



Integrating Project-Based Learning and Learner-Centered Assessment in an Online Entrepreneurship Finance Course

Tricia C. Ascan

*Faculty of Management and Development Studies
University of the Philippines Open University
Los Baños, Laguna, Philippines
tascan@upou.edu.ph*

Abstract—Project-Based Learning (PBL) has been recognized as an effective pedagogical approach for advancing authentic, collaborative, and experiential learning. This paper presents a qualitative descriptive study examining the design and implementation of a PBL activity in an online entrepreneurship finance course. The project is a six-week, group-based financial planning project where students develop a financial plan for agribusiness enterprises. The study documents how the Gold Standard PBL Model and learner-centered assessments were applied and how these supported students’ learning and application of entrepreneurial finance concepts. The findings show that all the design elements of the Gold Standard PBL Model were operationalized. Assessment for, as, and of learning were also embedded in the activities and were distributed throughout the duration of the project implementation. The study offers insights to educators looking for practical implementation models in designing authentic, collaborative, and assessment-rich learning experiences in online entrepreneurship education.

Keywords—project-based learning, learner-centered assessment, entrepreneurship, finance, online learning

I. INTRODUCTION

Entrepreneurship education in the Philippines has been continuously increasing in the last two decades. The Commission on Higher Education (CHED) provides the standards and guidelines for Higher Education Institutions (HEIs) regarding the offering of degree programs on entrepreneurship [1]. While most of the curriculum focuses on starting a business and preparing a business plan, the delivery method is mostly conceptual rather than experiential. Studies have shown that knowledge transmission toward experiential learning approaches enable students to apply theoretical concepts in authentic business contexts particularly in entrepreneurship courses [2][3]. This shift is particularly important in teaching entrepreneurship finance, where students are expected not only to understand financial

concepts but also to develop the competencies needed to analyze business opportunities, prepare financial projections, and make informed financial decisions. Students who experience actual networking and engaging with entrepreneurs are more likely to learn better and increase their intention to become entrepreneurs themselves [4]. One study also noted that PBL helps entrepreneurship students become innovative and creative in developing and marketing products [5]. More recently, a study that combined PBL with constructivist-based learning has shown to have a significant effect in entrepreneurial competence of students in higher education [6]. Another study underscores how PBL builds entrepreneurial skills such as creativity and innovation, teamwork, leadership, and resilience, and has the transformative potential in shaping entrepreneurial mindset [7].

In online learning environments, facilitating such learning experiences remains a significant challenge and requires innovative and experiential online pedagogies [8]. Traditional teaching methods, such as lecture, case studies, and some problem-solving exercises, often emphasize conceptual knowledge with limited opportunities for students to demonstrate the practical application of financial management skills.

Project-Based Learning (PBL) has been widely recognized as an instructional approach that promotes experiential and active learning by engaging students in solving real-world business problems over an extended period of time. Through practical application of knowledge, PBL serves as a framework that equips students with skills and mindsets needed to succeed in their disciplines [9]. Applications of this teaching approach continue to show improvements in entrepreneurial skills and characteristics among students [10].

The Gold Standard PBL Model[11] identifies seven essential design elements: a challenging problem, sustained

inquiry, authenticity, student voice and choice, reflection, critique and revision, and a public product. These design elements encourage students to learn through collaboration, inquiry, and iterative problem solving while producing realistic outputs.

In entrepreneurship finance, PBL offers students opportunities to develop their skills in identifying business opportunities, making financial assumptions, and preparing financial plans within real-world contexts.

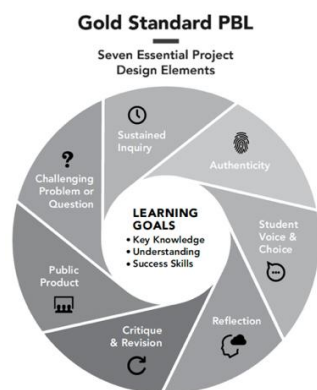


Fig. 1. Gold Standard PBL Model

Complementing the pedagogical principles of PBL is the growing emphasis on learner-centered assessment. This paradigm recognizes assessment as an integral part of the learning process. Earl's assessment framework [12] differentiates between assessment for learning, which provides formative feedback to improve learning; assessment as learning, which promotes students' self-monitoring and reflection; and assessment of learning, which determines the achievement of learning outcomes. When integrated into project-based learning, they can support continuous improvement, foster self-regulated learning, and encourage collaboration among students.

