

Studio oriented learning environment method to improve student learning quality in interior design studio

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ARTICLE INFO	ABSTRACT
<p><i>Article history:</i> Received April 07, 2020 Received in revised form March 27, 2021 Accepted July 18, 2021 Available online August 01, 2021</p> <p><i>Keywords:</i> Design method Traceable Systematic process</p> <p>*Corresponding author: Uly Irma Maulina Hanafiah Interior Study Program, Faculty of Creative Industries, Telkom University, Indonesia Email: ullymaulinafia@telkomuniversity.ac.id ORCID: https://orcid.org/0000-0003-2156-0130</p>	<p><i>Due to the complexity of activities and interior elements in the studio-oriented learning environment, it is essential to apply the right method in all stages to ensure they proceed sequentially and systematically. This is because presently the in-depth design method associated with this learning environment has not been fully explored to fulfill user needs in accordance with the design project. Therefore, this research aims to determine the right method used to improve students learning quality in the teaching process at the Interior Design studio, to obtain better responses. This research was carried out using the CAR model proposed by Kemmis and Mc Taggart consisting of four components, namely planning, action, observation, and reflection. The result showed that after the re-planning process, a reflection in the form of a separate cycle is conducted. Furthermore, independent learning methods in a conducive environment are carried out based on the studio-oriented learning environment method, with assessments conducted by lecturers and students in each assistance group. This research has the ability to improve students thinking ability sequentially and systematically, as well as increase their participation and collaboration in producing quality designs.</i></p>

Introduction

Interior Design Studio V in the Faculty of Creative Industries, Telkom University, is focused on public space projects. During assignments, students are required to be creative in providing design ideas that are inseparable from the applicable planning rules (Wardani 2003; Sutedjo and Indrani 2014). According to Ching (2007), the complexity of activities and interior elements makes it important for students to apply the right method at all stages for the sequential and systematical interrelation of all processes (Irsyady 1985). Presently, the method applied has not fully explored the detailed design process in accordance with the context of the design project capable of fulfilling user needs and

simultaneously producing creative designs (Sukada and Salura 2020).

Zairul (2018a; 2018b) proposed the Studio Oriented Learning Environment in groups, with each comprising good progress and understanding as a reference for joint learning and assessments carried out by students and lecturers. This method is expected to produce students with an understanding of projects in accordance with problems, design trends, and creativity (Carolina and Tallo 2018). The design method presently applied only runs with a one-way method, namely lecturers to students, and focuses on the final result with a large number of participants. Therefore, the handling of each student is not optimal.

Generally, the Interior Design Studio class comprises 15 - 20 students, which is

quantitatively difficult to handle. However, the division of these students into groups based on similar projects and active involvement tends to facilitate the design process in the studio. Furthermore, the results are expected to enable students to master public space methods and projects with the complexity of their functions and interior elements. It is also expected to enable them design problems and solutions identified and overcome according to their needs and benefits (Chressetianto 2013; Dewi, Haryanto, and Yong 2018).

This research aims to test the teaching approach using the studio-oriented learning environment method to determine the right for the Interior design studio. Therefore, the complexity of each design studio can be anticipated to obtain a more active response by students.

The benefits of research results using the studio-oriented learning environment method are as follows. 1.) Students are able to improve their ability to think sequentially and systematically, thereby increasing their participation and cooperation in producing quality designs, 2.) Lecturers are able to explore more appropriate design methods for each studio class, 3.) The classroom action research becomes a guide that focuses on the Design Studio V class.

Method

This research was carried out in the classroom according to the schedule of Design Studio V by the Interior Design Study Program located in the Sebatik building, Faculty of Creative Industries, Telkom University. Furthermore, it was conducted in the even semester lectures of the 2018/2019 academic year.

The subjects involved in this research are as follows: (1) The teaching faculty team as observers and assessors of rubrics, between lecturers working together and alternately to act as observers and assessors in accordance with the ongoing actions; (2) Students as the target of observation observed by the teaching lecturer team. The number of parallel V Interior Design Studio courses held in the even semester of 2018/2019 is 8 classes, with each consisting of 15-20 students. The implementation of this research is only limited to 2 classes taught by 2 lecturers with several others parallel to Studio Design Interior V.

In this classroom, action research is carried out with the CAR model cycle proposed by Kemmis and Mc Taggart (Komariah 2018). This cycle consists of four components, namely (1) planning, (2) action, (3) observation, and (4) reflection. The re-planning stage is carried out separately after the reflection process.

