



The Effect of Blended Project-based Learning on Student's Positive Psychological Capital

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Abstract. This study presents an innovative teaching approach that combines blended learning and project-based learning to enhance the implementation of "Happy Group Class" for undergraduate students. Our aim is to utilize this blended project-based learning approach to facilitate positive capital among students. Simultaneously, we strive to encourage them to apply their acquired knowledge to real-life scenarios. In this research endeavor, we employed the Positive Psychological Questionnaire (PPQ) to assess the positive psychological capital (PsyCap) of undergraduates at a university in Hubei Province. Positive psychological capital consists of four dimensions: self-efficacy, resilience, hope, and optimism. The findings indicate that, in comparison to traditional offline teaching methods, the mixed blended project-based learning approach significantly increases students' self-efficacy and hope. This study contributes to the exploration of the application of blended project-based learning in fostering the enhancement of students' psychological capital, as well as its implications for higher education.

Keywords: Blended learning, Project based learning, Positive psychological capital

1 Introduction

With ongoing advancements in internet technology, our era is navigating towards intelligent informatics. This transformation creates opportunities and dilemmas for tech and reshapes pedagogical methodologies. The influx of Generation Z, often termed "digital natives," into educational settings has driven educators to address their unique digital learning preferences. These individuals crave online engagements, instant feedback, and prioritize inquiry-based learning. Thus, blending digital pedagogy with traditional methods has become essential.

Furthermore, as societal dynamics escalate, students face increased scholastic pressures and psychological apprehensions. Research emphasizes that psychological capital can bolster students' academic yields [1]. By integrating this into pedagogy, educators can alleviate scholastic stress and elevate academic outcomes. Project-centric pedagogy, with its collaborative ethos and inventive paradigms, aligns with positive psychology's facets of contentment.

In this context, our research introduces the Blended Project-Based Learning (BPBL) framework, applied in the "Happiness Group Class." We aim for students to immerse in positive experiences, enhancing their psychological capital.

2 Literature Review

2.1 Psychological Capital

Psychological Capital (PsyCap) is a dynamic attribute, showing potential for development through interventions and is characterized by hope, self-efficacy, resilience, and optimism [2,3]. Hazan Liran and Miller Paul highlighted PsyCap's beneficial impact on students' academic adjustment, emphasizing its importance in higher education [4]. Research indicates that each PsyCap element influences students' adjustment to academic environments and its relation to increased Grade Point Average (GPA) [1,5]. Luthans and his team found that self-regulation mediates the relationship between PsyCap and GPA, shedding light on how PsyCap influences academic performance [6]. In essence, PsyCap affects both organizational behaviors and student outcomes in higher education.

2.2 Blended Learning

Blended learning, combining traditional instruction with online methods, became prominent, especially post-COVID-19 [7]. It merges conventional and digital techniques, optimizing classroom time and online resources for enhanced engagement [8,9,10,11]. Although facing challenges like maintaining virtual engagement, it's praised for balancing academic and personal lives [12,13]. Contrary to merely integrating multimedia, effective blended learning encourages student-initiated teams and communication, enhancing engagement and knowledge absorption [14,15]. In essence, blended learning, merging traditional and online benefits, is recognized for its potential amidst challenges.

2.3 Project-based Learning

Recent prominence in Project-Based Learning (PBL) highlights its student-centric, problem-solving emphasis over traditional methods. Studies by El-Mowafy and Hassan (2023) and Chen et al. (2022) indicate its effectiveness in boosting student motivation and enhancing creative cognition in engineering and architectural curricula [16,17]. Blumenfeld and team identify five core phases of PBL, emphasizing "learning by doing" for real-world problem-solving, and enhancing student motivation and efficacy [18]. In summary, PBL, marrying technology with pedagogy, emerges as a promising approach, enhancing student involvement and innovative capabilities, signaling its significant future role in education.