The study focused on the final project of an online course on entrepreneurship finance offered by the University of the Philippines Open University (UPOU) under its Associate of Arts in Digital Entrepreneurship (AADE) program. This PBL activity was a six-week, group-based project wherein student teams develop financial plans for agribusiness enterprises — one was a micro enterprise engaged in vegetable farming and retailing and the others were two organizations belonging to the coffee industry.

Although previous studies have investigated PBL and learner-centered assessment separately, limited research has examined their integration in fully online entrepreneurship courses. Understanding how formative feedback, self-reflection, and performance assessment interact throughout this PBL experience can provide valuable insights for educators seeking to design more engaging and effective learning activities particularly in online entrepreneurship education.

II. OBJECTIVES

The purpose of this study is to examine how PBL, supported by a learner-centered assessment framework, facilitates learning in an online entrepreneurship finance course.

Specifically, the study aims to:

1. Describe the application of PBL in an online entrepreneurship finance course.
2. Examine how learner-centered assessment practices — assessment for, as, and of learning — were integrated throughout the project.
3. Explore students' experiences in completing an authentic financial planning project.
4. Identify the perceived contributions of PBL to students' understanding of entrepreneurship finance, collaboration, and problem-solving.

III. METHODOLOGY

A. Research Design

The study employed a qualitative descriptive research approach to examine how PBL has been applied to an online entrepreneurship finance course. This approach allowed for a thorough description and analysis of the integration of PBL, and assessment methods given the exploratory and interpretive nature of the research objectives. As a qualitative descriptive study, its primary aim was to document and describe how PBL and learner-centered assessment were implemented rather than present generalizable causal claims. The findings from the study are therefore context-specific to the course examined.

The study used the entrepreneurship finance course under the AADE program. It is a seasonal course being offered only every second term in an academic year and one of the required courses that students need to take. Being an online course, students engage with the faculty-in-charge(FIC) and course content through MyPortal, the learning management system (LMS) of UPOU.

Module 4 of the course introduced the students to financial planning. The learning outcome for this module was to prepare a financial plan for a business by applying the financial planning process. The PBL activity was a group project where students were required to conceptualize a business and prepare a financial plan. The goal of the activity was to help students apply entrepreneurial finance concepts such as financial goal setting, assumption building, cost computation, and financial projections using real-world context. Specific instructions were written in an Assignment Guide that was uploaded in MyPortal. The project had to be completed within six weeks, with each week dedicated to a specific activity. The final output for each group was a written financial plan and a video presentation which had the option to be presented during a scheduled synchronous session or as a pre-recorded video. This also served as the final examination of the course and a grading rubric was provided based on the following criteria: financial goals and alignment, clarity and consistency of financial assumptions, accuracy of computations, financial projections, and organization of the financial plan. In addition, a Declaration of the Responsible Use of AI was also included in the submission requirements. Table I shows the timeline of the PBL activity.

TABLE I. PBL TIMELINE

Week	Activity	Details
1	Group mobilization and Kick-off meeting	During this week, each group should hold a meeting to discuss the project and decide the

Week		
	Activity	Details
		type of business venture that they will be doing. A synchronous session is held to discuss the project set expectations, timelines, and outputs.
2	Financial goals and assumptions	During this week, each group will work on the financial assumptions and projections.
3-4	Financial plan preparation	During this time, each group works on the financial plan. A template is provided to include cost projections, projected cash flows, projected income statement, and projected balance sheet. Asynchronous discussion in MyPortal will be done to address questions and provide timely feedback during the financial plan preparation.
5	Progress check-in	A synchronous meeting will be held to assess the progress of the groups, provide feedback for the initial output and address questions and concerns. Polishing of the final financial plan will be done during this week.
6	Submission and Presentation of Final Output	A written financial plan will be submitted in MyPortal. Presentation will be scheduled which can be either live or a pre-recorded video presentation.

Source: ENT 107 Assignment Guide

B. Data Source

Participants of this study were 27 students enrolled in two trimesters: Second Trimester AY2024-2025 & Second Trimester AY2025-2026. These were students in their second year of the AADE program. Table II shows the number of students enrolled in the course:

TABLE II. STUDENTS ENROLLMENT

Academic Year (AY)	Term	Enrollees
2024-2025	Second	11
2025-2026	Second	16

Students enrolled during the second term AY2024-2025 worked on a micro-enterprise engaged in vegetable farming and retailing while those enrolled during the second term AY2025-2026 worked on two organizations engaged in coffee production and processing. Based on the initial data given to them as well as initial briefing with the contact persons, the groups were to decide a potential business venture and prepare a financial plan.

