

# *Action Research on Impact of Project-based Learning on Intrinsic Motivation of Private College Students Learning English in China*

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**Abstract:** The study investigates the effect of project-based learning on the intrinsic motivation of private college students learning English in China. Motivation is instrumental to students' learning process, private college students in China are less academically motivated than their counterparts in public institutions. Project-based learning is an effective instructional technique that empowers students to be the center of learning. In this action research, 21 students learning English in a private Chinese college were administered with the Intrinsic Motivation Inventory to examine the difference of their intrinsic motivation level before and after a project. The result of the study shows significant difference existing in interest, autonomy, competence and pressure students perceived before and after the project, which supports project-based learning has a positive impact on students' intrinsic motivation for learning. Based on this result, it is highly suggested that more considerations should be given to incorporate PBL in course design to enhance intrinsic motivation of private college students in China.

## **1. Introduction**

According to the Statistical Report on China's Education in 2019, private college students in China number 7 million, accounting for 23% of the students enrolled in higher education institutions. But they are dramatically different from their counterparts in other countries, such as the United States, as they are less academically competitive than those being admitted in public higher education institutions in China. Due to historical reasons, private higher education (PHE) serves only as the supplement to public higher education in the education system of China (Law of Promoting Private Higher Education in China, 2020), admitting most of whom were failed to be admitted by public schools by Gaokao (national college entrance exam) grades. As supported by some empirical research done in China, students of Chinese private colleges are less academically motivated and less competent in self-directed learning. When it comes to learning English as the second language, many of them show greater reliance on teachers and a lack of active engagement

and devotion to learning. Academic burnout is not rare to be seen among them.

Being a large proportion of the student body in China, students of private colleges in China are under-represented in research in particular from the perspective of motivation. Project-based learning is an instructional approach that proved to be effective in some countries to increase the motivation and self-efficacy of students. It helps to transform the teacher-centered model into a student-centered one. English learning students in China do not have the real language environment for them to learn and practice the language, for private college students in China in particular, choosing English as a major in college seems to be confronted with more challenges.

## **2. Research Objects and Methods**

### **2.1. Object of Study**

The purpose of this study is to investigate the impact of project-based learning on the intrinsic motivation of private college students learning English in China. By administering an action research and analyzing the data on intrinsic motivation before and after the project, the study aims to provide some evidence for instructors and education administrators to factor in PBL in the course design for private college students in China.

Second language learning needs the real language use environment to push the learners' motivation to use and practice with the language. In the Chinese context, private college students not only suffer from the absence of a real language environment but also are less academically motivated than students from public institutions of higher education. Project-based learning has been empirically supported to have an impact on the intrinsic motivation of students, will it have an impact on English learning students in Chinese private colleges? This study aims to answer the above question by using the data of action research conducted with students from a private college learning English. The study intends to test the following hypotheses:

H1: project-based learning has no impact on the intrinsic motivation of private college students learning English in China.

H2: Intertest of private college students learning English in China before the project is not significantly different from their interest after the project.

H3: Perceived competence of private college students learning English in China before the project is not significantly different from their perceived competence after the project.

H4: Perceived choice of private college students learning English in China before the project is not significantly different from their perceived choice after the project.

H5: Perceived pressure of private college students learning English in China before the project is not significantly different from their perceived pressure after the project.

## **2.2. Research Technique**

### **2.2.1. Literature Data Method**

Pintrich and Schunk (2002) recognized the self-determination theory (SDT) proposed in the study by Deci and Ryan (1985, 2002) as “one of the most comprehensive and empirically supported theories of motivation available today” (p.257). According to SDT, humans have three universal and basic needs: autonomy (a sense of control and agency), competency (feeling competent with tasks and activities), and relatedness (feeling included or affiliated with others). Satisfaction or thwart of these needs will enhance or dampen the motivation of learners in a specific social context.

