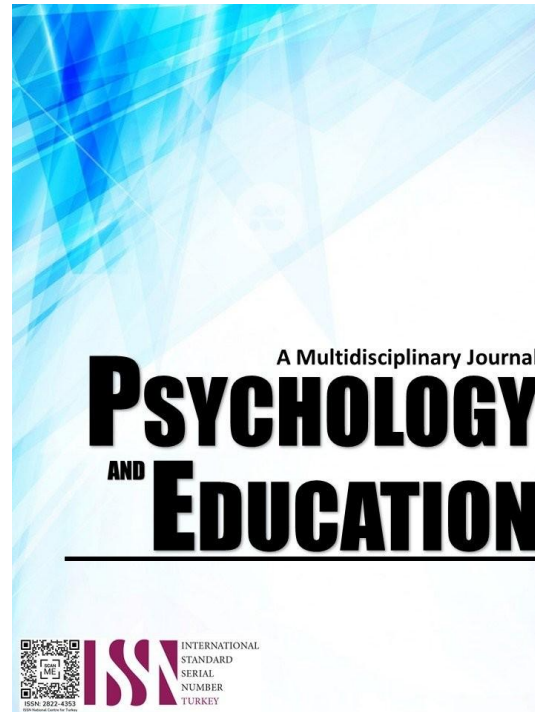


EVALUATING THE EFFECTIVENESS OF PROJECT-BASED LEARNING ON EMBROIDERY INSTRUCTION



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

Volume: 43

Issue 2

Pages: 176-183

Document ID: 2025PEMJ4150

DOI: 10.70838/pemj.430204

Manuscript Accepted: 06-17-2025

Evaluating the Effectiveness of Project-Based Learning on Embroidery Instruction

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Abstract

The decline of students' interest and attitude towards learning embroidery has become a growing concern among the educators due to the following factors: limited budgetary support, lack of equipment and facility, lack of experience and talent. The rising influence of technology also affects the students' engagement in learning embroidery which is perceived as boring and outdated skill. Thus, this study aimed to evaluate the effectiveness of project-based learning on embroidery instruction and to develop an enhanced teaching material using project-based learning intended to the public secondary school of Region VII. This study employed an explanatory – sequential mixed-method design wherein the study quantified students' performance and then discovered the students' challenges and opportunities. This study used a purposive sampling wherein the students were assessed using z – test to determine the entrance and exit level of students' performance and t – test to determine the significant mean difference in the students' performance. This study used a researcher – made questionnaire focusing on the competencies of embroidery prescribed on the Most Essential Learning Competency (MELC) by Department of Education as an instrument in determining the quantitative data and a researcher-made interview guide in discovering the development of technical skills, creativity, challenges and opportunities through a focused-group discussion. The results revealed a significant improvement in the students' embroidery performance after the use of project-based learning. The experiences such as enhancement of embroidery skills and techniques through practical application, time management challenges and development of values strengthened the quantitative results of the study. Hence, project-based learning positively influenced students' performance in embroidery instruction demonstrating its effectiveness as a teaching strategy. Thus, it is recommended that project-based learning be integrated school-wide in delivery of Technology and Livelihood Education (TLE) to promote deeper skill development and sustained student engagement.

Keywords: *embroidery, project-based learning, challenges and opportunities, explanatory–sequential*

Introduction

Embroidery is a famous Filipino tradition originates in the Spanish educational reform where it presents decoration in a woven material using needles and thread which primarily a famous hobby among Filipino women (Adalla, 2018). Embroidery reflects the rich culture of the Philippines and preserving this skill is a growing concern because there are underlying factors in learning embroidery such as budgetary problem, commitment, physical condition, experience and talent; hence teachers and students should be aware of these factors for these play a crucial role in preserving embroidery not only in education but also in the community (Berondo, 2023). A study conducted in Taal, Batangas among the entrepreneurs in preserving embroidery as a tourist attraction emphasizes that the reasons an individual resist in joining embroidery are physical condition, loss of interest, and boredom wherein the respondents in the study view embroidery as a second option because it is a tedious process and needs to be prioritize (Buted, Meñez, Baruc, & Borbon, 2014). Also, a study also about reviving embroidery tradition of Panay, Bukidnon points that embroidery faces a threat of extinction among the young generation today because the influence of technology to the students affects their interest and attitude towards embroidery (Berondo, 2023). Hence, it is the role of the education to assist students in learning embroidery that promotes holistic engagement through incorporating embroidery in the curriculum which will help boost the student's interest and attitude towards embroidery (Pineda, 2025). With this, the Department of Education endorsed most essential learning competencies in embroidery in the first quarter of every school year that should be mandatorily implemented to foster learning and boost interest in the teaching embroidery to the Junior High School. However, developing the students' creativity and embroidery crafts which are inclined to the workforce and embroidery industry is crucial because most of the most essential learning competencies are not mastered well due to limited exploration in embroidery, hence, it is the teacher's responsibility to provide content knowledge and varied learning experience in teaching embroidery (Yuliarma, Jalinus, & Rusdinal, 2018).