3 Conceptual Framework and Implementation Framework

Positive psychological capital has a constructive influence on students' academic performance. To enhance the growth of students' positive psychological capital, we have designed the Blended Project-Based Learning (BPBL) approach. This approach combines the strengths of both online and offline learning: online modules efficiently disseminate knowledge on a large scale, while offline modules emphasize hands-on practice, team collaboration, and face-to-face communication. Therefore, BPBL integrates project-based instruction with blended learning, aiming to optimize students' academic outcomes and psychological capital (Figure 1).

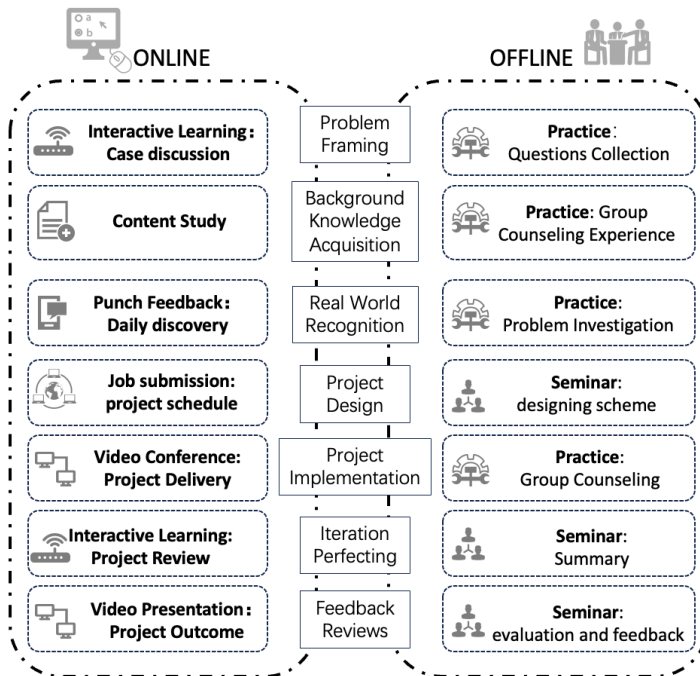


Fig. 1. Blended Project-Based Learning (BPBL) approach

3.1 Online Learning Modules

Online learning emerges as an innovative core component, resonating with modern educational trends and meeting the educational demands of a technology-driven society. This online framework comprises six key elements:

Interactive Learning: We've established an online community where students actively discuss, brainstorm, and pose questions, promoting continuous engagement.

Content Study: This allows students to delve into positive psychology and group counseling theories at their own pace using multimedia resources.

Pouch: Students regularly share uplifting experiences online, deepening understanding and gaining peer and teacher feedback.

Job Submission: Students submit their project designs online, enabling peer learning and receiving instructor feedback.

Video Conferences: Facilitates real-time interactions between students and instructors, preserving classroom dynamics.

Video Presentation: Students craft and share video presentations of their project outcomes, refining their comprehension and presentation skills.

Through such a comprehensive and structured online learning module design, the goal is to offer students a complete, efficient, and innovative learning experience.

3.2 Offline Learning Modules

In the BPBL approach, offline learning prioritizes hands-on practice and concentrated seminars.

Practice: Students conduct actual problem research, actively participate in group counseling sessions, and design and lead these sessions. This immersive learning approach promotes the application of theoretical knowledge.

Seminars: These structured meetings facilitate brainstorming on counseling strategies, reflection on outcomes, and participation in evaluative discussions. This approach fosters collective learning, allowing students to gain deeper insights and refine their strategies based on feedback.

This methodology not only enhances students' experiences in real-world counseling scenarios but also sharpens their teamwork, communication, and execution skills.

4 Design and Implementation of Instruction

"The Happiness Group Class" aims to immerse students in positive psychology and group counseling. By directly experiencing the group counseling process, students grasp the principles of positive psychological capital and group dynamics. Subsequently, they develop and implement a group counseling unit rooted in positive psychology, even recruiting and leading participants. While enhancing their knowledge and skills, we hope participants also bolster their positive psychological capital, adopting an optimistic outlook on life and learning. Our goal is to nurture students with a solid theoretical foundation, exemplary practical abilities, and a positive attitude towards life and others (Table 1).