And SDT theorizes that self-determination is a continuum instead of being fixed or static, may move from amotivation (the state of lacking the intention to act) to extrinsic motivation (doing something because of its value) and intrinsic motivation (doing something out of joy, challenge or aesthetically pleasing). Intrinsic motivation according to SDT, may lead to positive outcomes while the other two types may result in negative outcomes (Deci & Ryan, 1991). Intrinsic motivation is composed of perceived interest, enjoyment, and inherent satisfaction of the learner in doing something.

Instructional approaches need to attend to learners' intrinsic motivation as it strongly correlates with the outcome of learning and the well-being of learners. To explore ways to stimulate intrinsic motivation among Chinese private college students who are under-represented in research on such under-researched topic merit more exploration.

PBL (Project-based Learning) is simply defined as “an instructional approach that contextualizes learning by presenting learners with problems to solve or products to develop” (Moss & Van Duzer, 1998). Constructivism believes that learning is an active process. In a traditional classroom, knowledge is dripped down from the instructor to students with the less active involvement of students in questioning, inquiring, testing, and using what they have received from the instructor. While PBL emphasizes the shift of instruction and learning from the traditional instructor-centeredness to student-centeredness which pushes students to contextualize what they aspire to learn by solving problems in the real world. In doing so, students' motivation, problem-solving abilities, collaborative and coordinating skills, planning and organizing, presenting and communicating capabilities are improved and polished, more importantly, their preparedness for meeting the challenges in life and being a life-long learner takes shapes.

According to Krajcik and Shin (2014), there six hallmarks of PBL, including a driving question, the focus on learning goals, participation in educational activities, collaboration among students, the use of scaffolding technologies, and the creation of tangible artifacts. It can be found that these hallmarks of PBL resonate with the three basic needs purported in SDT.

Guo (et al., 2018) reviewed PBL in higher education, found only a few studies on the impact of PBL on student learning related to either cognitive (e.g. knowledge) or affective outcomes (e.g. motivation). Barely any study was found in focus of its impact on the intrinsic motivation of Chinese private college students learning English.

Research on academic motivation in combination with PBL are in plethora, while few of them focused on the student body of private college in China. Accounting for a fairly large part, they are overlooked in studies on how to empower them through instructional perspective to move up the prospective status in the social ladder.

### **2.2.2. Questionnaire Survey Method**

Among teaching approaches that require sustained and independent critical questioning, action research has a well-established professional development role in teacher education (McKernan, 1996). To explore the impact of PBL on intrinsic motivation, the study chose a class of 21 students, using paired t-test to examine the differences in students' intrinsic motivation before and after the project.

#### **2.2.2.1. The Project and the Participants**

The study tries to examine the impact of project-based learning as a teaching supplementary approach on the intrinsic motivation of English language learning college students. The surveyed

population comes from the English language learning department of a Chinese private college. The total number of participants is over 60, three times the number of questions on the scale. Students participating in the action research are a class of 21 who went through pre-test post-test on intrinsic motivation. The role of the teacher is the facilitator, instructor, observer, and evaluator of the project, refraining from interference into a specific organization of the work of each team.

Many studies showed that project-based learning is an efficient teaching strategy to enhance students' learning motivation and help students to engage in the learning activities (Meyer, et al., 1997; Bradford, 2005; Hofer, 2006). The project selected for this study is to produce a promotional video for the young department of translation which was founded four years ago. As the department was going to have freshmen in the forthcoming season of recruitment, the department intended to publicize its information through the angles and experiences of students who are studying here, thus this project is real and needed by the department and will be rewarded financially to the shortlisted works. The student participants are the junior ones studying English-Chinese translation since the founding of the department. They have a better understanding and English language proficiency compared with the other students in the department.

To maximize the autonomy, competence and relatedness expounded in Deci and Ryan's research as the three basic psychological needs, the students were asked to plan, design, and present the project in their way. The common requirements were only given concerning the deadline of the presentation of the work, the outcomes (presentation and video-making), the language used for the project (English only). But the instructor has repeatedly made it clear that immediate instructions were available throughout the whole process. The students were required to complete the project in a team that has four members. Team-working and collaboration were highlighted in the process. The instructor's immediate instruction was available via WeChat, phone calls, or face-to-face meetings.

