

An Analysis of the Educational Value of PBL Design Workshops

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The purpose of this study is to plan and operate design-workshops based on project-based learning (PBL), and examine their educational value for students. The PBL workshop encourages direct participation from students and produces educational value, and it is important to raise the interest level of workshops to elicit proactive participation. The workshop in this study was carried out over two weeks in January 2017 at Korea's Yonsei University. The workshop was composed of eight teams of students from three countries, including Korea, China, and Japan, and the course was primarily divided into two sessions. The workshop participants examined in this thesis were notably satisfied with the elements of the course meant to garner interest. In the questionnaire results, participants also indicated that they obtained ample educational value through the workshop. An important element of the workshop was to connect the participants with businesses, which is also an important component of design education. Despite this, participants expressed a relatively lower level of satisfaction compared to other elements of the workshop. The results and analysis of this study will hopefully become a meaningful resource for educators when designing workshops in the future.

keyword : Design Education, Workshop, Project Based Learning

Introduction

Design education is a complex area of study that requires the delivery of knowledge in parallel with experiential learning. This is because design education courses always include time for students to produce work and receive feedback. In design, a piece of work is produced under a theoretical background and must reflect the user's perspective. The commercial value of the piece can only be determined after evaluating its usability. The difference between art and design tends to be decided by whether or not the end result has a practical purpose. Art requires a complex interpretation in which the artist expresses their own thoughts and experiences through their work. Design, however, evaluates consumer usability while also considering the designer's aesthetic impressions. In short, students aiming to become designers must receive constant feedback about their work and make adjustments in order to achieve a design that has realistic usability. In this context, workshop education can be utilized as an extremely useful educational tool for students aiming to become designers. In the design field, organizing a team to produce a unified result is viewed as more effective than relying on an individual to complete a given task. To accomplish this, communication, negotiation, and cooperation with team members are essential elements. The tendency in university curricula to evaluate work using grades, however, has resulted in competition often outweighing cooperation and sharing among students. Short-term workshops are an important educational tool that can make up for those shortcomings.

This study conducted experiments by grafting together the concepts of project-based learning (PBL) education in order to determine how to effectively organize a workshop in design education.

The workshop was conducted for approximately two weeks in January 2017 with Korean, Chinese, and Japanese students at Yonsei University in Korea. After the workshop ended, question items about several categories were made and used to examine the students' opinions. The results, including interest level—an important characteristic of PBL education—and the students' opinions, were indexed and used as evaluation data.

Theoretical Background

Workshop Concept

The workshop concept originally included a physical place such as a workspace or job site. Recently, however, the term workshop is being widely used as educational terminology that is synonymous with communal education and team-based education. The Merriam-Webster dictionary defines a workshop as an intensive educational program made up of a comparatively small number of people that focuses on acquiring skills in a particular field. In contrast with education methods that primarily rely on the delivery of information to participants, workshop education relies on participation-based courses. The origins of workshop education can be traced back to 1905 when George P. Baker of Harvard University took charge of drama-creation courses (47 workshops). This thesis defines a workshop as a short-term, intensive educational program, which focuses on project-based learning and experience-centered educational methods. The characteristics of a workshop can be understood and organized into five types. The first is member “participation” and the second is “experience.” When these two characteristics are synthesized participants actively combine their own experiences and enter the “negotiation” process in problem solving. The opinions formed in the negotiation process are then divided into two characteristics, “creation” and learning.” A graph of the workshop characteristics is shown in Table 1.