Teachers teaching embroidery uses varied teaching methods that introduces students to explore and expose themselves to workforce inspired craft that also enhances body orientation, mindfulness, and connection to the community (Kumar, 2021). Teaching embroidery in a traditional way like simple sewing and stitching is still relevant today, however, with the losing interest and needing for more innovation and exploration along with the influence of modern technologies among the student, there is a need for new teaching strategy (Wei, 2019). This teaching strategy should foster meaningful learning in embroidery by assisting students in producing real life output that connects to the community of the students at the same time strengthening physical and mental aspect in exploring and learning embroidery (Kumar, 2021). Also, this teaching strategy must be learner – centered and contextualized ensuring that there is a guided instruction wherein teachers supervise and support learning through resources and others at the same time it is contextualized that reflects to the students' background to ensure meaningful learning (Republic Act No. 9155: Governance of Basic Education Act of 2001, 2001). Hence, one innovative and explorative method in teaching embroidery that strengthens students' body orientation –

physical aspect, mindfulness – mental aspect, and community connection – real life and workforce inspired craft is project – based learning (Wei, 2019).

Teaching embroidery in the notion of experiential learning suggests project – based learning where the latter maximize learning embroidery through real – life activities and outputs to boost students’ interest at the same time consciously considering the students’ prior experience in embroidery to ensure explorative learning. Thus, this theory and assumption opened opportunity for project – based learning to be tested as an instructional tool in teaching embroidery where it needs real – life application to boost student’s interest ensuring deeper experience and exploration on the content. As a matter of fact, a study conducted by (Indarti, 2016) claimed that project – based learning enhances student’s confidence, technical and soft skills in learning garments which is also interconnected to embroidery; because it exposes them to simple and complex problems like selection of fabrics and colors, using samples and patterns from a particular community and presentation of the output as the final step in this learning. Furthermore, another study from (Musdalifah & Erlani, 2019) pointed out project – based learning helps improve the skills of the students in making blouse designs where embroidery is embedded because this enables the students to learn and understand the nature and origin of the design, work with the group or ask assistance from the teacher to improve their design and accomplish crafts efficiently.

Studies and experiments on the effectiveness of project – based learning in garments and in embroidery is prevalent in today’s generation because these fields teach essential skills that reflect culture of a community which embodies distinction and at the same time project – based learning boosts students interest in learning these skills for this learning is engaging and student – centered through the use of real – life outputs and activities (Indarti, 2016). Hence, it is evident that project – based learning offers realistic experience and exploration to the students where embroidery needs to accomplish, however, teacher should be mindful on developing the cognitive – knowledge about nature of embroidery, affective – attitude towards embroidery and psychomotor aspect – performance in embroidery of the students as part of experiential learning theory and the focus of project – based learning to ensure that students learn at the optimal level (Musdalifah & Erlani, 2019). These aspects are also reflected in the most essential learning competencies in embroidery as prescribed by the Department of Education such as understand concepts related to needlecraft, understand embroidery as a craft and its technique and create embroidered products with package to ensure experiential learning in embroidery through project – based learning.

