas (2014), Student engagement denotes cognitive processes, active participation, and affective engagement in a given learning situation. Sun and Rueda (2012) integrate sociocultural perspectives with psychological factors and behavioral perspectives. A clear and simple definition is proposed: "In academic settings, engagement refers to the quality of student effort to perform well and achieve desired outcomes" (p. 193). They contend that student engagement is a psychosocial process, that institutional and individual factors limit engagement, and that various societal factors can also influence it. Fredricks et al. (2004) identified three types of structural atmospheres of involvement: behavioral, affective, and cognitive involvement. Cognitive involvement is required for learning objectives, intrinsic motivation, self-management, and the ability to implement strategies (Wang & Eccles, 2012).

Organizational Development Interventions

Lewin's Change Model

OD stands for Organizational Development, a discipline that allows practitioners to help people solve many real-world problems. Successful change requires some practical tools to help the practitioner implement it. The Kurt Lewin Three-Stage concept is a change management concept devised by economist Kurt Lewin. It is divided into three stages: the unfreeze stage, the change stage, and the refreeze stage. Because different elements must be paid attention to and concentrated on in each phase, change programs must be structured in a context-specific manner.(Sarayreh et al., 2013).

Appreciative Inquiry (AI)

Dr. David Cooperrider and his associates from Case Western Reserve University and Taos College created Appreciative Inquiry (AI). It is a strengths-based intervention method that consists of four stages: discovery, dream, design, and destiny. (McCarthy, 2017). Some researchers have utilized AI as action research in pedagogy as a change model to facilitate positive change in teaching and coping with student issues (Jones & Masika, 2021). Howard and Wilkins (2020) indicated that AI has a significant positive impact on students' self-efficacy.

Goal Setting (GS)

The process of developing understandable and practical learning aims or objectives is known as goal setting (Moeller et al., 2012). Goal setting is an important component of a performance management strategy and a highly effective organizational development intervention. (Cummings et al., 2020). Rowe et al. (2016) found a functional relationship between a goal-setting curriculum and students' positive academic engagement through an intervention study with middle school students at risk for academic failure.

Team Building (TB)

Team building, referred to as team development or group development, is a famous and widespread intervention. (Salas et al., 1999). Team building was originally designed as a group

process intervention to improve interpersonal and social interactions. (Klein et al., 2009). A team consists of a group of people with different talents, experiences and abilities who work together for the same goal. Team members need to collaborate and in the same direction, focusing their efforts on achieving the goal of the group. According to Tuckman and Jensen (1977), successful teams go through four distinct stages of development: Forming, Storming, Norming, Performing.

Cooperative Learning (CL)

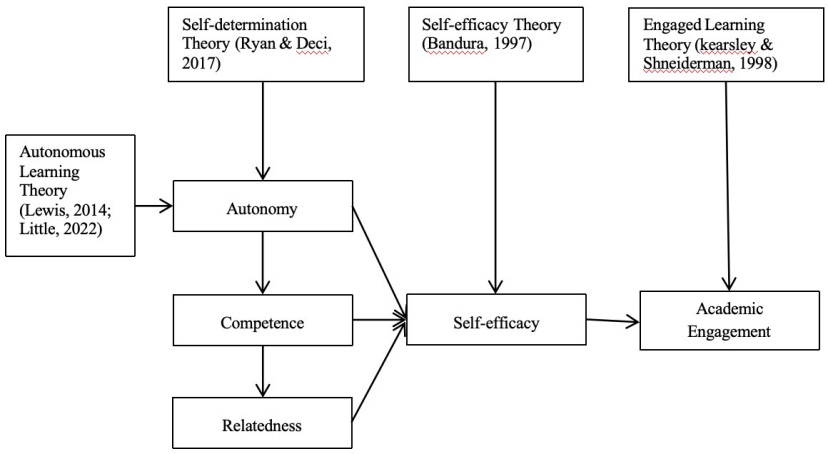
Cooperative learning is considered a structured, systematic, small-group instructional strategy guided by the teacher in which students set common goals and work together to accomplish them in small learning groups. In a collaborative situation, each person will strive to find ways to maximize the benefits for themselves and the group members that benefit both themselves and the group (Johnson et al., 2014). Shi and Han (2019) pointed out that cooperative group learning helped to improve students' attitudes, interest and motivation in learning, and that students' autonomy in learning was improved. Cooperative learning has a profound impact on students, who actively participate in learning activities that develop and update their knowledge and increase communication, creativity, responsibility and competence. (Sudirman et al., 2023).

