



Original Article

Investigating the Project Based Learning and Service Learning: A Case Study of Interior Design Program, Petra Christian University

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Citations: Wardani, L.K., Santosa, A., Sitindjak, R.H.I., & Nilasari, P.F., (2023). Investigating the Project Based Learning and Service Learning: A Case Study of Interior Design Program, Petra Christian University. *Global Journal of Emerging Science, Engineering & Technology*, 1(2), 80-90.

Received: 22 July 2023

Accepted: 28 October 2023

Published: 30 November 2023

Abstract: Curriculum development is carried out by the Interior Design Study Program at Petra Christian University to foster academic competencies, encourage and facilitate students to master various sciences according to their specialization, as well as enable them to understand real problems and find creative solutions. This article discusses various learning activities that contribute to empirical knowledge regarding the successful implementation of project-based learning in a sustainable manner. Through project-based learning, the learning process is built on learning activities with real tasks that challenge students to solve daily life problems independently and collaboratively. Meanwhile, through service learning, students experience direct interaction with the community where they live. Overall, implementing learning helps promote the existence of the design profession to the public. Communities become more aware that they must increase awareness of their cultural environment. In contrast, students become more aware of their competence as designers in building a better environment.

Keywords: Project based learning; Service learning; Interior design; Leadership enhancement Program.



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1. Introduction

Design embodies creative ideas that answer the community's needs ([Addison, 2010](#); [Swanzen, 2018](#)). The quality of the design is highly dependent on the designer's ability to translate needs and communicate ideas to all parties involved (stakeholders). Designers develop problem-solving methods through optimizing functions by paying attention to safety, security, health, comfort, and aesthetics for humans and their environment. Currently, design and technology innovation is growing rapidly. Sophisticated technology dominates all sectors, making even abstract ideas easier to identify. Designers must be able to innovate and always be updated with technological advances. However, as good citizens, designers need to develop the ability to collaborate with many parties in solving more complex socio-cultural problems of society.

Here, the role of universities is very much needed to prepare prospective innovative designers with superior knowledge, skills, and behaviors oriented toward the success of design projects that answer community problems. In this regard, the Petra Christian University Interior Design Study Program (Interior Design Study Program PCU) develops a curriculum by integrating student academic competencies by encouraging and facilitating students to master various sciences according to their specialization and, independently understand real problems and seek creative solutions. Students are directed to have direct learning experiences off campus for 1-2 semesters through the Leadership Enhancement Program (LEAP). Implementing the LEAP is expected to produce Interior Design Study Program students who excel in addressing design dynamics, are skilled in understanding, critically analyzing, and solving real problems of community needs creatively, systematically, and contextually, and are resilient in facing increasingly complex future challenges. Graduates are expected to be professionals in the field of interior design who have innovative, Novel, trustworthy, resilient, and altruistic characters and digital leadership skills.

Since 2016, the ID Study Program has opened two specialization paths, Interior Design and styling (IDS) and Interior Product Design (IPD), to provide students with more future career options related to the interior sector. This article will discuss various learning activities for ID Study Program students based on the Outcome Based Education Leadership Enhancement Program (OBE-LEAP) (Rector's Regulation No. 2, 2020). This article contributes empirical knowledge about the successful and successful implementation of project-based learning in the ID Study Program.

2. Literature Review

2.1. Project-Based Learning and Service-Learning Method

Project-based learning is a form of student-centered learning (Kokotsaki et al., 2016). The challenge for educators in higher education is how to create a direct learning experience for students to solve real problems in society more pleasantly. For this reason, educators need to be creative in choosing the right learning method. In designing the ID study program environment, the teaching and learning process applies several approaches, such as Project-based Learning (PBL) by combining Service Learning (SL). Learning activities are organized by the teaching team, which teaches in the classroom, and the studio head coordinates the project with the tutors in the design studio and practicum in the laboratory. Tutors guide small groups of students (per group of 8-10 students), where they can provide input/suggestions in more intense, personal discussions on project implementation. Design studio activities allow group work to train time management in a structured manner through the stages of design thinking. Students are involved in teams starting from data collection, making needs programs, generating conceptual ideas in designing designs, making prototypes of interior design styling/interior product design, production processes in the laboratory, presenting their work to collaboration partners/clients, and ending with an exhibition.