Table 1. Overview of sample lesson

Project learning phase	Blended learning module	course unit	positive psychological capital
Problem Framing	Online: Cases Discussion Offline: Questions Collection	Students collect cases of psychological distress and classify psychological distress.	Hope

Background Knowledge Acquisition	Online: Positive psychology & Group counseling Offline: Counseling Experience	Students learn about positive psychology and group counseling and participate in teacher-organized group counseling experiences.	Self-efficacy
Real World Recognition	Online: "Moments of Happiness" clock in Offline: Group Investigation	Students explore real-world elements related to positive psychological capital and complete group formation.	Optimism
Project Design	Online: community Discussion Offline: Practice Workshop	Through online peer-to-peer discussions and teacher guidance, students develop group counseling activities.	Toughness
Project Implementation	Online: Solution delivery Meeting Offline: Landing Implementation	Students introduce the project and ensure the feasibility and practicability of the project through simulation and dialogue with the demander of the project. Then recruit members to conduct group counseling.	Self-efficacy
Iteration Perfecting	Online: Project Review Meeting Offline: Summary Meeting	Students reviewed the design and implementation status of the entire project through leader reflection and participant satisfaction survey and carried out optimization and iteration of the program.	Hope
Feedback Reviews	Online: Achievement Exhibition Offline: Learning Effectiveness Evaluation	Students share the implementation process of the program and evaluate the depth of the group implementation. Teachers and students comment on learning outcomes.	Self-efficacy

4.1 Problem Framing

Offline learning: Students conduct surveys to collect information about people's psychological distress. This step is designed for students to deeply understand the actual background and complexity of the issue, as well as to perceive the urgency of the problem.

Online learning: We have established an online platform to serve as the base for students to analyze and discuss psychological issues. On this platform, students engage in analysis and discussions about the origins and evolution of the issues; re-examine the problems from a positive perspective; and explore strategies for affected individuals to address their issues.

Through this design, students directly experience the problems offline and then delve deeper into analysis online, enhancing their practical skills and problem-solving abilities. This also strengthens their anticipation and hopes for the course.

4.2 Background Knowledge Acquisition

Online learning: Students will study theories related to positive psychology and group counseling. This provides students with the core theories and foundations of the course content, helping them build a preliminary understanding and comprehension of the topic.

Offline learning: Students could experience actual group counseling sessions. This not only allows students to apply the theoretical knowledge they acquired online to real-life scenarios but also enhances their practical skills and self-efficacy.

Integrating both online and offline learning ensures students achieve a balance between theory and practice, enabling them to better grasp the course content and boosting their motivation and confidence in learning.

4.3 Real World Recognition

Online learning: To further encourage students to focus on the positive emotions and experiences around them, we introduced the "Happiness Moments Check-in" activity. Students are encouraged to record and share their happy moments in daily life, fostering a habit of viewing life from a positive perspective.

Offline learning: Students collaborate in groups for hands-on exploration. Through teamwork and on-the-ground research, they delve into elements and situations in the real world related to positive psychological capital.

The design of this stage aims to cultivate students' optimism, making them realize that even when faced with difficulties and challenges, they can still find positive and valuable experiences and lessons. Such an optimistic attitude helps bolster their resilience and determination in confronting real-life challenges.

4.4 Project Design

Online learning: We offer students a digital community platform to share preliminary group counseling ideas and receive peer feedback. Throughout this, instructors guide and offer suggestions, ensuring the proposals are practical and evidence based.

Offline learning: Students practice counseling procedures in group workshops, simulating real-life environments to grasp specific group counseling techniques.

In this phase, we emphasize cultivating resilience. As project designs aren't always smooth, students may face unexpected challenges. Combining online and offline methods helps students progress through trial and error, enhancing their resilience, preparing them for real-world applications.