Theoretical framework

In the theoretical framework of this study, the variable Autonomy comes from Autonomous Learning theory (Lewis, 2014; Little, 2022) and Self-determination theory (Ryan & Deci, 2017), Self-efficacy comes from Bandura (1997) Self-efficacy theory, Academic engagement comes from Engaged learning theory (Kearsley & Shneiderman, 1998). Self-efficacy comes from Bandura's Self-efficacy theory. Academic engagement comes from Engaged learning theory, and the relationship between self-determination and engagement comes from Self-system processes model. The relationship between autonomy, competence, relatedness, student self-efficacy and academic engagement was based on previous studies. This leads to the theoretical framework of this study.

Figure 1

Theoretical Framework

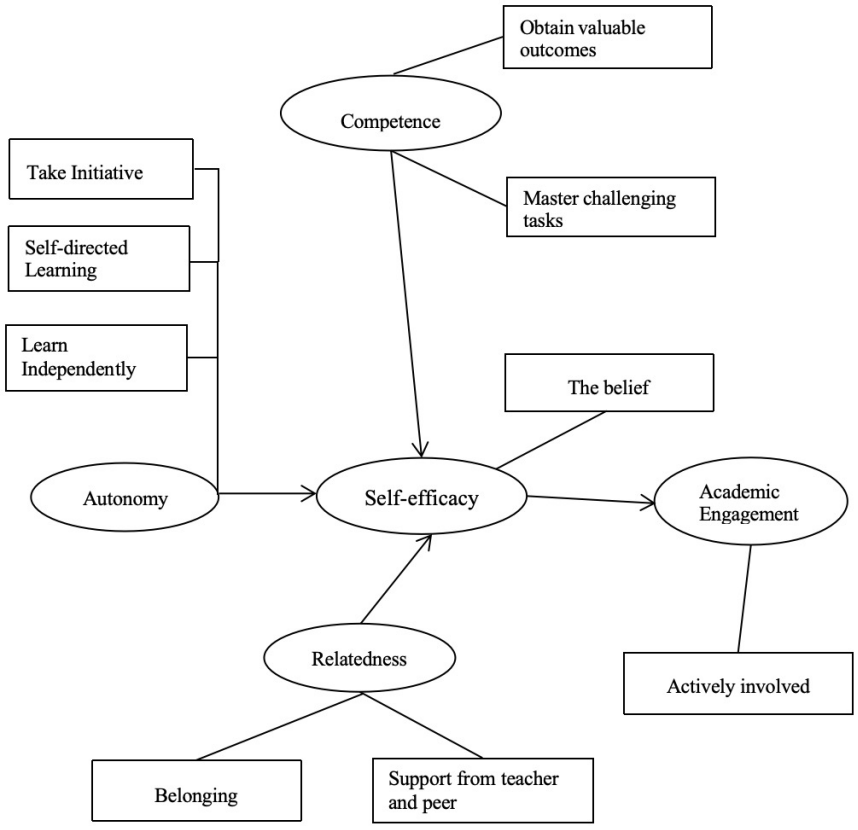


Conceptual Framework

This conceptual framework is composed according to the theoretical framework shown in Figure 2. This study proposes autonomy, competence, and relevance as the independent variable, student self-efficiency as the mediating variable, and academic engagement as the dependent variable, based on the theoretical framework. And on the basis of this framework, design interventions.