PBL is an approach built on learning activities and real tasks that challenge students to solve problems related to everyday life independently and in groups. The project-based learning approach creates a constructivist learning environment where students build their knowledge and educators become facilitators (Goodman & Stivers, 2010). Curriculum implementation with the PBL approach model helps prepare students to develop skills and empathy by listening to clients critically, evaluating their work and that of others, developing independent learning, and working in teams (Galford et al., 2015). Problem-solving-based learning will help students learn how to communicate, collaborate, and compromise to achieve common goals and find the most relevant solutions to their problems (Asojo & Vo, 2021). Project-based learning will help generate innovations. Students become competent and skilled in effectively overcoming real problems through teamwork.

In addition, combining PBL with Service Learning is considered appropriate so that students have collaboration skills and excel in management and social communication. PCU has a tradition of serving the community by strengthening regional development, responding to the education and health needs of the community, and contributing to its cultural life. Through service learning, students experience real direct interaction with the community where they live. Service Learning provides many positive aspects for students' personal development, namely personal and interpersonal development; understanding and applying knowledge; engagement, curiosity, and reflective practice; critical thinking; perspective transformation; and citizenship (Eyler & Giles Jr, 1999). The Service-Learning method impacts the development of students' soft skills, such as caring, creative and critical thinking, leadership, teamwork, and communication skills (Arlina, 2009). Service Learning is a holistic education that integrates all student aspects: academic, emotional, and spiritual. According to Kuntjara et al. (2013), the requirements for the service learning method include:

1. Link to the curriculum of the study program, which means a service can be based on mono-discipline or multi-disciplinary/cross-study programs;

2. Meaningful service learning, namely, the lecturer brings the learning process from the classroom/studio to the field so that students gain experience in community groups that need services;
3. Reflection, namely lecturers' and students' reflection, is part of a continuous learning process. Lecturers give students time to realize the impact of the services provided;
4. Diversity, service-learning helps students understand community diversity, understand multi-perspective approaches and planning and be able to develop conflict resolution skills;
5. Partnership service learning requires collaboration. There is collaboration between lecturers, students, communities and funders to achieve the right goals;
6. Monitoring, lecturers monitor during the SL program, so that activities become an important focus;
7. Duration and intensity: SL is carried out in a fairly long time, more than one month, because it includes the stages of problem identification, preparation of types of programs, implementation and monitoring, and reflection.

3. Case Study Project: Innovation Design for Cultural Space

This study results from the author's observations of participants with different levels of competence, namely 6th and 8th-semester students. The first observation is the implementation of PBL in the Interior Design and Styling for Cultural Space and Interior Product Design for Cultural Space courses in semester 6, then continued in LEAP in the 8th semester. This continuous learning activity goes through the design thinking stages, namely the understanding (ethnographic studies), observing (empathy mapping), point of view (problem seeking & goal setting), and ideating (concept based on community potentials designer-community ideas), prototype (incorporate community's artifacts in the design and co-creation/co-implementation), and testing (community evaluation, usability test, and reflection) (Goldman et al., 2009; Thamrin, 2015). In the design process that uses the design thinking method, the involvement of intuition, imagination, and creativity is very important because it will sharpen the sensitivity of students' feelings when solving real societal problems. The dialogue process in the design and collaboration between students, lecturers, and the community will help measure the success of PBL implementation. Testing through dialogue in the presentation will explain whether the design results have answered the user's needs. Evaluations and reflections made by users are useful for assessing students' ability to solve problems and provide services to the community.

3.1. Students Project of Interior Design for Cultural Space

The project for students of the Interior Design for Cultural Space course implements the concept of regionalism. Regionalism emphasizes the disclosure of the characteristics of a region in modern architecture. This approach criticizes modern architecture, which views architecture as basically universal. Regionalism is the love of one's locality, pride in its accomplishments, and loyalty to everything in it brings about a state of mind known as regionalism. In turn, regionalism elicits the common interests of a community and fires its members with the energy to realize those interests (Canizaro, 2007). Building local communities in the learning process and appreciating cultural heritage is important in the design. Regionalism-based works will always involve the senses in their creation, embody and express local cultural processes, promote environmental conservation, and increase public awareness about the environment around them (Thamrin, 2015). Interior Design is an applied discipline that has the potential to help provide solutions to improve human life and the environment. The project carried out in this article aims to provide students with knowledge about awareness of socio-cultural issues in the local environment and how students learn to provide design solutions and serve community needs.