Furthermore, project – based learning is an innovative learning approach which fosters important skills such as communication and presentation, organization and time management, research and inquiry skills, self-assessment and reflection skills, group participation and leadership skills, and critical thinking wherein these skills can be achieved when students are allowed to create real life outputs and accomplish real life activities which are the primary focus of project – based learning (Stivers, 2010). The use of project – based learning positively influenced the learning outcomes of the students wherein it provides a positive improvement on the academic achievement, thinking skills, and affective attitudes which includes increased of interest in the content compared to the traditional teaching model (Zhang & Ma, 2023). Hence, utilization of project – based learning is essential to contents such as artifacts that are community – based where embroidery is a concrete example of which since embroidery is a community – based content reflecting culture of the community and community – based crafts as output of the study (Miller & Krajcik, 2019).

With this, a new strategy in teaching embroidery needs to be community – based which also focuses on the physical and mental aspect of an individual and changes the student’s perspective and boosts interest and motivation are indicators in using project – based in the teaching and learning process. Also, the emphasis on the application of project – based learning in the teaching and learning process is the primary foundation on the crafting of the enhanced teaching material covering the most essential learning competencies in teaching embroidery for the Grade 9 students of the public secondary school in Region VII.

Consequently, this study explores the effectiveness of project – based learning in teaching embroidery and analyzes its challenges and opportunities to the learning experiences of the respondents.

Research Questions

This study explored the effectiveness of project-based learning in teaching embroidery to Grade 9 students of the public secondary school in Region VII, Cebu during the school year 2024-2025 for a proposed enhanced teaching material. It specifically sought to answer the following sub-problems:

1. What is the entry and exit level of students' performance using project-based learning in embroidery?
2. Is there a significant difference between students' entry and exit level performance?
3. To what extent does project-based learning improve students’ technical skills and creativity in
4. embroidery-related tasks?
5. What are the students’ challenges and opportunities encountered during project-based learning?

Methodology

Research Design

The study used an explanatory-sequential mixed method design, starting with the quantitative phase wherein a pre-test and post-test

were administered to determine the entrance and exit level of the participants in embroidery instruction through project-based learning. In the qualitative phase, data were collected through a focus group discussion focusing on the challenges and opportunities in embroidery using project-based learning. The results of the quantitative and qualitative data were used as a reference in the construction of the enhanced teaching material integrating project-based learning as a teaching strategy. This design allowed for the initial quantitative results to be further explained and contextualized through qualitative findings (Creswell & Plano Clark, 2018).

Respondents

The study utilized purposive sampling to select participants from the Grade 9 TLE students at a public secondary school in Region VII during the school year 2024-2025. The school has two Grade 9 sections; however, only one section was included in this study as the researcher was the assigned embroidery teacher in this class. This identified group has 45 participants, 23 males and 22 females representing a heterogeneous class and was also purposively chosen to participate in the quantitative and qualitative phase of this study.

In quantitative phase, all the 45 students were involved in the pretest and post-test to determine the entrance and exit level of the Grade 9 students in embroidery and each of the students was assigned with a unique number code.

In qualitative phase, a subset of participants was purposively identified, and the inclusion of the focus group discussion were attendance and accomplishment of the different project-based outputs in embroidery instruction. The participating students in the focused group discussion shared on the challenges and opportunities in embroidery instruction using project-based learning. The focused group discussion primarily used English language as the medium of instruction in embroidery, but participants are allowed to use vernacular when difficulty arises.

Instrument

The study employed three (3) research instruments, aligned with the quantitative and qualitative phases of the explanatory sequential design.

For the quantitative phase, a researcher-made pre-test and post-test questionnaire was developed to assess students' performance in embroidery. The 50-item multiple choice, identification and sequencing test were based on the competencies outlined in the Most Essential Learning Competencies (MELCs) prescribed by the Department of Education in DepEd Order No. 24, s. 2022. The questionnaire underwent expert validation from TLE teachers and curriculum specialists to ensure content validity, and a pilot test was conducted to assess its reliability, yielding acceptable results based on item analysis.

In the qualitative phase, two instruments were utilized. First, the project-based learning (PBL) strategy, which was embedded in the instructional lesson plans, served as the central learning intervention. These lesson plans were crafted following the DepEd's Most Essential Learning Competencies (MELC) and emphasized student-centered, hands-on learning experiences in embroidery. Second, a researcher-made focus group discussion (FGD) guide was used to gather in-depth qualitative data. The guide explored key themes including students' feelings toward project-based learning, their impressions of the assigned tasks, the ways in which PBL supported their learning in embroidery, and their overall experiences. The FGD guide was reviewed by qualitative research experts to ensure construct alignment and clarity of questions, and it was pilot tested to confirm appropriateness for the target group.