Figure 2

Conceptual Framework

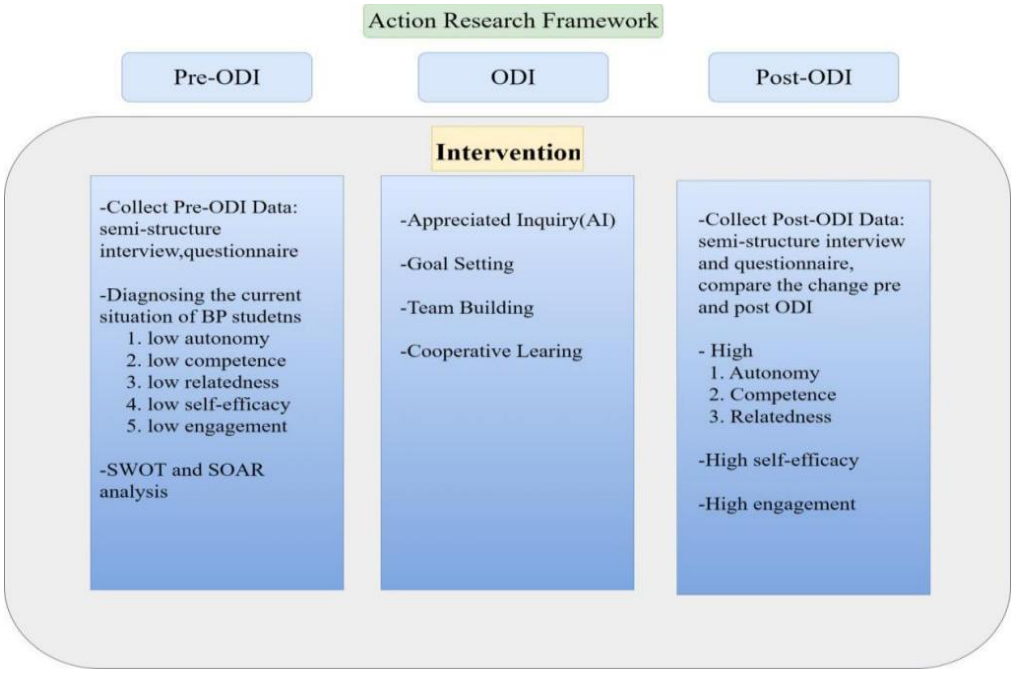


Action Research Framework

Action research was first articulated as a three-step spiral process of planning, implementing, and assessing research by Lewin (1946). Rather than focusing on surveys and statistical procedures, Lewin (1948) claims that action research attempts to change social patterns by engaging people in a cyclical process of fact-finding, planning, experimental action, and assessment. This study designed the following action research program based on OD theory and the existing situation in BP.

Figure 3

Action Research Framework



Research Methodology

Research Hypotheses

Ho1: There is no significant difference in autonomy between Pre-ODI and Post-ODI.

Ha1: There is significant difference in autonomy between Pre-ODI and Post-ODI

Ho2: There is no significant difference in competence between Pre-ODI and Post-ODI.

Ha2: There is significant difference in competence between Pre-ODI and Post-ODI

Ho3: There is no significant difference in relatedness between Pre-ODI and Post-ODI.

Ha3: There is significant difference in relatedness between Pre-ODI and Post-ODI

Ho4: There is no significant difference in students' self-efficacy between Pre-ODI and Post-ODI.

Ha4: There is significant difference in students' self-efficacy between Pre-ODI and Post-ODI

Ho5: There is no significant difference in academic engagement between Pre-ODI and Post-ODI.

Ha5: There is significant difference in academic engagement between Pre-ODI and Post-OD

Research Methodology

This study adopted purposive sampling.The 38 participants in this study were drawn from the School of Economic and Management (SEM) at BP. These students were sophomores and had all used group work to complete classroom tasks in the "Tour Planning and Management" course. All 38 students completed the questionnaire, and 8 participants were selected for group interviews. The study as a whole was a small sample survey, which was discontinued after the survey reached the 8th person's no new information emerged, i.e. the theory of qualitative analysis was saturated. The final qualitative study selected 8 individuals.The demographic profile is shown in Table 1.