The title of the project carried out by semester 6 students is Innovative Regional Design of Cultural Spaces in Surabaya. This design is in the form of library facilities that accommodate cultural activities and create sustainable learning for the community. The assigned project is a public space with a minimum area of 500m², accommodating cultural, social, and educational activities. The project location is in Surabaya with a real existing site and floor plan. Groups are divided into 8-10 students, each guided by one tutor. Initially, the author, a course lecturer, and the Head of the Studio contacted the collaboration partner, the Surabaya City Library, and proposed this project. Students conduct an initial search at the stage of understanding and observing the project object through social media and then conduct field observations to collect physical and non-physical data. They made in-depth observations about the existing site's function, condition of the existing site and its potential (site analysis), and role in educating the public. Observation of the problem is related to products and collection objects that have valuable value for the local people of Surabaya in the context of culture and science.

Students are asked to observe user activities from managers and visitors, behavior, attitudes, and user space. They involve themselves and participate as users and managers through an empathy approach and then reflect on the needs of the design object in terms of interior design, function, aesthetics,

atmosphere, and space experience. Interviews were conducted with the manager of the design object, the community, and the local community. They explore the special identity, vision, mission, objects, and values that inspire the design object. They also searched and studied various literature on interiors as well as information from academic texts related to the design object as a basis for design reference. At the point of view stage, students describe the needs of the design object in terms of interior design, including function, aesthetics, atmosphere, and space experience (programming). Then, formulate problems (problem statements) that must be solved with the group and the accompanying lecturer. After that, together with the student team, they integrate all findings (user, need, and insight) and think of initial solutions that can answer the problems that have been formulated. The formulation of the problem is in the form of suggestions on how to create an interior design of cultural space that elevates locality values and has an impact on sustainable community learning through experiential learning that interior designers can create.



Figure 1. Understand and observe the point of view stages.

Source: Bryan Documentation (2022)

At the ideate stage, students brainstorm with various methods, such as mind maps and affinity diagrams, and explore various alternative design solutions. This is followed by presenting their respective brainstorming processes and deciding on the best alternative design ideas as the best solution. In the next step, they put forward the formulation of the programmatic concept and transformed it into a clear design concept using various visualization methods using digital technology. Students and the team involve users in focus group discussions to get input for improvement.



Figure 2. Point of View, Ideate, Design Critique, and Prototype

Design by: Cecilia Hana (2022)

They conduct joint activities to evaluate and critique designs with users and supervisors. After that, they improve the design and carry out interior styling based on an agreement with the user. The final evaluation was a design presentation with users (leaders and library staff) online (new normal era of the COVID pandemic). Students, as participants, present the results of interior design renovation plans, and users provide input and criticism. The lecturer accompanied the discussion and concluded the results of the evaluation inputs. After the evaluation ends, they (users, lecturers, and students) reflect on the program's overall implementation.



Figure 3. Interior Design Styling and Test Stage

Source: Bryan and team (2022)

3.2. New Normal Interior Product Design

The Interior Product Design for Cultural Space course is a theoretical and practical course that produces interior products that address cultural values, behavior, and community needs. Aspects of innovation and sustainability are important considerations in the design, in addition to considerations of raw materials, aesthetic aspects of form, proper function, size and ergonomics, correct and strong engineering and construction to support the load, as well as aspects of production efficiency and commercialization considerations. The product designed is a sitting facility for a public room in a hospital. Sitting facilities are one of the interior products that are most needed by the community and have the complexity of the problems closest to the analysis of the human body from the point of view of ergonomics. Product design development, especially for interior filling facilities based on contemporary culture, is still a wide area to be explored, considering that culture is very broad in scope.