#### *2.2.2.2. Measurement and Procedure*

The Intrinsic Motivation Inventory (IMI) is a multidimensional measurement device intended to assess participants' subjective experience related to a target activity. It assesses participants' interest/enjoyment, perceived competence, effort, value/usefulness, felt pressure and tension, and perceived choice while performing a given activity. The questionnaire used for this study is the 22-item version of the scale which was widely used in studies on intrinsic motivation. The scale has four subscales: interest/enjoyment, perceived choice, perceived competence, and pressure/tension. The interest/enjoyment subscale is considered the self-report measure of intrinsic motivation, perceived choice (autonomy), and perceived competence are considered as positive predictors of intrinsic motivation. Pressure/tension serves as a negative predictor.

Before the project, IMI was administered to students. When the students presented their final work to the class after four weeks of preparation, the second round of survey with the same questionnaire adapted with some wordings was given to the students again.

#### *2.2.2.3. Data Collection and Analysis*

Data of two questionnaires were collected and analyzed using SPSS 11.0 statistical software package. A paired t-test was used to make the comparison of the results of the two questionnaires. Descriptive statistics were used to analyze the general level of intrinsic motivation of students and the difference between the experimented class and the control ones.

### 3. Results and Discussion

A two-tailed paired samples t-test was conducted to examine whether the mean difference of interest, competence, choice and pressure before and after the project was significantly different from zero.

A Shapiro-Wilk test was conducted to determine whether the differences in four variables pre-test and post-test could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were not significant based on an alpha value of 0.05,  $W = 0.91$ ,  $p = .066$ . This result suggests the possibility that the differences in interest, competence, choice, and pressure before and after the project were produced by a normal distribution cannot be ruled out, indicating the normality assumption is met.

Levene's test was conducted to assess whether the variances before and after the project were significantly different. The result of Levene's test was not significant based on an alpha value of 0.05,  $F(1, 38) = 0.25$ ,  $p = .621$ . This result suggests it is possible that there were produced by distributions with equal variances, indicating the assumption of homogeneity of variance was met.

#### 3.1. Results

The result of the two-tailed paired samples t-test for interest was significant based on an alpha value of 0.05,  $t(19) = -3.63$ ,  $p = .002$ , indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of pre-test interest and the mean of post-test interest was significantly different from zero. The mean of pre-test interest was significantly lower than the mean of post-test interest. And the result of the two-tailed paired samples t-test for competence was significant based on an alpha value of 0.05,  $t(19) = -4.55$ ,  $p < .001$ , indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of pre-test competence and the mean of post-test competence was significantly different from zero. The mean of pre-test competence was significantly lower than the mean of post-test competence. The result of the two-tailed paired samples t-test for choice was significant based on an alpha value of 0.05,  $t(19) = -3.38$ ,  $p = .003$ , indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of pre-test choice and the mean of post-test choice was significantly different from zero. The mean of pre-test choice was significantly lower than the mean of post-test choice. The results are presented in Table 1.

The result of the two-tailed paired samples t-test for pressure was significant based on an alpha value of 0.05,  $t(19) = 2.28$ ,  $p = .034$ , indicating the null hypothesis can be rejected. This finding suggests the difference in the mean of pre-test pressure and the mean of post-test pressure was significantly different from zero. The mean of pre-test pressure was significantly higher than the mean of post-test pressure. A bar plot of the means is presented in Figure 1.

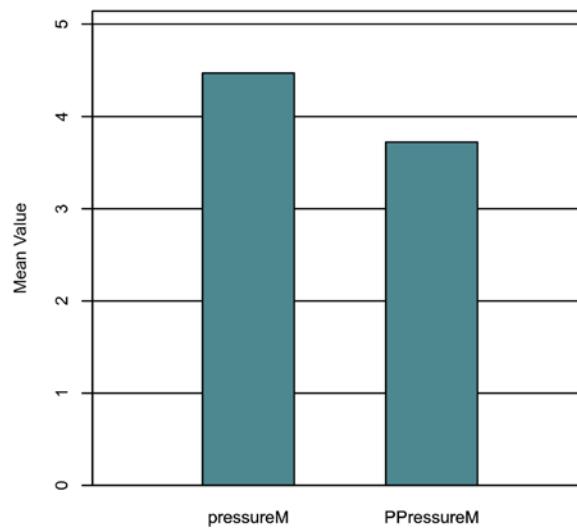


Fig 1: The means of pre-test pressure and post-test pressure

Table 1: Two-Tailed Paired Samples *t*-Test for the Difference in interest, competence, choice and pressure before and after the project.