Table 1

Business English Students Information

Items	Categories	Percentage
Age	Under 18 years old	5 %
	19-23 years old	95%
Gender	Male	21%
	Female	79%

Methods and Instruments

The reliability and validity of the instruments used in this study were checked prior to data collection. In this study, 37 students were pilot tested and a 7-point questionnaire was sent to them. The reliability values of the three variables of basic psychological needs, autonomy, competence and relatedness, were 0.695, 0.767, 0. 830.The reliability of Engagement Scale is 0.944. The Academic Self-Efficacy Scale Cronbach's alpha is 0.851.

To test the validity of the questionnaire, five OD experts gave the feedback on the Index of Item-objective Congruence (IOC) form which is to measure consistency between research instrument questions, research objectives and definitions of terminology. The final results showed that the mean score for each question was greater than or equal to 0.8, a result that indicates that the questionnaire has good validity. The interview outlines all scored above or equal to 0.8, so the interview outlines have good validity.

Procedure

This study utilized an action research model to examine the effects of student autonomy, competence, relatedness, self-efficacy, and academic engagement following an ODI. The research process consisted of three phases: pre ODI, ODI and post ODI.

Pre-ODI Stage

Before ODI, this study implemented focus group interview and questionnaire.

ODI Stage

Based on the pre-ODI findings, this study designed relevant interventions including Appreciated Inquiry (AI), Goal setting (GS), Team building (TB), Cooperative learning (CL). The length of the intervention is from March 2024 to June 2024. The duration of each

intervention was 90 minutes. Participants in the intervention were 38 students from the BP School of Economics and Management. In order to improve students' self-efficacy, four AI workshops were conducted with the students. six GS workshops were conducted with the students to help them improve their academic engagement. five CL workshops were conducted with the students to help them improve their autonomy and competence. (See Table 2).

Table 2

OD intervention timeline

No	Date	Duration	Executor	Participants	Intervention
1	4th March	90 minutes	Researcher	38 students	AI-Self efficacy GS-Academic Engagement
2	5th March	90 minutes			GS-Academic Engagement
3	6th March	90 minutes			GS-Academic Engagement
4	7th March	90 minutes			AI-Self efficacy GS-Academic Engagement
5	11th March	90 minutes			AI-Self efficacy GS-Academic Engagement
6	14th March	90 minutes			AI-Self efficacy
7	18th 21th 25th 26th 29th March	Each day for 90 minutes			TB-Relatedness
8	1st April	90 minutes			GS-Academic Engagement CL-Autonomy, Competence
9	2th -4th April	Each day for 90 minutes			CL-Autonomy, Competence
10	7th,14th, 21th,28th May	Each day for 90 minutes	Tourism Marketing and Planning Teacher		GS-Academic Engagement CL-Autonomy, Competence, TB-Relatedness Autonomy, Competence
11	4th,11th,18th, 25th June	Each day for 90 minutes			GS-Academic Engagement CL-Autonomy, Competence, TB-Relatedness, CL-Autonomy, Competence

Post-ODI Stage

Following the implementation of the intervention, student feedback was gathered through focus group interview and questionnaire. The researcher analyzed and interpreted the results. The researcher was to determine, based on the data analysis, and whether the instructional intervention conducted had a positive, negative, or no effect on the students. The researchers used this information to compile a summary and make suggestions.

Data collection and analysis

Qualitative Data

In this study, the questionnaire was administered once before and after the ODI and the data were compared before and after the ODI. Based on the results of the data comparison, this study obtained quantitative results by using descriptive and inferential analysis, such as T-test.

Quantitative Data

Qualitative data was obtained from the content of the ten-question interviews aligned with the study variables. Interviews were administered to the participants both before and after the ODI, and the interview content was analyzed based on grounded theory.