Meanwhile, many interior product designs for public facilities are still standard, so they seem boring and require new innovations. In addition, the sustainability aspect in responding to environmental and health problems due to the COVID-19 pandemic is also important to consider in every design creation decision. Therefore, interior product design in responding to emerging phenomena and issues with a cultural premise of innovation and sustainability is challenging for designers. The project appointed for 6th semester students in the Interior Product Design for Cultural Space course was to design a sitting facility with the main material made of wood and a mix of materials. The product design output is in the form of sitting facilities in public spaces such as hospitals. Students choose product placement locations for projects with their groups. The location of product placement in interior design is adjusted to the proximity of the student's domicile.

Real existing site and a floor plan designed interior area + 100 m². At the understand, observe, and point of view stages, students collect data regarding the development of the social environment in the face of the new normal and the development of new designs that accommodate the need for spatial distance and protection of public health. They track changes in habits made by the community, find important problems, and then look for solutions. They observe and analyze existing designs and assess the optimization of functions related to new behaviors and habits facing the new normal of the COVID-19 pandemic. In addition, they observe the situation of public spaces and observe the hierarchy, accessibility, and product placement in the space.



Figure 4. Understand and Observe Stage. Documentation of observations of interior design, furniture, and human behavior while at the Gotong Royong Hospital Surabaya

Source: Favian (2021)

From these observations, students found that the existing products were not following the health protocol and were only marked with a cross on the part that should not be used. Students find real problems for new design proposals that pay attention to spatial distance and pay attention to health protocols. After finding field data and literature data that support product design standardization, students

create a programmatic concept, namely designing a multifunctional sitting facility product that pays attention to spatial distance, pays attention to function, shape, and production costs, can be used for a long time/sustainable, and applies community cultural values. The ideas emerged from the activities of the local community, who always cooperated when doing something to achieve a common goal, in this case, *Gotong Royong* to solve community problems and care about common health. After establishing the concept, students make alternatives and develop them at the ideate stage. They analyze the design through joint critique with fellow students and their supervisors.



Figure 5. Affinity Diagram Design of sitting facilities.

Source: Favian (2021)

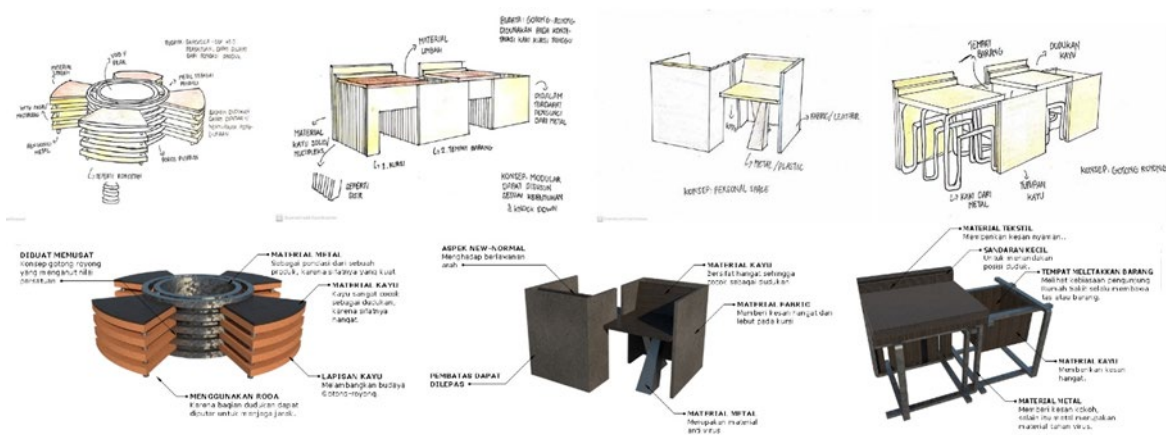


Figure 6. Product design design for the new normal

Sketch by: Favian (2021)

After the ideation stage, students make working drawings and product prototypes in the production process. Students are involved in making them in laboratories or workshops chosen by students with the supervision of laboratory assistants and supervisors. After the prototype is finished, students evaluate the product's strength, ergonomics, and comfort. They conduct evaluations with their supervisors, followed by design improvements. After that, they will hold an exhibition outside the campus to get feedback from the community.



Figure 7. Simulation of the design of the seat change configuration and its placement in the room.

Design by: [Favian \(2021\)](#)



Figure 8. Final Product Design (IDD0000061439, IDD0000061441).