Procedure

The study followed a systematic process of data collection and analysis in line with the explanatory sequential mixed-methods design. Initially, a transmittal letter was sent to the Principal of the public secondary school in Region VII to seek permission to conduct the study. Upon approval, the researcher conducted pilot testing of the researcher-made instruments, namely the pre-test and post-test questionnaire on embroidery competencies and the focus group discussion (FGD) guide, to evaluate their reliability and clarity. An orientation was then held for the Grade 9 participants and their parents, providing an overview of project-based learning and securing informed consent forms to ensure that participation was voluntary and solely for educational purposes. Following this, the participants took a pre-test to establish their baseline performance in embroidery. The intervention phase spanned one academic quarter, during which students engaged in project-based learning activities as outlined in the instructional lesson plans. All outputs were checked, returned with feedback, and compiled into individual portfolios. After the intervention, the participants took the post-test to assess their performance improvement, and selected students participated in a focus group discussion to share their experiences, challenges, and perceived benefits of project-based learning. The quantitative data were analyzed with the guidance of a statistician, using statistical tools such as the mean, hypothetical mean, standard deviation, z-test, and t-test to determine significance. Meanwhile, the qualitative data from the FGD were examined through thematic analysis, identifying recurring patterns and themes to ensure the trustworthiness of the findings. Finally, the results from both data sets were integrated, and the insights from the qualitative data—particularly the students' reflections on challenges and opportunities—were used to inform the development of an enhanced teaching material for embroidery instruction.

Data Analysis

The study employed both quantitative and qualitative data analysis techniques consistent with the explanatory sequential mixed-methods design. For the quantitative data, a Z-test was used to determine the entrance and exit performance levels of the Grade 9

participants in embroidery after exposure to project-based learning. The interpretation criteria were as follows: if the computed z -value was less than 1.96, the performance level was considered average; if the z -value was equal to or greater than 1.96 and the hypothetical mean (h_m) was greater than the actual mean (a_m), the performance level was below average; and if the z -value was equal to or greater than 1.96 and the hypothetical mean was less than the actual mean, the performance level was classified as above average. To assess whether there was a statistically significant difference between the entrance and exit scores of the participants, a paired t -test (T -test of mean difference) was utilized. For the qualitative data, thematic analysis was employed to interpret the responses from the focus group discussion. The analysis focused on identifying themes and categories that illustrated the extent of improvement in students' technical and creative skills in embroidery, as well as the challenges and opportunities they experienced during the implementation of project-based learning. This integration of statistical and thematic techniques ensured a comprehensive understanding of the study's outcomes.

Ethical Considerations

The participants were purposively selected, as the researcher was assigned to handle only one section offering embroidery. Prior to data collection, a transmittal letter requesting permission to conduct the study was submitted and approved by the School Principal. An orientation was conducted for both the participants and their parents to explain the study's nature, purpose, and assurance of confidentiality. Participation in the study was entirely voluntary, and informed consent was obtained through a signed Parent's Consent Form. During data collection, all test results, project outputs, and responses were tagged using assigned number codes to ensure participant anonymity. These codes were known only to the researcher and the corresponding participant, thereby upholding strict confidentiality throughout the research process. Furthermore, the study was conducted solely for educational purposes, and no personal or identifying information of any participant was disclosed or published.

Results and Discussion

This section presents the findings of the study based on the questions about the study. To identify the entrance and exit level of the students' performance in embroidery was computed using z - test, to determine the significant difference between the entry and exit level of the students' performance in embroidery using project - based learning was computed using T -test of Mean Difference or Paired T -Test, to present the qualitative data of the study showing the extent of improvement on the students' technical and creativity skills in embroidery along with the challenges and opportunities of the participants when exposed to project-based learning in embroidery were presented through themes and categories.

Entry and Exit level of students' performance

Table 1. *Entry and Exit level of students' performance*

	No. of Items	$h.m.$	$a.m.$	s	Computed z -value	Critical z -Value	Description
Entry Level	50	38	14.69	4.89	31.99	1.96	Below Average
Exit level		38	43.51	8.65	4.27	1.96	Above Average

Legend: $z < 1.96$ — Average; $z \geq 1.96$ and $h_m > a_m$ — Below Average; $z \geq 1.96$ and $h_m < a_m$ — Above Average.