Results and Discussion

Quantitative Research Results

Descriptive statistics were used in this study to analyze the changes before and after O DI. According to Table 3, it can be seen that the mean value of students' autonomy in learning increased significantly from 3.69 to 5.13; The mean value of students' competence increased from 2.92 to 5.34. The mean of students' sense of connection increased from 3.43 to 5.63. Stu dents' sense of self-efficacy also increased from 4.25 to 5.10. The mean score for academic engagement increase d from 4.33 to 5.30. The largest change was in competence and the smallest change was in sel f-efficiency.

Table 3

Descriptive Statistics for each variable between Pre-ODI and Post-ODI

Variables		Mean		N	Std. Deviation	Std. Error Mean
Pair 1	Post-Autonomy	5.13	1.44	38	1.17797	.19109
	Pre-Autonomy	3.69		38	1.35777	.22026
Pair 2	Post-Competence	5.34	2.55	38	1.11901	.18153
	Pre-Competence	2.79		38	1.37641	.22328
Pair 3	Post-Relatedness	5.63	2.19	38	1.11444	.18079
	Pre-Relatedness	3.44		38	.95893	.15556
Pair 4	Post-Student self-efficacy	5.10	0.85	38	1.20126	.19487
	Pre-Student self-efficacy	4.25		38	1.59263	.25836
Pair 5	Post-Academic Engagement	5.30	0.97	38	1.23386	.20016
	Pre-Academic Engagement	4.33		38	1.76664	.28659

Table 4

Paired T-test of Autonomy

Items	Paired (M±SD)		Mean Difference (Paired1-Paired2)	*t*	*p*
	Paired1	Paired2			
Post-ODI-Autonomy Paired Pre-ODI-Autonomy	4.65±0.90	3.68±1.36	0.96	4.906	0.000**
* $p<0.05$ ** $p<0.01$					

Autonomy

Ho1: There is no significant difference in autonomy between Pre-ODI and Post-ODI.

Ha1: There is significant difference in autonomy between Pre-ODI and Post-ODI

According to the results presented in the table, Autonomy Sig. (2-tailed) is .000. Therefore, there is a significant difference in autonomy between pre-ODI and post-ODI.

Table 5

Paired T-test of competence

Items	Paired (M±SD)		Mean Difference (Paired1-Paired2)	*t*	*p*
	Paired1	**Paired2**			
Post-ODI-Autonomy Paired Pre-ODI-Autonomy	5.34±1.12	2.92±1.38	2.42	7.978	0.000**
* $p<0.05$ ** $p<0.01$					

Competence

Ho2: There is no significant difference in competence between Pre-ODI and Post-ODI.

Ha2: There is significant difference in competence between Pre-ODI and Post-ODI

As it can be seen from the results of Table 5, the Sig.(two-tailed) of the students' competency is .000. There is a significant difference in the students' competence before and after ODI. The results of this study are presented in Table 5.

Table 6

Paired T-test of Relatedness

Items	Paired (M±SD)		Mean Difference (Paired1-Paired2)	*t*	*p*
	Paired1	**Paired2**			
Post-ODI-Autonomy Paired Pre-ODI-Autonomy	5.08±0.90	3.44±0.96	1.64	9.772	0.000**
* $p<0.05$ ** $p<0.01$					

Relatedness

Ho3: There is no significant difference in relatedness between Pre-ODI and Post-ODI.

Ha3: There is significant difference in relatedness between Pre-ODI and Post-ODI

According to Table 6, the Sig. (2-tailed) of correlation of students is .000. Therefore, there is a statistically significant difference in relatedness before and after ODI.

Table 7

Paired T-test of Student Self-efficacy

Items	Paired (M±SD)		Mean Difference (Paired1-Paired2)	*t*	*p*
	Paired1	Paired2			
Post-ODI Student Self-efficacy Paired Pre-ODI Student Self-efficacy	5.08±0.90	3.44±0.96	1.64	9.772	0.000**
* $p<0.05$ ** $p<0.01$					

Student Self-Efficacy

Ho4: There is no significant difference in students' self-efficacy between Pre-ODI and Post-ODI.