4.5 Project Implementation

Online learning: Students simulate project delivery, engaging in mock dialogues with stakeholders to clarify the counseling plan's details and goals. This process tests their plan and hones their stakeholder communication skills.

Offline learning: Students transition to practical implementation, recruiting actual participants, and conducting group counseling sessions based on their designed plan.

This phase focuses on nurturing self-efficacy. The blend of online and offline experiences empowers students to recognize their capabilities and impact, reinforcing confidence in their potential within group counseling.

4.6 Iteration Perfecting

Online learning: Students review the project, sharing their experiences, outcomes, and reflections using online tools. They'll deeply analyze the counseling plan based on leader insights and participant satisfaction surveys.

Offline learning: Students convene physical debriefing sessions, revisiting the project's highs and lows. This face-to-face discussion deepens their understanding of team feedback, offering substantial suggestions for plan iteration.

This phase embodies "hope." Students, through thorough reviews, not only grasp the project's significance but also harbor positive expectations for future enhancements and implementations.

4.7 Feedback Reviews

Online learning: Students present their outcomes online, using multimedia materials like photos and videos to showcase their project implementation, experiences, and insights.

Offline learning: An assessment session is held, featuring teacher evaluations, self-assessment, and peer reviews. Students share and gauge the depth of the group's execution while receiving feedback.

This phase highlights "self-efficacy." Through online presentations and diverse evaluations, students directly experience their efforts and achievements. Such positive recognition bolsters their confidence, fostering a stronger sense of self-efficacy for future challenges.

5 The Research Study

We have integrated the PBPL teaching approach into the undergraduate course "Happiness Group Class" at the university. This course aims to impart knowledge about positive psychology and group counseling, allowing students to personally experience the group counseling process and comprehend the principles behind positive psychological capital and group dynamics. Consequently, students are expected to develop a single-unit group counseling plan grounded in the philosophy of positive psychology and possess the capability to recruit and lead members in its implementation. Furthermore, we hope that through this process, students will enhance their positive psychological capital and foster a more optimistic attitude towards life and learning.

5.1 Participants

The study focused on undergraduate students from a university in Hubei Province, China. An experimental research method was employed for the study design. In the experimental group, 39 students were recruited, comprising 20 males and 19 females. These students, aged between 17 and 23, had an average age of 19.53. They opted for a blended approach, enrolling in both online and offline project-based teaching group classes through a voluntary course selection process. Meanwhile, the control group consisted of 40 students from the same university, with 21 males and 19 females. These students, aged between 17 and 22, had an average age of 19.12. They chose to attend traditional offline courses through a similar voluntary course selection mechanism.

5.2 Measuring Instruments

The Positive Psychological Questionnaire (PPQ), developed by Zhang Kuo and colleagues, gauges an individual's positive psychological state during their developmental journey [19]. Comprising 26 items, this scale encompasses four dimensions: self-efficacy, resilience, hope, and optimism. The internal consistency coefficient for this scale stands at 0.90, with the correlation coefficient of the sub-scale scores ranging from 0.25 to 0.56, demonstrating reasonable discriminative validity.

5.3 Study Procedure

The focus of the study was on undergraduate students from a university in Hubei Province, China. An experimental research method was adopted for the study design. In the experimental group, 39 students were recruited, including 20 males and 19 females, with an average age of 19. They chose a blended teaching approach and participated in the "BPLB Happiness Group Class" through a voluntary course selection process. Meanwhile, the control group consisted of 40 students from the same university, with 21 males and 19 females, and an average age of 19. They attended traditional offline courses through a voluntary course selection mechanism (Figure 2).