At the entry level, before using PBL, students attained a mean score of 14.69 out of 50 items, with a standard deviation of 4.89, reflecting a wide variability in performance and an overall "Below Average" rating. The corresponding z -value of 31.99 far exceeds the critical z -value of 1.96, indicating that this low level of performance is statistically significant and not due to random variation. After the integration of PBL, students' scores markedly improved, yielding a mean of 43.51 with a reduced standard deviation of 4.27. This upward trend signifies improved academic achievement and more consistent performance among learners. The computed z -value of 8.65, which remains well above the critical z -value of 1.96, reinforces the statistical significance of this improvement. More importantly, the "Above Average" classification of post-intervention performance confirms the positive change in the students' exit performance level.

The change in the entrance and exit performance level when using project - based learning is possible since project - based learning environments demonstrate stronger content retention and higher assessment performance than those in traditional classrooms (Thomas, 2000). Hence, project - based learning when implemented with adequate instructional support, consistently leads to higher academic performance and learner engagement across various disciplines (Condliffe et.al, 2017).

Difference between the Entry and Exit Level Performance

Table 2. *Difference between the Entry and Exit Level Performance*

	Mean	df	Computed t value	Critical t -value	Decision	Description
Entrance	14.69	44	23.35	2.02	Reject H_0	Significant
Exit	43.51					

The result of the paired sample t -test comparing students' entrance and exit level performance in embroidery instruction using project - based learning. The findings indicate a substantial increase in the students' mean score from 14.69 in the entrance level to 43.51 in the exit level, signifying a marked improvement using project - based learning. The computed t -value of 23.35, which far exceeds the critical t -value of 2.02 at 44 degrees of freedom, leads to the rejection of the null hypothesis, which means that there is sufficient

evidence to conclude that project – based learning positively influenced the students' performance level in embroidery instruction. The "Significant" description supports this, confirming that the difference in performance is statistically significant. This points that project – based learning is a strong indicator in the improved academic performance of the students especially in embroidery because project – based learning is a student-centered learning wherein students are given optimal time to engage and interact with the class while targeting the competencies resulting to deeper learning and significant learning outcomes (Taha, 2021).

Extent of Improvement on the Student's Technical and Creativity Skills

Table 3. Extent of Improvement on the Student's Technical and Creativity Skills

Themes	Categories
Enhanced embroidery skills and techniques	Learned the basic stitches Created a difficult embroidery project
Provided practical application of embroidery skills	Learned basic stitches for business use Learned embroidery among peers

The extent of improvement on the students' technical skills in embroidery through project – based learning was taken during the focused group discussion about was asked about how project – based learning helped the participants in learning embroidery.

Participants in the study reported that project – based learning enhanced their embroidery skills and techniques since project – based education teaches real life activities related to embroidery and can positively influence of the students skills since it involves intensified preparation and evaluation (Musdalifah & Erlani, 2019). Also, project – based learning presents multiple opportunities for students to enhance embroidery skills because it encourages individual learning while interacting with the students and teachers (Indarti, Wahyuningsih, Sari, & Hsun, 2023).

Hence, there were students who claimed that project – based learning enhances their embroidery skills as to the following statements:

“Kuyawan kay di man ko kamao sa basic stitches pero pagkahibaw na nako kay nalipay ko kay naa gyud koy nakat-onan. Nakat-on ko sa mga pamaagi unsa nga mga techniques ug strategies.” (I was scared because I don't know to perform the basic stitches but when I learned how to do it, I was happy because I learned something. I learned the different techniques and strategies in stitching.) M-12

“I learned that it can enhance your skills. In my experience, I learned a lot on how to create a design” (In my experience, I enhanced my embroidery skills and learned how to create designs.) F-09

“Pag-una kay nalisuran pako, karun wala na. Pamaagi sa pag-tan-aw ug unsaon paghimo” (At first, it was difficult but now, it is easy for me. I learned how to make designs through observing the *project – based learning.) M-21

This describes that project – based learning is suitable in embroidery instruction because this offers real life application by exploring real life designs which can improve the technical skills in embroidery of the students (Indarti, 2016). Thus, it is the teachers' responsibility to widen one's content knowledge, good time management and consider the students' motivation when engaging in project – based learning since this learning is time – consuming in nature and should be frequently monitored (Taha, 2021).