Design by: [Favian \(2021\)](#)

3.3. Leadership Enhancement Program (LEAP)

The OBE-LEAP ID Study Program curriculum offers a choice of LEAP pathways in the fourth year (semesters 7 and 8), including Research and Innovation, Community Engagement, Industrial Experience, and Global Exposure to provide a choice of a variety of learning experiences according to student interests, allowing students to choose topics and thesis with an approach and specialization based on their interests. The ID Study Program provides academic freedom for lecturers and students to collaborate with industry and various formal and non-formal communities. Lecturers can express their ideas freely in the classroom/studio/laboratory as well as outside the classroom or in academic forums, and they provide opportunities for students to express, create, present, and publish their conceptual ideas and actualize them on various occasions.

As mentioned above, PBL-SL activities are part of curriculum implementation. In this article, the author specifically describes the Leadership Enhancement Program (LEAP) Applied Research, which involves the collaboration of final year students (semester 8) from the Interior Design Study Program and the Interior Product Design Program in designing the Herbal Library and developing the village area in the city of Surabaya. This activity was carried out for 5 months, going through the stages of preparation, design planning, monitoring, reflection, and evaluation.

The main partners for this LEAP project are the Nginden Jangkungan Herbal Library and the Herbal Village Community VI - I Surabaya. Supporting partners include the Surabaya City Library and Archives Service, PCU Library, PCU ID Study Program Lab, and LPPM (Research and Community Service Institutions) PCU. Funding sources for the activity came from the Surabaya City Public Library and Archives Service and the Indonesian Ministry of Research, Technology and Higher Education (Ristekdikti). The main partners' roles include providing objects for projects, helping material subsidies for styling and product implementation practices, and providing a place for discussion and consumption. Main and supporting partners provide time for focus group discussions (FGD), input during product design ideas presentation & interior design styling, and input for design improvements. The main partners also help with styling and product prototypes with students and lecturers.

The Herbal Village Library provides a place to realize and implement space and facility designs with community activities closely related to developing herbal cultivation in the village. The herbal library facility

is a center for educating herbal plants, their empowerment and utilization. The community welcomed this library's existence, and in the future, it is hoped that it will develop into a village of herbal tourism. The Surabaya City Library Service helps direct and bridge important information regarding library needs and requirements. Supervising lecturers involve students in designing the library's interior design and its facilities.

Participation and ethnography between partners, supervisors, and students in LEAP activities, including focus group discussions/discussions, training on manufacturing plastic waste products and eco-print training, are very beneficial for partners. The training activities to make creative products from plastic waste were carried out by students & lecturers with children. In contrast, the eco-print training was conducted with mothers from Herbal villages. With this activity, partners are resources that provide mutually beneficial applied knowledge for developing students' creative talents (learning process for citizens and students). The benefits of implementing project-based learning and participatory service learning for student learning processes include increasing creativity and design quality, being useful for socio-cultural appreciation, and implementing environmentally friendly regionalism concepts for future long-life education for community students. The results of the PBL-SL realization of interior design and styling I and product design of the Kampung Herbal LEAP (Final Project) Library are as follows (when the activity was carried out, it was still the COVID-19 pandemic era in 2021).