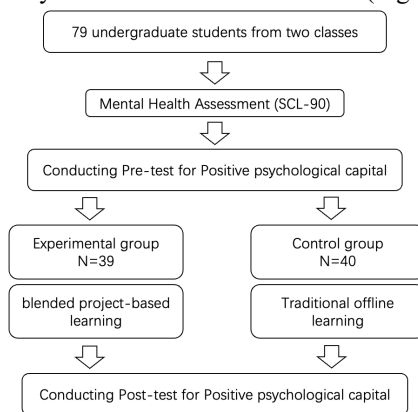


Fig. 2. Diagram of experimental design

5.4 Data Analysis

This section will discuss the role of BPBL in enhancing students' positive psychological capital from four dimensions: self-efficacy, resilience, hope, and optimism. A covariance analysis (ANOVA) was conducted on the experimental and control groups for these four dimensions. The affiliation between the experimental and control groups was designated as the independent variable, the post-test scores as the dependent variable, and the pre-test scores as the covariate. Using a one-way ANCOVA, while controlling for pre-test scores, we examined the effectiveness of the BPBL approach in enhancing students' positive psychological capital compared to traditional group counseling curriculum instruction. As shown in Table 2, the ANCOVA results indicated that there was a statistically significant difference between the two research groups in terms of self-efficacy and hope: self-efficacy ($F(1,77) = 5.88^{**}$, $p < 0.001$) and resilience ($F(1,77) = 11.24^{**}$, $p < 0.001$). However, no statistically significant differences were found in resilience ($F(1,77) = 1.88$, $p > 0.05$) and hope ($F(1,77) = 1.34$, $p > 0.05$) between the two research groups.

Table 2. ANCOVA results comparing the experiment and control groups.

Variable	Group	N	Pretest Mean	Posttest Mean	SD	F
Self-efficacy	control group	40	30.58	30.91	5.38	5.88**
	Experiment group	39	31.10	33.51	5.68	
Resilience	control group	40	29.59	30.13	4.30	1.88
	Experiment group	39	31.15	31.38	6.02	
Hope	control group	40	28.03	27.96	3.84	11.24**
	Experiment group	39	29.30	30.92	5.60	
Optimism	control group	40	29.36	29.09	4.50	1.34
	Experiment group	39	28.87	30.28	5.59	

6 Discussion and Conclusion

This study introduces a joyful group class approach based on project-based blended learning. Through tailored courses and activities, we conducted empirical research to validate its effectiveness. The results indicate that this approach enhances students' self-efficacy and cultivates a sense of hope in both their academic pursuits and overall life.

6.1 BPLB Promotes Students' Theoretical Knowledge Acquisition and Application

The teaching approach combines blended and project-based learning, providing students an integrated learning environment. This promotes deep exploration and practical application of positive psychology and group counseling. Blended learning merges online content with offline activities, deepening students' grasp of core concepts. Project-based learning lets students apply theory in real scenarios via group counseling projects, enhancing both their skills, and understanding in the field.

6.2 PBLB Enhances Students' Self-efficacy

Blended and project-based learning boost students' skills in group guidance design and execution. Blended learning connects theory to practice, enhancing understanding and self-efficacy, as seen in the "self-efficacy" data. Project-based learning demands deep student engagement, ensuring their professional growth in group counseling and driving them towards advanced expertise.

6.3 PBLB Enhances Students' Sense of Hope

Emphasizing emotional achievements in education, the PBLB teaching approach aims to nurture students' knowledge and emotional well-being. Blended learning enhances students' grasp of positive psychology and bolsters their optimistic perspective on life, especially evident in the "hope" dimension. Concurrently, project-based learning promotes team collaboration and real-world problem-solving. Student feedback indicates a fusion of digital interaction with genuine interpersonal connections, with even introverted students feeling valued in teams. Emotional keywords like "positive," "joy," and "trust" further underscore the positive emotional transformation facilitated by this approach.

7 Conclusion and Limitation

This study employed a project-based blended learning approach to enhance students' self-efficacy and positive emotional development in the dimensions of hope. Nonetheless, there are several limitations to this research. On one hand, the sample size of this study was relatively small, and future research intends to further validate the efficacy of this teaching approach with a larger sample size. On the other hand, the current instructional methods did not significantly strengthen students' resilience and optimism. As a result, we are considering integrating exercises related to coping with setbacks and fostering positive thinking in subsequent course designs to improve learning outcomes more specifically in these two areas.

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