Students were asked to reflect on the lessons they learned while doing the PBL activity as part of the final requirement.

Since this is a group project, group members were asked to evaluate their peers' participation using a google form. This served as feedback to the faculty-in-charge (FIC) on how to further improve the design of PBL and its assessment schemes.

This study used data from the PBL course activity that was part of the standard requirements of the ENT 107 course, independent of this research. The primary source was the Assignment Guide detailing the learning outcomes, specific tasks and instructions, and timeline as presented in Table I above. Student responses to the reflection questions and peer evaluations were used to identify patterns relevant to the study's objectives. All student data were anonymized prior to analysis, with no individual student identified in the findings. The study was conducted in accordance with the data privacy and research ethics guidelines of UPOU.

C. Data Analysis

A document analysis of the Assignment Guide was done using the Gold Standard PBL Model to check whether each element was present in the PBL activity. Next was how the learner-centered assessment framework was integrated within the project.

Consistent with the descriptive nature of this study, student responses were read and reviewed to identify patterns and statements corresponding to the study's objectives rather than going through a formal coding system. Thus, the findings are presented as an illustrative, descriptive account rather than a thorough thematic analysis.

IV. FINDINGS AND DISCUSSION

The findings and discussion are presented according to the implementation of the Gold Standard PBL model and the integration of learner-centered assessment throughout the six-week financial planning project.

A. Application of the Gold Standard PBL

The six-week financial planning project demonstrated that all the essential design elements were operationalized in the project's design. The project began with an authentic challenge posed by the identified enterprises (vegetable farming and retailing and coffee production and processing) through a synchronous session. During the session, the guest entrepreneur/resource persons provided details about their operations and what they expect about the project's output. The students then worked in groups to conceptualize a business, develop financial projections, prepare financial plans, present this to the FIC for initial feedback before producing the final outputs of a written financial plan and a video presentation. Table III presents the mapping of the project activities with the PBL elements.

TABLE III. GOLD STANDARD PBL ELEMENTS IN THE PROJECT DESIGN

PBL Element	Evidence from the Financial Planning Project
Challenging Problem or Question	Is the business financially viable? – an open-ended question requiring analysis; Students worked on preparing a financial plan for an identified actual business.

<i>PBL Element</i>	<i>Evidence from the Financial Planning Project</i>
Sustained Inquiry	Six-week scaffolded task sequence from financial goal setting to financial projections. Students follow specific instructions based on the assignment guide.
Authenticity	Actual business enterprises with real industry data
Student voice and choice	Students worked in groups and decided for themselves the business type and model, the financial assumptions and the preparation of the written financial plan and video presentation.
Reflection	Students reflected on the lessons learned from the PBL activity as part of their final output submission; peer evaluation among group members to reflect on how they collaborated as a group
Critique and revision	Week 5 synchronous session to review project's progress with FIC feedback prior to final submission; students revised outputs based on FIC's comments and recommendations
Public Product	Written financial plan as final output; live or pre-recorded video presentation via a synchronous session with the FIC and business owners/managers

This mapping showed that the model could be used and operationalized in fully online format and could support the development of entrepreneurial competencies in an online setting. The PBL activity, with its six-week scaffolded process, students working in groups, opportunities for reflection, critique and revision, and presentation of the final output, provided students with an experience that resembles authentic financial planning practice. This is also relevant to the challenge identified by Ligouri and Winkler [8] who emphasized difficulty of facilitating experiential entrepreneurship education in online environments. The project provided a structured approach where authentic and experiential learning could be done online.

B. Assessment for Learning

The progress check-in during Week 5 where students asked for clarification and received guidance from the FIC was the most evident form of assessment for learning. During the check-in, each group presented their initial outputs, followed by a question and answer session where the FIC served as the learning facilitator by giving feedback and addressing students' concerns particularly on how to properly come up with financial assumptions. The asynchronous discussion forums during Weeks 3 and 4 also provided the venue for students to post their questions—whether conceptual or technical—and receive timely feedback from the FIC. This type of formative assessment was considered an important strategy in online learning during the sustained inquiry phase of the PBL activity.