Ha4: There is significant difference in students' self-efficacy between Pre-ODI and Post-ODI

In terms of student self-efficacy, Sig. (2-tailed) is .007. In terms of student self-efficacy, Sig. (2-tailed) is .007. Therefore, there is a statistically significant difference in self-efficacy before and after ODI.

Table 8

Paired T-test of Academic engagement

Items	Paired (M±SD)		Mean Difference (Paired1-Paired2)	*t*	*p*
	Paired1	Paired2			
Post-ODI Academic engagement Paired Pre-ODI Academic engagement	5.30±1.22	4.33±1.77	0.97	3.254	0.002**
* $p<0.05$ ** $p<0.01$					

Academic Engagement

Ho5：There is no significant difference in academic engagement between Pre-ODI and Post-ODI.

Ha5：There is significant difference in academic engagement between Pre-ODI and Post-ODI.

According to Table 8 the results show that there is a significant difference between before and after ODI in terms of students' academic engagement which is 0.002.

Qualitative Research Results

Through the use of qualitative analysis of post-ODI interview content, the researcher came to the following conclusions:

The study continuously cut, organized, and summarized the initial original content fragments through open coding, resulting in 18 primary categories, including Teacher supervision, Extracurricular time commitment, Group collaboration, and so on. The study further summarized the primary categories through spindle coding, resulting in 11 subcategories, i.e., learning initiative, teamwork, and mutual assistance, the interaction between teachers and students, emotional state, Vicarious experience, Emotional engagement, Cognitive engagement, Behavioral engagement, Planning management ability, Task completion, and Logical ability. Capability, Logical capability. The final level of coding at the three levels of grounded theory was selective coding, where the eleven subcategories were highly condensed to arrive at the main categories of the study, namely, Autonomy, Competence and Relatedness, Self-efficacy, Academic Engagement consistent with the before intervention main categories, as shown in the coding process in Table 9.

Table 9

Examples of partial coding for student post-intervention

Original text	Primary category	Secondary category	Principal category
After the intervention, the students in our group started to take the initiative to complete the tasks	Take the initiative to complete tasks	learning initiative	Autonomy
Discuss with each other in the WeChat group; the activity is high	Active communication and discussion		
Our group just talked to each other and then helped each other, and the final presentation of the assignment was quite good.	Mutual-help group	Teamwork and mutual assistance	Relatedness
After the intervention, some students communicated with us more	Communication with the Team		
When performing a task, the students in our group will ask how to do it to meet our requirements.	Ask the teacher for help	Interaction between teachers and students	
When explaining homework tasks to your classmates, you need to be more detailed to complete the work satisfactorily.	Teacher answer details		
I think I have improved quite a lot	Self-confidence	Emotional state	Self-efficacy
I think I have improved quite a lot. I now take the initiative to do things and learn things.	Active learning		
I looked at what my classmates did exceptionally well and what I did exceptionally poorly. Then, I went to the internet to find information and revise my	Successful experience of others	Vicarious experience	

Original text	Primary category	Secondary category	Principal category
content to get a higher grade.			
I am more proactive in completing tasks now	Learning interest	Emotional engagement	Academic Engagement
When we did our homework this time, they showed much seriousness, making typographical changes bit by bit.	Learning self needs	Cognitive engagement	
Those of us in the group paid more attention to what we were learning	Learning attention	Behavioral engagement	
Students who do not complete tasks very well will now ask us questions and participate in completing tasks.	Ask for help		
Everyone in the group participates and becomes more responsible	Participate in group activities		
Now I set goals for myself and finish the task on time	Goal setting ability	Planning management ability	Competence
After completing the task, seeking to be more aesthetically pleasing will slightly modify the text and content.	Quality of finish	Task completion capability	
Send me a sheet, and I will be done in no time; I am already getting used to doing this.	Completion efficiency		
The biggest improvement is that the ideas are clearer, the speech is better on stage, and the use of PowerPoint and Word is better.	Clear, logical thinking	Logical capability	

According to Table 9, students felt that they themselves had increased their autonomy in learning. They were motivated to complete course tasks, interacted more with the teacher and classmates, were willing to help other students, and were more self-confident.