The initial reflection is an exploratory activity used to gather information on the situation relevant to the research theme. Furthermore, the authors and the team carried out preliminary observations to identify and determine the real situation. Based on the results of the initial reflection, it is possible to focus on the problem formulated into a research problem. Observation activities in CAR can be equated with data collection activities in formal research. In this activity, the author observes the results or the impact of the actions taken on students. Basically, reflection is an activity that analyzes, synthesizes, and interprets all information obtained during the action. In this activity, the authors examined, determined, and considered the results or impacts of the action using the CAR method developed by Kemmis and Taggart. Figure 1 illustrates the flow chart of this process.

Based on the explanation above, it is important to carry out the Kemmis and Mc Taggart research cycle model because the components are very close to the planned process carried out during the research. The implementation of the studio-oriented learning environment is carried out in the action implementation part. This research is divided into two cycles, the first is carried out for half a semester at the beginning of the lecture (pre-Middle Semester Examination), while the second is carried at the end of the semester (pre-Final Examination). One cycle consists of several actions.

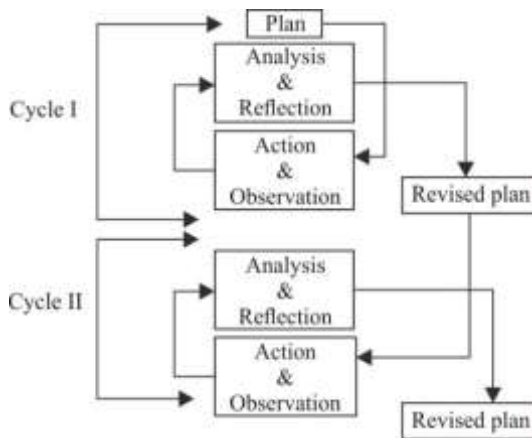


Figure 1. CAR concept by Kemmis and Taggart
 Source: (Komariah 2018)

Result and discussion

This research is conducted at the beginning and end of a semester.

Stage of research cycle 1

This cycle tends to last from the second to the seventh week of lectures.

1. Planning

In the first cycle, three actions occur using the studio-oriented learning environment method. At the initial stage, each student determines the discussion topic of the public space project. In the first week, the lecturer provided various alternatives used as design topics. Meanwhile, in the second week, each student determines the design topic.

Table 1. The division of discussion groups in the Studio Design V Class DI3905B and DI3904B

No	Design topic	Total participant	
		DI3904B	DI3905B
1	Hotel	5 people	5 people
2	School	5 people	5 people
3	Library	5 people	5 people
4	Museums and tourism facilities	5 people	5 people
5	Office	5 people	5 people

After determining the topic, groups are formed based on the similarity of the project to be designed. The formulated groups are divided into a balanced number of members amounting to 5-6 students for hotels, schools, libraries, museums, tourist, and office facilities. Furthermore, in the form of planning a lecture simulation on the implementation of the Studio Oriented Learning

Environment method to each group, the preparation of actions is adjusted to the efficiency of lecture time.

Table 2. Aspects and indicators of discussion group assessment

No	Aspect	Indicator (1-4)
1	Student activities in groups	<ul style="list-style-type: none"> Cooperate in survey activities through the collection of primary and secondary data; Support each other and direct friends in a group; Generate a mutual agreement to be implemented.
2	Student participation	<ul style="list-style-type: none"> Ask or provide answers to questions; Express opinions, ideas, and strategies in group discussions; Able to think and act sequentially and systematically.
3	Motivation and enthusiasm	<ul style="list-style-type: none"> Implement the agreement results in the group and conduct an evaluation; Give a good response in learning; Motivate friends in the group.
4	Team interaction	<ul style="list-style-type: none"> Take an active role in group discussion and direction; Influence their group and others; Direct friends during active discussions.

Previously, aspects, indicators, and rubrics were determined to assess the discussion group in the first cycle. Assessment is carried out by class lecturers and students against those within and outside the group. The more indicators identified, the better the aspects assessed to achieve the highest rating.

2. Actions and observations

Actions and observations are carried out in 2 stages, namely beginning and core activities. The details are as follows:

a. Beginning

This stage is carried out one to two weeks before the class action meeting. It starts with a pre-test to measure the student activity level in the form of things that affect their participation in group assignments and work together. Furthermore, the discussion instructions of the design method to student groups are in the form of group discussions as a series of major tasks in the Design Studio V. These assignments are discussion materials used to observe the actions to be taken. The group discussion material is in the form of design methods mastered and applied to the previous studio class.