C. Assessment as Learning

The project also taught students to reflect on their own learning. Working in groups, it encouraged them to collectively solve a challenging problem by discussing among themselves their understanding of entrepreneurial finance concepts which contributed to collaborative learning. The groups were tasked to answer the following questions as part of the “Lessons Learned” in the PBL activity:

- Which assumptions had the greatest impact on your financial projection?
- What are the most critical financial risks to your proposed business venture?
- What challenges did you encounter when doing this project?
- How did participating in the group project impact our understanding of financial planning?

The metacognition strengthened their knowledge about financial planning. Simply producing a final output is not enough but students have to critically assess their own work and how it influenced the results.

Peer evaluation, on the other hand, promoted individual accountability within groups by encouraging members to contribute actively to project tasks.

Assessment as learning is evident in the student voice and choice and reflection elements in this project.

D. Assessment of Learning

The written financial plan and video presentation submitted in Week 6 and evaluated using the grading rubric served as the summative assessment of students' learning. This functions as assessment of learning because it served as the terminal evaluation of the project. Instead of a traditional written final examination, students demonstrated their competence in entrepreneurship finance by developing a financial plan and presenting it to the owners/managers of the enterprises. Getting final feedback from the FIC also enhanced their understanding and application of the concepts they learned throughout the project duration.

E. Overall Student Learning Experience

The PBL experience enabled students to deepen their understanding about financial planning particularly the interconnectedness of the different parts of the plan. Most of them highlighted that it made the topic more practical and less abstract.

"I was able to understand how each step affects each other. When we changed one item in the production costs, we had to change a lot of the computations in the other parts of the financial plan."

"I learned that to create a proper financial plan, I should have an idea of each section and understand how we came up with each figure."

While they recognize the value of teamwork and collaboration, the biggest challenge is the difficulty in coordinating due to conflicting schedules and the absence of face-to-face contact. However, they were able to manage communication and division of tasks using tools such as

Messenger group chats, shared Google docs and sheets for tracking their work.

"We had to juggle everyone's schedules and sometimes deal with delayed communication. Still, we adapted, kept the channels open, and ultimately pulled the project together successfully."

"Trying to find the time to meet and coordinate since we all have very different schedules... We used shared Google docs and assigned tasks when necessary."

"Our schedules don't align as some of us have night shift work and some [have] morning shift work... The group chat really help[ed] us as we can divide the tasks without affecting that much the work time of some of our working classmates."

Students reported that timely feedback —both during the synchronous sessions and the asynchronous discussion forums —proved to be valuable in helping them improved their final outputs. The synchronous sessions helped them understand instructions better, catch computational errors, and refine the accuracy and clarity of their financial plan. The final presentation was also a learning experience for them as the owners/managers of the enterprises gave practical suggestions about real-world financial planning.

"The Zoom sessions were important in improving the project. We got clearer instructions and understood the project well."

"It helped us to identify the erroneous parts of our financial plan and make revisions accordingly. In addition, we gain new knowledge that we can apply to the financial plan."

The feedback from our FIC helped us realize the areas we needed to improve on. Overall, the final presentation was very helpful because, personally, I wanted to succeed in making our final group project the best it could be."

The findings reinforced Earl's [12] assessment framework as an integral part of the learning process rather than as a set of isolated evaluations. Assessment for, as, and of learning were distributed across the six-week PBL activity that supported learning at different stages of the project. As assessments were embedded throughout the project, this showed how learner-centered assessment can complement the Gold Standard PBL Model by providing feedback and reflection while students were actively engaged in solving an authentic problem.

The study has several limitations. First, the study was positioned within a single course under one academic program and facilitated by a single faculty-in-charge, which constrained the generalizability of the findings to other entrepreneurship courses, academic programs, or institutions. Second, the primary source of data was from a single course activity in a particular course module and responses were reviewed for recurring patterns only rather subjected through a formal coding of a thematic analysis

Notwithstanding these limitations, the study offers insight into an underexplored intersection of PBL and learner-centered assessment integration in online entrepreneurship education, providing an empirical evidence with which online educators may replicate.

V. CONCLUSION

The study demonstrates that PBL can be designed within an online learning modality particularly in an entrepreneurship finance course. The project engaged students collaboratively in developing a business concept, preparing a comprehensive financial plan, and presenting their work to an audience. It also highlights the complementary role of learner-centered assessment throughout the PBL activity. Rather than functioning as isolated assessment events, the three-assessment paradigm was embedded with the PBL process which supported continuous learning among the students. This is closely aligned with the objectives of entrepreneurship education which requires students to apply financial knowledge in a realistic context.