Table 10

Comparison of qualitative and quantitative results

Variables	Pre-ODI Mean	Post-ODI Mean	Pre-ODI analysis	Post-ODI analysis
Autonomy	3.69	5.13	1. Need teacher supervision 2. Low time commitment outside the classroom 3. Less participation	1. Take the initiative to complete tasks 2. Active communication and discussion
Competence	2.79	5.34	1. Limited capacity 2. Inability to fulfill high-quality tasks	1. Quality of task
Relatedness	3.44	5.63	1. Depending on the teacher's character 2. Ask classmates for help 3. Negative attitudes toward cooperative learning	1. Mutual-help group 2. Communication with the Team 3. Ask the teacher for help

Variables	Pre-ODI Mean	Post-ODI Mean	Pre-ODI analysis	Post-ODI analysis
Self-efficacy	4.25	5.10	1. Self-denial 2. Need help from others	1. Self-confidence 2. Active learning 3. Increased self-requirement
Academic engagement	4.33	5.30	1. Lack of interest in learning 2. Fear Speech 3. Weak learning expectation 4. low-self-requirement 5. Learning distract 6.No goal	1. Learning interest 2. Learning self-needs 3. Learning attention 4. Ask for help 5. Participate in group activities 6. Goal setting ability

According to Table 10, it can be seen from juxtaposed data result, mean value of students' autonomy, competence, relatedness, self-efficacy and academic engagement was improved after ODI. This means that students perceived themselves to be less stressed and more willing to express their ideas and opinions in group activities. And they were closer to their classmates. They believe they are paying more attention in class and doing better than before.

In addition, there were changes in students' attitudes. First, in terms of autonomy, students reported that they and their peers around them began to take the initiative to do their homework and participate in group exchanges and discussions. In terms of competence, they began to aspire to complete high-quality assignments. In terms of affinity, they felt that group members helped each other, communicated well, and were willing to take the initiative to ask the teacher for help when they encountered problems. In terms of self-efficacy, they were more confident in completing high-quality tasks and were making progress. There were also noticeable changes in learning participation, such as an increase in group activities, more frequent communication and a clearer division of labor. They have also set goals for themselves and are more focused on learning.

Conclusion and Recommendations

Conclusions

This study investigated how four ODI—Appreciative Inquiry (AI), Goal Setting (GS), Team Building (TB), and Cooperative Learning (CL)—improved students' autonomy, competence, relatedness, self-efficacy, and academic engagement at Beijing Polytechnic. The data, obtained using a mixed-methods approach that included pre- and post-intervention questionnaires as well as focus group interviews, revealed significant improvements in all targeted variables following the four-month intervention.

Key findings revealed that students demonstrated increased autonomy in initiating tasks, improved competence in completing high-quality assignments, stronger relatedness through peer and teacher interactions, higher self-efficacy in academic performance, and greater academic engagement as evidenced by proactive participation and goal-oriented behaviors.

Recommendations

The results show that the interventions implemented this time have had a significant impact on the learning status of the students. Based on the findings, this study makes the following recommendations from a teacher teaching and school perspective.

For Teachers'

Teachers' instructional practice also highlights its importance in improving student achievement and they need continuous professional development for meeting the rapidly evolving needs of students. For example, training teachers to use more cooperative group learning models in the classroom, etc.

For BP

Providing resources and an environment for cooperative group learning. Strengthen teacher training and development. Create a positive campus culture. Establish systematic monitoring and feedback mechanisms to assess the effectiveness of interventions. This may include regular data collection (e.g., student achievement indicators, classroom observations, student self-feedback, etc.)

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