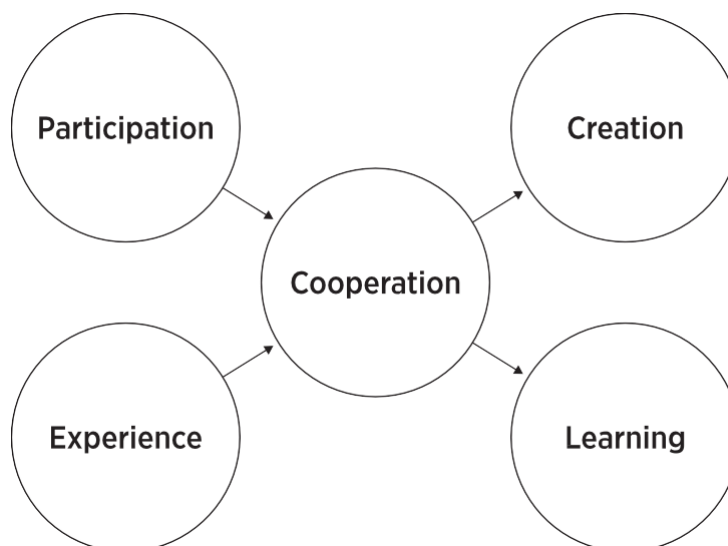


Figure 1. Workshop structuring process

Approaching PBL

The PBL education method helps students acquire knowledge and skills by focusing their studies on actual, complex questions, problems, and assignments. American education activist John Dewey has said, “When learners encounter an interesting problem, they learn how to research and think. Education is meant to help the learner’s experiential process, and a learner’s growth comes from the constant restructuring of experience, and the interaction between human activity and the

environment.” In other words, PBL is an educational method that enables learners to recognize a problem, experience the process of resolving that problem, and increase their understanding of knowledge. Thus, PBL can be considered as a type of self-directed learning, and is a method in which the participatory learner can actively access the essence of knowledge. By reestablishing the role of the educator, education becomes a space and opportunity where knowledge is not simply delivered, but experienced by learners.

The PBL grafted workshop and constructivism

Discussion through participation and experience are important characteristics in the typical workshop concept, but PBL allows for more detailed discussion. In design workshops based on PBL, it is important that the participant shows interest and actively searches for problems. If the participant reacts passively, that means they have already lost interest in the process. If they lose interest, the next step in finding solutions to the problem becomes impossible. In this manner, PBL workshops must constantly generate topics and environments reflective of the mood of the participants throughout the education process.

This is likely related to the emergence of behaviorism based on constructivism as an alternative to education. Because each learner has a different level of comprehension, they are constantly organizing knowledge and expanding it through interactions and discussions with their teachers and friends. The participant must go through that process themselves, and the educator or surrounding environment must provide a mechanism that supports learners during that process. In that same context, one can say a PBL workshop is successful when a participant achieves the result they intended.