Project – based learning is practical in nature where students are provided with real – life activities that reflect their community and background and the teacher has the responsibility to plan all the real – life activities and in arriving a project that reflects the students' daily lives (Musdalifah & Erlani, 2019). Moreover, project – based learning offers an authentic learning environment wherein students are allowed to accomplish real – world projects and products which requires cooperation, application of knowledge and construction while interacting with the teachers and students as an indicator of project – based learning (Gou, Saab, Post, & Admiraal, 2020). Thus, there were students who claimed that project – based learning allows them to apply what they have learned in embroidery to real – life setting; revealed in the following statements:

I understand that the use of time management is very important in doing such projects. For me, it helps me by the feeling of excitement because it gives me more knowledge and skills to start a business if I had the time. (I understand that time management is very important in making projects in project – based learning, Also, it gives me excitement because I have enough knowledge and skills if I will start a business). F04

Ang akong masulti sa mga projects kay lisud, puypuy pero malingaw raka. Nasabtan nako ang mga lain-lain nga mga stitches ug unsaon paghimo. Ang natabang sa project sa akua kay nakat-on ko ug unsaon paghimo ug makatabang kos akong mga classmate nga dili kaayu kahibalo. (All I can say is that the projects are difficult and exhausting but later you will enjoy it. I learned how to make the different types of stitches, and I learned to help my classmates who have trouble in completing the tasks.) F11

Lisud kay kelangan nimo ug taas na pasensya sa pagbuhat sa tanang buhatonon. Sa pagtan-aw nako ug sa pagpatudlo sa classmate nga kabalo mo embroidery. (It is difficult because you need to observe and be patient in making the projects and I have learned embroidery through observing and asking for help from my classmates who knew embroidery well.) M18

These statements reveal that project – based learning guide students in creating projects applicable to real life setting since this learning allows them to plan, manage, organize and design hence preparing them in a practical setting and prepare professional and business

practice (Indarti, 2016). Thus, teachers teaching project – based learning should maximize the interaction for the whole class for the students to be trained and practiced for real – life scenario through collaboration and evaluation of projects among peers (Musdalifah & Erlani, 2019) since project – based learning enhances participation among the students and the teachers (Chistyakov, et al., 2023).

Challenges and opportunities encountered during project – based learning

Table 4. *Challenges and opportunities encountered during project – based learning*

Themes	Categories
Time management challenges	Beating deadlines Many other tasks to perform in other subject
Developed values through project – based learning	Patience Self – trust

The challenges and opportunities encountered during the project – based learning was taken during the focused group discussion about was the experiences encountered during project – based learning when embroidery instruction.

Participants in the study revealed that during the use of project – based learning in embroidery they have encountered challenges especially on time constraints which affected their time management. Project – based learning offers authentic real – world problems that contributes to a meaningful learning, hence this also poses challenges such as time and resources since project – based learning needs extended time frame to complete competencies (Evenddy, Syafrizal, & Gailea, 2023). Thus, participants claimed that the challenges they encountered in project – based learning are beating deadlines and there are numerous tasks to perform in another subject.

As the participants stated:

“My experiences while doing the embroidery it is very exhausted and also maka-panic

siya labi na if the deadline is near then and project is wala pa mahuman”. (My experiences while doing embroidery is very exhausting and can cause panic especially if the deadline is near and the project is not yet finished.) F04

“Well, it’s very frustrating since kailangan paka mag-apas sa mga deadlines and lisud mag-manage sa atung time since meron ding ibang project sa laing subjects.” (Learning embroidery through project – based learning is very frustrating since we need to beat deadlines and it is hard to manage our time because we also have projects in another subjects.) F17

“Makasapot samot na kung mubo rakag pasensya kay mag-apas paka kung kanus-a and deadline”. (It is very frustrating especially if you are impatient because you need to beat the deadlines set in accomplishing tasks in project – based learning.) M18