Based on the results of this Preliminary activity, 4 different design methods were produced in accordance with the group discussions. These methods are related to the project discussion carried out at the Design Studio V. Furthermore, due to the absence of a field survey at this stage, general processes are produced during the design process.



Figure 2. Presentation of hotel groups regarding design methods mastered



Figure 3. Presentation of museum and entertainment facilities group regarding design methods mastered



Figure 4. Results of group presentation activities regarding design methods mastered

b. Core activities

This stage starts with the introduction and understanding of each project, with a literature review, project introduction, and a field survey discussed in each group. Furthermore, the lecturer carries out discussion activities through observation and assessment. The process follows along with all the group discussions carried out in this first cycle. During this activity, each group is freed to determine the steps using the survey and data collection methods as part of the overall design process. This activity result expects that each student is consistent in carrying out the stages in the field according to the results of their respective group discussions.



Figure 5. Group discussion activities in determining the steps for field survey and data collection



Figure 6. Presentation of the museum and entertainment facility project group in determining the steps for field surveys and data collection



Figure 8. Presentation of hotel project groups in determining the steps for field survey and data collection



Figure 7. Presentation of office project groups in determining the steps for field survey and data collection

After the discussion activities, each group made a presentation with input and responses obtained from others.

The observations assessment results obtained from each discussion group shown in [table 3](#).

Table 3. Results of observation and assessment from discussion groups

Group	Assessment aspect	Discussion group observation and assessment	
		DI3904B Class	DI3905B Class
House project group (1)	1. Student activities in groups; 2. Student participation 3. Motivation and enthusiasm; 4. Team interaction.	Active in expressing opinions and ideas. Unable to think and act coherently and systematically. Tries to implement the results of group discussions.	Able to think and act coherently and systematically. Influence their group and others. The motivation to bring the discussion results into implementing data collection activities is considered to have been achieved.
School project group (2)	1. Student Activities in groups; 2. Student participation; 3. Motivation and enthusiasm; 4. Team Interaction.	Active in expressing opinions and ideas in prominent group discussions. Able to think and act coherently and systematically. Tries to implement the results of group discussions.	Generate a mutual agreement to be implemented and evaluate. Less active in expressing opinions and ideas. Unable to think and act coherently and systematically.
Library project group (3)	1. Student activities in groups; 2. Student participation; 3. Motivation and enthusiasm; 4. Team interaction.	Generate a mutual agreement to be implemented. Less active in expressing opinions and ideas. Unable to think and act coherently and systematically.	Active in expressing opinions and ideas. Able to think and act coherently and systematically. Tries to implement the results of group discussions.
Museum and entertainment facilities project group (4)	1. Student Activities in groups; 2. Student participation; 3. Motivation and enthusiasm; 4. Team interaction.	Able to think and act coherently and systematically. Influence their group and other groups. The motivation in bringing the results of the discussion into the implementation of data collection activities is considered to have been achieved.	Active in expressing opinions and ideas, and prominent in group direction. Able to think and act coherently and systematically. Tries to implement the results of group discussions.
Office project group (5)	1. Student activities in groups; 2. Student participation; 3. Motivation and enthusiasm; 4. Team interaction.	The act of thinking and acting coherently and systematically is considered inadequate. Less active in expressing opinions and ideas. Tries to implement the results of group discussions.	Active in expressing opinions, ideas, and strategies that are considered prominent. Influence their group and others. The motivation to bring the discussion results into implementing data collection activities is considered to have been achieved.

At this stage, the assessment is carried out by a group and a team of lecturers. The more

indicators identified, the better the aspects assessed to achieve the highest rating.

3. Analysis and reflection

Data synchronization between the test and the observation results at this stage are carried out in the form of changes based on the pre-test and post-test results. Each student conducts a field survey, and the results are in the form of a report with data collected and adjusted to the steps discussed in the group. The conclusion of the data analysis and synchronization is described as a reflection of the first-cycle stages taken into consideration in the preparation of actions in the next cycle.

The results showed that some of the students are inconsistent in applying the survey and data collection methods discussed in their respective groups. This can be seen from the results of the survey activity reports that were collected. Mastery of design methods is determined from how each process is carried out and illustrated through survey reports and data collection.