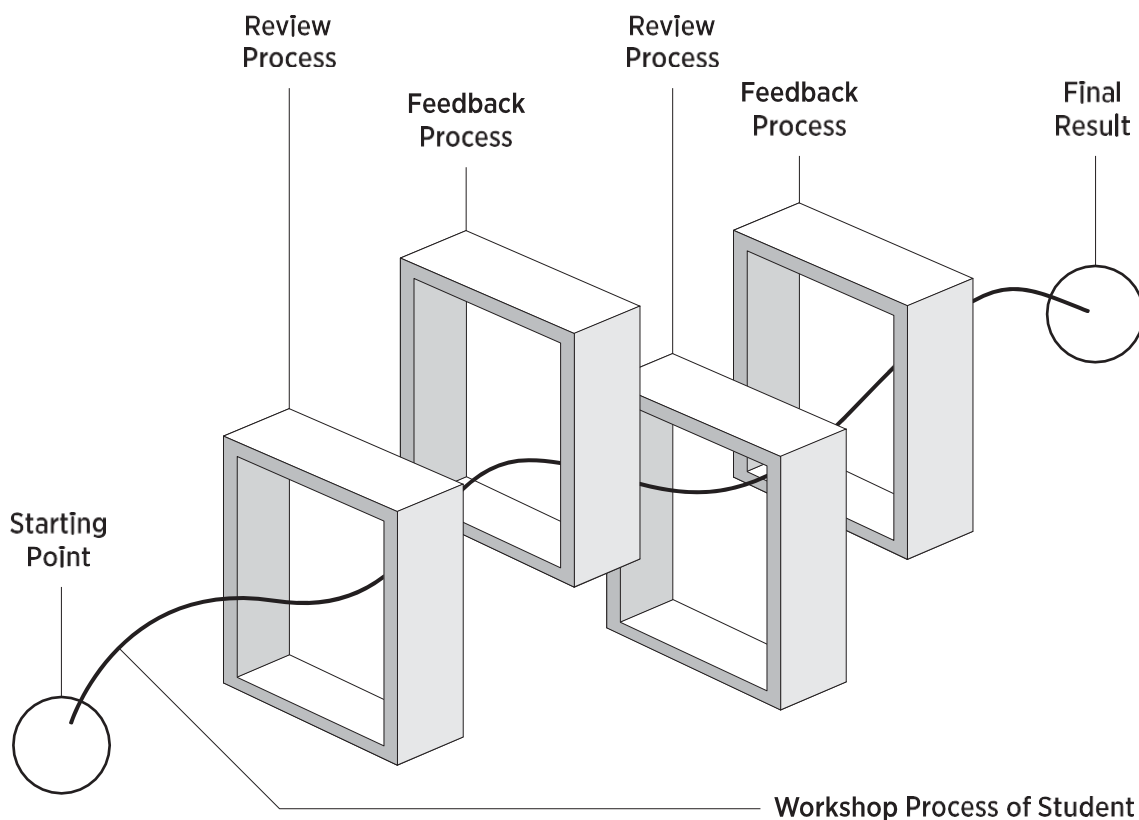


Figure 2. PBL Workshop Concept

Table 2 shows the important process of the PBL workshop. It is difficult for educators to anticipate which direction the process will go when participants discover a problem and begin to resolve it. However, educators can influence the direction through feedback in the curve portion of

the table. If normal education is a straight line, then PBL can be viewed as experiential education composed of a series of curves.

The PBL Workshop Design

Workshop summary

The workshop in this study was carried out over two weeks in January 2017 at Korea's Yonsei University. The workshop was composed of eight teams of students from three countries, including Korea, China, and Japan, and the course was primarily divided into two sessions. The first week was a preliminary assignment in which foreign students experienced Korea and looked for inconveniences they felt as foreigners. During the second week students engaged in team work to come up with designs to resolve those inconveniences. In short, the theme of the workshop was discovering methods to resolve inconveniences faced by foreigners visiting Korea.

Preparing with a company in the field



Figure 3. Feedback process with business experts

A mobile service company partnered with the workshop to achieve practical educational value. Business experts are able to provide students with an opportunity to more deeply approach design when constructing a method to solve a problem. For this, the workshop theme was narrowed down and modified to require students to develop mobile applications to resolve inconveniences faced by foreigners visiting Korea. In other words, mobile application was an opportunity for business experts to provide more detailed and diverse advice to students. Also, the workshop and presentations were divided into the school and business locations, and gave the students a more realistic sense, which increased their level of interest and engagement in the PBL workshop.

Final presentation

Students gave their final presentations after finishing the two-week course, which was followed by a review from the business experts and professors. This was an important tool for students to experience both the business perspective and the professors' perspective. Students were also required to evaluate their final results and select the most exceptional group. Implementing elements that incited a sense of competition allowed the students to actively participate in the course without diminishing their enthusiasm.



Figure 4. Final presentation and awards ceremony

Case Analysis and Consideration Questionnaire

When the workshop was finished, a diverse set of questions was given to the students to evaluate the educational value of the workshop. The questionnaire items were divided into environmental factors, interest factors, and educational factors. Table 1 shows the questions that were necessary for analysis. The questionnaire received answers on a 7-point Likert scale, and included 35 participants.

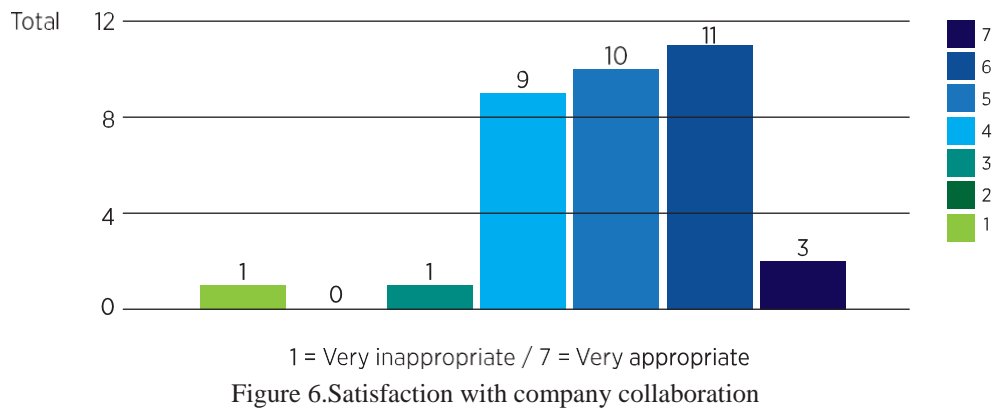
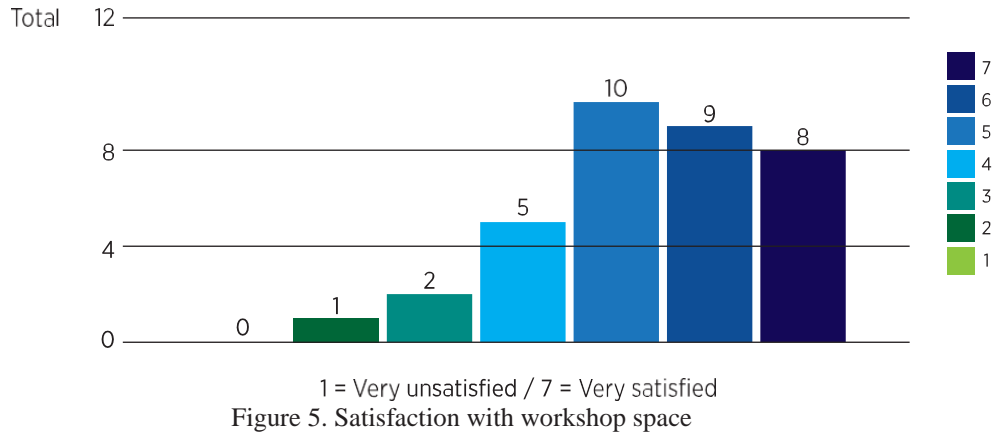
Factors	Questions
Environmental Factors	Was the workshop space satisfactory? (e.g. Yonsei University Wonju Campus, NAVER Green Factory)
	Do you think it is appropriate to develop and operate project-based learning (PBL) by collaborating with a company (NAVER)?
Interest Factors	Would you be willing to participate in this workshop again?
	Would you be willing to recommend this workshop to your friends in your country?
	Did you find the workshop fun overall?
Educational Factors	Do you think that the roles and cooperation between the group members was appropriate?
	To what degree do you think your initial ideas were reflected in the actual results?
	Did the feedback and reviews help develop your initial idea into something that was in-depth for problem solving?