	M	SD	t	p	d
Interest (pre)	3.61	1.15	-3.63	.002	0.81
Interest (post)	4.56	1.24			
Competence (pre)	3.21	0.99	-4.55	<.001	1.02
Competence (post)	4.33	1.28			
Choice (pre)	3.80	0.97	-3.38	0.03	0.76
Choice (post)	4.72	1.23			
Pressure (pre)	4.47	1.06	2.28	0.34	0.51
Pressure (post)	3.72	1.04			

Note. N = 20. Degrees of Freedom for the *t*-statistic = 19. *d* represents Cohen's *d*.

Power analysis for a paired sample *t*-test was conducted in G\*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.80, a large effect size ( $d_z = 0.8$ ), and two tails (Faul et al., 2013). Based on the aforementioned assumptions, the desired sample size is 15. The study with 19 sample data met the standard of sample size.

### 3.2. Discussion

The study aims to test the effect of project-based learning on the intrinsic motivation of Chinese private college students learning English as their second language. Language learning has its necessity of being practiced in the real world, while in China there is a lack of language use environment. Thus, the study relies on an action research to provide answers to the effect of PBL on the subscales of intrinsic motivation, namely, interest, competence, choice and pressure. Among the



four subscales, only the level of pressure negatively correlates with the intrinsic motivation level.

As the results of the two-tailed paired samples t-test for interest, competence and choice were significantly different, indicating students experienced very different levels of the three variables before and after the test. The mean of pre-test result was significantly lower than the mean of post-test result, showing that the project could effectively raise students' interest and their perceptions of competence and freedom while doing the project. Students take more pleasure in doing the research, they feel they have more power to decide their way of doing the work and their ability while doing the work is enhanced. The result of pressure before the test is higher than that after the project, demonstrating that participating in project could alleviate students' perception of pressure, partially due to their autonomy in doing the project.

The results the four variables indicating the level of intrinsic motivation after the project all test the results in other research, PBL does have a positive impact on students' intrinsic motivation learning English in Chinese private higher education institutions.

#### 4. Conclusion

Motivation, in particular, intrinsic motivation is significant for the learning experience and outcome in student-centered learning. This action study aims to test the effect of project-based learning on the intrinsic motivation of private college students learning English in China. By comparing the difference of intrinsic motivation through pre-test and post-test, the study proved the significant impact of PBL on intrinsic motivation.

According to the findings, some implications can be derived. First, for private college students in China who are relatively less motivated and competent than those in public schools, PBL can be incorporated into the design of the course. Second, the effect of PBL on intrinsic motivation is generally proved, while motivation is an individually-based character, more attention needs to be paid to individualized instruction while implementing the project. Third, to release the autonomy of students in the project, less interference, less micro-management is expected from teachers, but immediate instruction via diversified technologies should be available. Fourth, feedback and evaluation from the teacher should be more targeted at students' needs and integrated into learning objectives and course design. Fifth, the adoption of multi-media and instant messaging technology fosters collaboration, cooperation, and communication among all participants, and enhances the quality of project completion.

So are derived from the study are limitations including a limited number of participants in a single major and one project, more participants and diversified projects across a longer period may generate more reliable results. The evaluation of project work should be worked out in a more systematic way factoring in the curriculum and nature of the project, and more involvement of students. Besides, asking students to log the progress of the project and their activities may provide a more accurate and clearer picture of what is going on throughout the process of project work, thus shedding more light on the inherent dynamism of factors in the study.

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