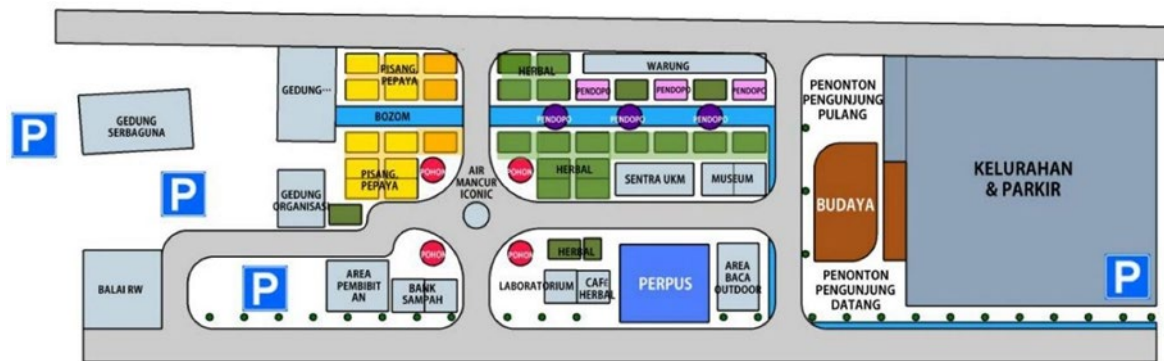


Figure 9. The Development Plan a tourist area in Kampung Herbal Jangkungan Nginden, Surabaya
Designed by: [Nathania](#), [Mozart](#), [Laksmi](#) and [Diana](#) (2021).

Figure 9 shows plans to develop a tourist area in the Kampung Herbal Jangkungan Nginden Surabaya by IDS students (Nathania), IPD students (Mozart), and supervisors. At this stage, the space facility as the object of the project is the library discussed with the Surabaya City Library and Archives Service



Figure 10. Left: Understand and observe stages to understand the community's real needs and discover the potential of the environment.



Figure 11. Approach to the community through training on plastic waste management for children (raising awareness of environmental friendliness from an early age) and eco print training for community mothers. The public knows the environmental potential and sustainability of plastic waste and the potential of herbal plants for creative product development (experiential learning, collaboration, and participatory education).



Figure 12. Focus group discussion with the Herbal Village community and the Head of the Surabaya City Library and LPPM (research and community service institutions) PCU, along with the final results of the prototype interior design and styling and interior product design collaboration of students, lecturers, herbal library staff, and residents of Kampung Herbal Jangkungan Nginden Surabaya



Figure 13. The construction process of the Kampung Herbal Jangkungan Nginden Surabaya Library building was carried out by community members with the supervision of students and lecturers (Photo: Nathania, 2021).



Figure 14. The stage of making product prototypes at the ID Study Program Lab PCU (Photo: Natania, 2021)



Figure 15. Interior Design Styling of Herbal Library, Jangkungan, Nginden Surabaya

Source: [Nathania and Mozart \(2021\)](#)

At the end of the activity, students presented their activities with partners and supervisors for the evaluation and reflection stage.

4. Conclusions

Through the implementation of project-based learning and service learning, a method has been successfully tested responsibly to achieve learning outcomes according to the expected profile. This activity can be used to improve the education curriculum, which impacts improving the social environment. Many benefits can be obtained from this activity. First, at the understand and observe stages, students gain a deep understanding of the aspirations, characters, and values that exist in society. At the point of view, ideate, and prototype stages, students gain quality improvement in design quality through potential mapping, critical analysis, brainstorming, criticism, development, and evaluation. Their creativity is growing, and they get enough space to bring up innovations. At the test stage, students can review, reflect, and self-evaluate the strengths and weaknesses of their design for the next design improvement.

Overall, implementing this learning introduces the public to the existence of the design profession (interior design and product design) and its activities. Communities become more aware that they must increase awareness of their cultural environment. Awareness of the values they aspire to be further increased through design, thus indirectly increasing the potential for promoting designer services. People are becoming aware of the possibilities interior designers can do to support their aspirations. As for students, they become more aware of their competence as designers in building a better environment. Students and lecturers become more aware that they have a role through their expertise and talents to contribute to society realistically (acquire reflective knowledge about the future role of designers in making positive social change). Thus, designers empower their expertise to increase the local potential and credibility of the city of Surabaya.

Author Contributions: Conceptualization, L.K.W. and A.S.; methodology, L.K.W.; software, L.K.W.; validation A.S., R.H.I.S. and P.F.N.; formal analysis, L.K.W.; investigation, L.K.W.; resources, L.K.W.; data curation, A.S., R.H.I.S. and P.F.N.; writing—original draft preparation, L.K.W. and A.S.; writing—review and editing, L.K.W., A.S., R.H.I.S. and P.F.N.; visualization, L.K.W.; supervision, A.S., R.H.I.S. and P.F.N.; project administration, A.S.; funding acquisition, Y.Y. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: The authors would like to thank Petra Christian University, Indonesia, for supporting this research and publication. We would also like to thank the reviewers for their constructive comments and suggestions.

Conflicts of Interest: The authors declare no conflict of interest.

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