Table 1. Questionnaire Items

Questionnaire analysis Environmental factors

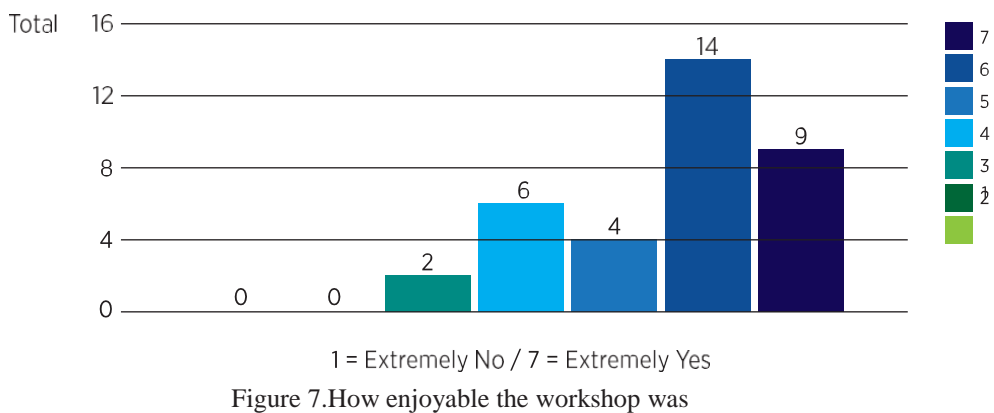
Satisfaction with the workshop space and satisfaction with the company collaboration are shown in figure 5 and figure 6. When converting each answer to a value of 100 points, the satisfaction level of the workshop space was 72.86, and satisfaction level of the company collaboration was 66.19. The reliability of two answers (reliability of a question's internal consistency) was relatively high, at

0.782.



Interest factor

This next section covers the interest factor, which is an important element in PBL workshops. Questions were aimed at finding out how enjoyable the workshop was for students, whether they would be willing to attending this workshop again in the future, and if they would be willing to recommend this workshop to friends. There was a score of 70.95 regarding how enjoyable the workshop was when converting the Likert scale to 100 points. Willingness to attend the workshop again received a score of 72.86, and willingness to recommend the workshop to a friend received 77.14 points.