Based on the statements presented, project – based learning needs careful planning and evaluation when implemented and teachers must consider the structure of the implementation of project – based learning because students are the primary benefactor of this learning and their collaboration with the peers and the teachers is tantamount to meaningful learning (Hussein, 2021). Hence, teachers embroidery instruction should be trained on the nature of project – based learning and its integration in the competencies to ensure that concepts such as embroidery should be given maximum time when teaching and completing the tasks to guarantee meaningful learning and effective collaboration among the teachers and the learners (Aldabbus, 2018)

Participants in the study also reported that during the use of project – based learning in embroidery they have encountered opportunities wherein they have developed foundational values in learning embroidery. Project – based learning offers various opportunities such as improving motivation, problem solving skills, teamwork, and communication; however, project – based learning does not only enhance academic performance but also develops emotional attitudes and values (Zhang & Ma, 2023). Also, project – based learning enhances confidence for self - trust which is an indicator in achieving the tasks in project – based learning (Indarti, 2016). Hence, there were students who claimed that project – based learning offers them opportunities to develop patience and self-trust when making the tasks, as stated in the following.

“Makasapot siya if masayup ka sa paghimo kay mobalik ka from the beginning that’s why it needs a lot of patience.” (It is very frustrating when you are mistaken in making the project because you need to start from the beginning and that’s why project – based learning needs a lot of patience.) F06

“Dapat mosalig rajud ka sa imong gibuhad ug hatag hatagan nimong bili” (We should trust ourselves in making the project and value it.) M07

“Lisuran ko kay wala ko kahibaw kung unsaon paghimo. I can share nga you focus and have a patient to do the project.” (It was difficult for me because I don’t know how to do it, but I can share that we need focus and patience in accomplishing the project.) M10

Thus, based on the statements above, teachers should find proper motivation when teaching using project – based learning because though project – based learning is student – centered in nature wherein students are given opportunity to maximize independent learning and active individual participation in the activities not just in the classroom but also in the community (Issa & Khataibeh, 2021). Hence, teachers in project – based learning must guide, facilitate, and mentor the students to ensure meaningful learning and supervise learning

so that when challenges and opportunities arise, the students are guaranteed for support and additional resources (Thu, 2018).

Conclusions

After the study, it has been found out that the entrance level of students' performance using project – based learning in embroidery instruction is below average whereas the exit level of students' performance using project - based learning in embroidery instruction is above average. This points that the use of project – based learning in embroidery instruction shows a significant increase in the actual mean of embroidery instruction using project – based learning hence, showing a significant difference in the entrance and exit level of the students' performance in embroidery instruction using project – based learning. Moreover, the participants testimonies and experiences in the extent of project – based learning in the students' technical skills and embroidery along with the challenges and opportunities support the significant difference in the entrance and exit level of the students' performance in embroidery instruction using project – based learning. Thus, statistically the use of project – based learning in embroidery instruction shows a significant influence in the students' performance.

The use of project – based learning in embroidery instruction as a reflection of the community's culture open doors to the teachers, participants for a real – life projects that needs crucial planning and understanding on the structure of the implementation to ensure proper development of technical skills in embroidery and its underlying values. Using project – based learning in embroidery instruction increased the exit level of the students' performance compared to the entrance level in the students' performance in embroidery because their actual mean shows a dramatic increase in the entrance and exit level, therefore, posing a significant difference in the entry and exit level.

Furthermore, the participants' experiences on the extent of project – based learning improvement on the technical skills and creativity with the challenges and opportunities encountered in embroidery – related tasks underpin to the significant increase of the entrance and exit level of the students' performance in embroidery. This means that project – based learning is an indicator in the increase of the students' performance in embroidery instruction since this offers authentic and problem - based learning tasks wherein students can foster collaboration among the peers and the teachers. Hence, teachers should intensively supervise and monitor learning when using project – based learning to ensure guided support of learning among the students and sustain motivation among the students in learning embroidery.

Thus, based on the results and conclusion of the study, it recommended to conduct training and support for the teachers intended on the planning, structure, evaluation, and integration of project – based learning in embroidery instruction; implement a school – wide use project – based learning as a strategy in teaching other skills in Technology and Livelihood Education (TLE); and use the enhanced teaching material as an output of this study as a reference in using project – based learning in embroidery instruction.

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