This study contributes to the growing body of literature in online entrepreneurship education by providing a practical example of implementing the Gold Standard PBL model and how it can be integrated with learner-centered assessment. Furthermore, this study may serve as a reference for educators seeking to design authentic and engaging PBL experiences in online learning environments.

ACKNOWLEDGMENT

The author would like to thank UP Open University for supporting this study through a research dissemination grant.

REFERENCES

- [1] Commission on Higher Education, "CHED Memorandum Order No. 17, Series of 2005: Minimum Curricular Requirements for Bachelor of Science in Entrepreneurship (BS Entrep)." Quezon City, Philippines: Commission on Higher Education, Apr. 18, 2005. [Online]. Available: <https://legacy.ched.gov.ph/wp-content/uploads/2017/10/CMO-No.17-s2005.pdf>
- [2] V. F. Motta and S. V. R. Galina, "Experiential learning in entrepreneurship education: A systematic literature review," *Teaching and Teacher Education*, vol. 121, Art. no. 103919, Jan. 2023. doi: 10.1016/j.tate.2022.103919. [Online]. Available: <https://doi.org/10.1016/j.tate.2022.103919>
- [3] C. Mason and N. Arshed, "Teaching entrepreneurship to university students through experiential learning: A case study," *Industry and Higher Education*, vol. 27, no. 6, pp. 449–463, Dec. 2013. doi: 10.5367/ihe.2013.0180. [Online]. Available: <https://doi.org/10.5367/ihe.2013.0180>
- [4] P. S. Sherman, T. Sebor, and L. A. Digman, "Experiential entrepreneurship in the classroom: Effects of teaching methods on entrepreneurial career choice intentions," *Journal of Entrepreneurship Education*, vol. 11, pp. 29–42, 2008.
- [5] W. E. D. Radianto and O. Y. A. Wijaya, "Project based learning and innovation in entrepreneurship education," *International Journal of Applied Business and Economic Research*, vol. 15, no. 25, pp. 129–140, 2017. [Online]. Available: <http://repository.asmisurabaya.ac.id/wp-content/uploads/2019/12/Project-based-learning.pdf>
- [6] B. B. Wiyono, A. Imron, R. B. Sumarsono, K. Musa, and R. B. M. Saat, "The effect of constructivist learning and project-based learning model on students' entrepreneurial competence in higher education," *Cogent Education*, vol. 12, no. 1, Art. no. 2557606, 2025. doi: 10.1080/2331186X.2025.2557606. [Online]. Available: <https://doi.org/10.1080/2331186X.2025.2557606>
- [7] A. Chitamba, V. Yearwood, M. Swanepoel, and G. Myeza, "Project-based learning and the development of entrepreneurial skills in higher education: An integrative approach," *International Journal of Business & Management Studies*, vol. 6, no. 4, pp. 123–133, Apr. 2025, doi: 10.56734/ijbms.v6n4a12.
- [8] E. Liguori and C. Winkler, "From offline to online: Challenges and opportunities for entrepreneurship education following the COVID-19 pandemic," *Entrepreneurship Education and Pedagogy*, vol. 3, no. 4, pp. 346–351, Oct. 2020, doi: 10.1177/2515127420916738

- [9] O. Omelianenko and N. Artyukhova, "Project-based learning: Theoretical overview and practical implications for local innovation-based development," *Economics and Education*, vol. 9, no. 1, pp. 35–41, 2024, doi: 10.30525/2500-946X/2024-1-6. [Online] Available: <https://doi.org/10.30525/2500-946X/2024-1-6>
- [10] S. Chularee, J. Tapin, L. Chainok, and C. Chiaranai, "Effects of project-based learning on entrepreneurship skills and characteristics of nursing students," *Nursing & Health Sciences*, vol. 26, no. 3, art. e13160, 2024, doi: 10.1111/nhs.13160.
- [11] PBLWorks (Buck Institute for Education), *Gold Standard PBL: Essential Project Design Elements*. Novato, CA, USA: Buck Institute for Education, 2019. [Online]. Available: <https://www.pblworks.org>
- [12] L. Earl, *Assessment as Learning: Using Classroom Assessment to Maximize Student Learning*. Thousand Oaks, CA: Corwin Press, 2003.