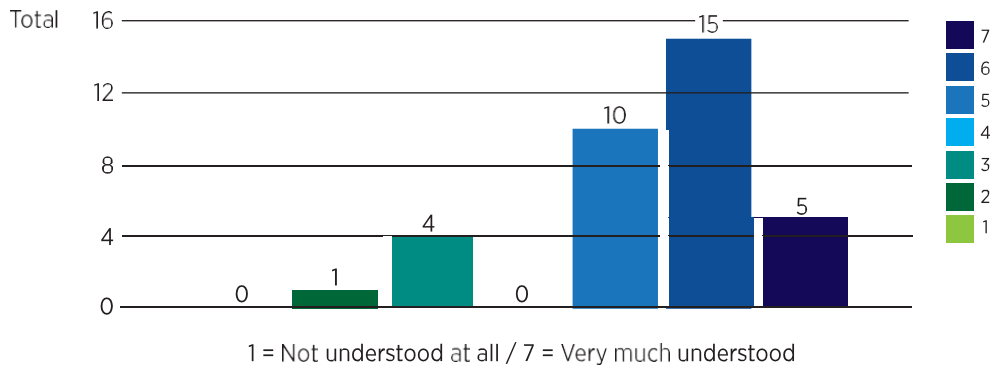


Figure 8. Willingness to attend again

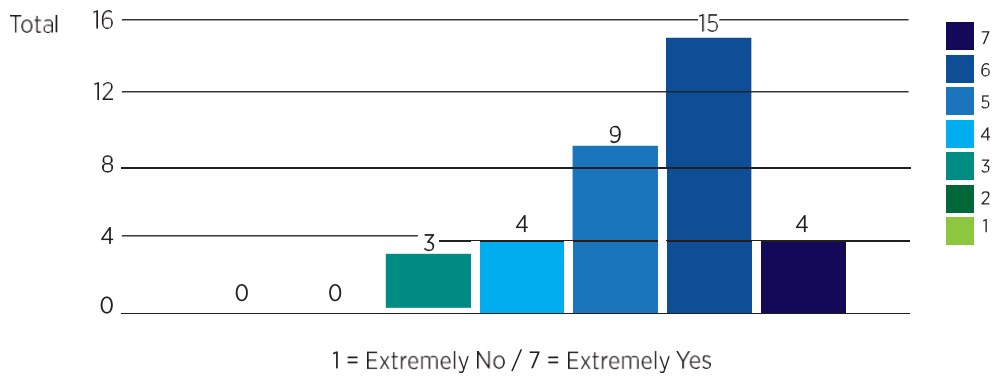


Figure 9. Willingness to recommend

The reliability of the three answers (reliability of a question's internal consistency) was very high at 0.974. Figure 7, Figure 8 and Figure 9 show graphs of the results of the interest factor.

Educational Factor

There were three questions to evaluate educational factors, including questions regarding whether students had smooth communication with their team members in the workshop, how much they felt their ideas were reflected in the final results, and how much the reviews from experts and professors influenced their end results. There was a score of 69.05 regarding the question about communication when converting the Likert scale to 100 points. The question regarding how much of the students' ideas were reflected received a score of 59.52 points, and the influence of feedback on the end result received a score of 68.10 points. The reliability of the three answers (reliability of a question's internal consistency) was very high at 0.914. Figure 10, Figure 11 and Figure 12 show graphs of the educational factor results.

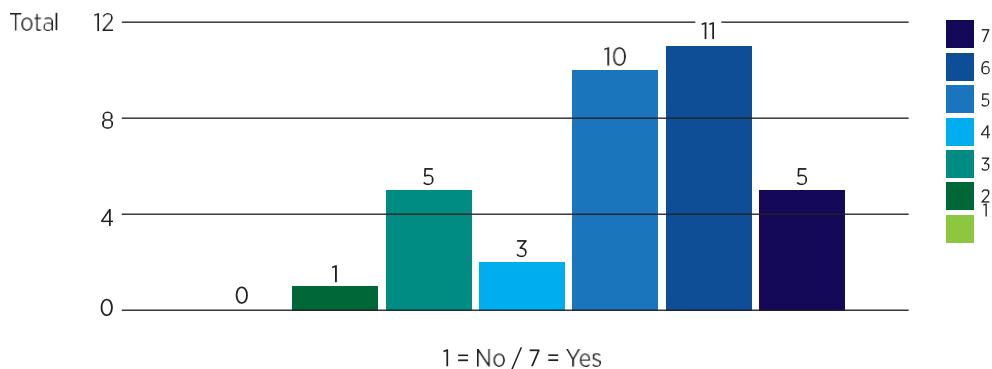


Figure 10. Communication level

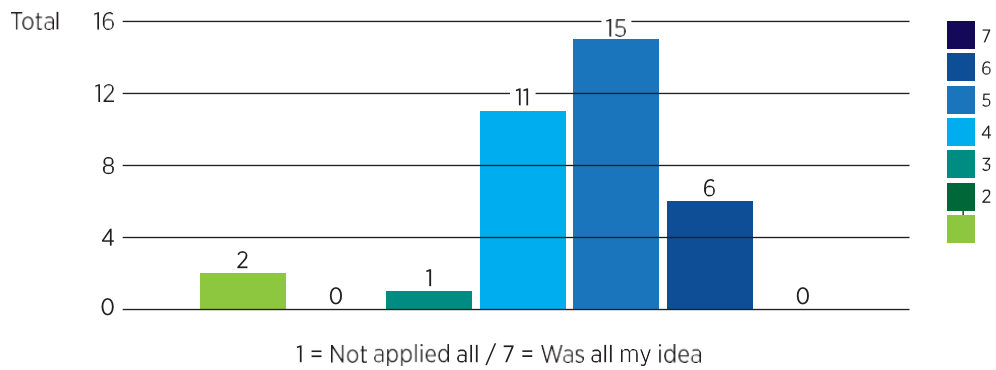


Figure 11. Communication level

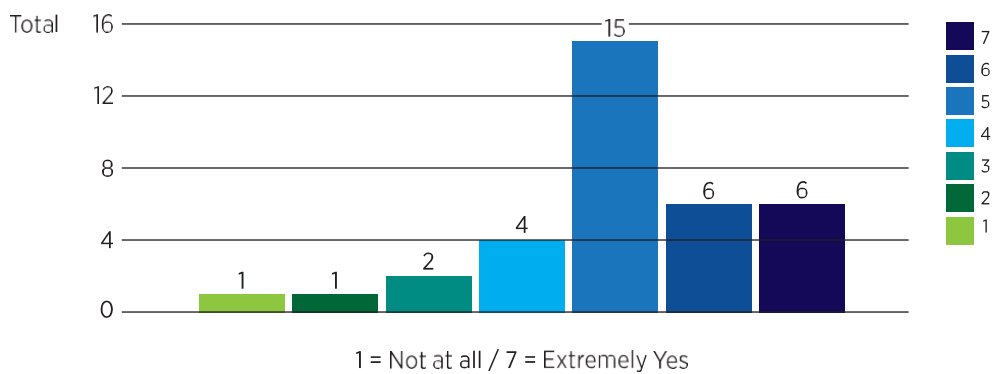


Figure 12. Communication level

Considerations

The most important part of this workshop while using PBL was to consistently maintain the students' interest and their sense of educational tension throughout the course. The fact that interest factor scores were higher than scores in other factors is meaningful in this sense. The reason the score for willingness to recommend the workshop to a friend (77.14) was 4 points higher than willingness to attend again (72.86) may be due to a tendency to prioritize new experiences over repeated experiences that may occur by attending same workshop twice. The workshop enjoyment score (70.95) was lower than the score for willingness to attend again, which demonstrates that the design of the workshop was lacking a mechanism to incite the students' interest.

In educational factors, the relatively low score for reflection of personal ideas (59.52) compared to the other two categories can be interpreted as the result of several opinions taking precedent over the opinion of one person in a team setting. Had scores for the reflection of personal ideas been high, this would have run counter to the goal of the workshop which sought to help students arrive at new knowledge through a collaboration of their experiences.

Lastly, in environmental factors, the relatively low score for satisfaction with company collaboration (66.19) in comparison to all other categories was somewhat disappointing in that the design of this workshop viewed company collaboration as an important educational mechanism. Further research will need to be conducted to determine how company participation influenced the students.

Conclusion

In current university education, design workshops are actively taking place in numerous domains. Workshop education has the advantage of delivering diverse experiences to students that universities are unable to provide. However, there are still many ambiguous aspects about the act of “experiencing,” in terms of what kind of educational value it has for students, and how that experience is delivered. In that sense, the design and analysis of this workshop, with more indexed data, can become a meaningful resource in the design of other workshops in the future. Also, PBL theory has the same context as the workshop’s goal to deliver knowledge through experience. The device setting Table 2 that addresses which direction the workshop will lead the student’s process, and what educational results will thereby be achieved can be utilized as a meaningful resource for educators when designing workshops.

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Author Biography

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Ikjoon Chang is a graphic designer, illustrator and researcher. His researches are focused on branding design, editorial design and information design. He also draw illustration and character as graphic design elements. He studied Graphic Design at Seoul National University, Rep. Korea, and obtained a master’s degree at Same University. He also completed a Ph.D. in Engineering at Chiba University, Japan. Currently, he is an Assistant Professor at the Department of Design in Chiba University, Japan.

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