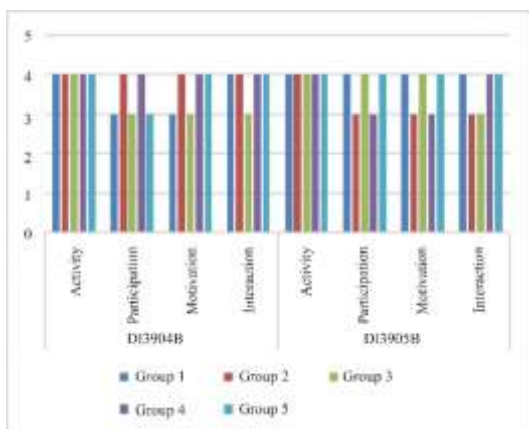


Figure 9. Assessment chart of discussion groups in class DI3904B and class DI3905B in the design studio V course

The temporary conclusion of the analysis results in cycle 1 is that some students tend to be passive towards activities carried out outside the classroom and inconsistent in implementing the methods discussed in each group. However, others have tried to implement group discussions into survey activities, data collection, group interaction, and motivation, which continue outside the classroom. The evaluation process is carried out due to the short lecture time this semester. Therefore, lecturers and students need to agree on a design method that can generally be understood and carried out sequentially and systematically. Each process in the studio design stage is adjusted to the learning time. However,

all these stages are expected to be carried out during the design process to understand the project according to students' needs and creativity. The second stage is a continuation of the design process in the Design Studio V class.

Stages of research cycle 2

This cycle lasts from week 8 to 14 of the lecture. The class-action starts at the meeting after the UTS (Middle Semester Examination) and the first cycle.

1. Planning

In the second cycle, actions are carried out using the studio-oriented learning environment. At this stage, each discussion group was allowed to discuss the data analysis and synthesis. Furthermore, the preparation of actions, in the form of planning a lecture simulation on the implementation of the studio-oriented learning environment method for each group, is adjusted to the efficiency of lecture time.

Table 4. Aspects and indicators of discussion group and individual assessment

No	Aspect	Indicator (1-4)
1	Classification	<ul style="list-style-type: none"> Precedent Studies with the same approach, function, and Interior typology; The design method is in accordance with the selected and recommended stages; Using rules, principles, and standardization.
2	Analysis and synthesis	<ul style="list-style-type: none"> A more comprehensive design approach regarding various aspects related to design science, both theoretical and practical; Identify technical & non-technical problems; Collect & sort design data. Make data programming the basis of design.
3	Evaluation	<ul style="list-style-type: none"> Review of design problems, standardization, and solutions; Presenting group planning results and individual progress; Ability to assess self and others at every design stage.

Previously, aspects and indicators, discussion group, and individual assessment rubrics were prepared when observing actions in this second cycle. At this stage, the assessment is carried out by a group of students and lecturers. The more

indicators identified, the better the aspects assessed to achieve the highest rating.

2. Actions and observations

Actions and observations were carried out in 2 stages, namely beginning and core activities. The details are as follows:

a. Beginning

At this stage, data is analyzed and synthesized. This process focuses on group discussions, although the reports are assessed through the results of each student. In carrying out this activity, each group is directed to determine the steps in an activity. Furthermore, in this case, each student's data analysis and synthesis methods are consistent in carrying out the stages according to the results of each group's discussion.

b. Core activity

This stage is carried out, and the data analysis and synthesis activities (data programming) in developing ideas and working drawings. Group activities are still being carried out until the final stage. Furthermore, the stages of data analysis & synthesis are carried out in group discussions, and the results are based on the context of each project and design. In developing ideas and working drawings, each student explains the concept and its implementation into the design stage. This is assessed together with each group and the lecturer team to determine the progress. This method also acts as a reference and motivation for students to develop maximum design individually and in groups.

The assessment results of the observations obtained from the process of each discussion group and individual are shown in [table 5](#).

Table 5. Observation and assessment results of discussion groups and individual students

Group	Assessment aspect	Observation and assessment	
		DI3904B Class	DI3905B Class
House project group (1)	1. Classification; 2. Analysis and synthesis; 3. Evaluation.	Undergo the design stages in accordance with the planning or group discussion. The precedent study is not in accordance with the discussion and has not maximally described the design problem in accordance with the applicable rules, principles, and standardization.	Undergo the design stages in accordance with the planning or group discussion. Precedent studies are taken in accordance with the discussion and have the ability to describe design problems in accordance with applicable rules, principles, and standardization.
School project group (2)	1. Classification; 2. Analysis and synthesis; 3. Evaluation.	Precedent studies are taken in accordance with the discussion and describe design problems using applicable rules, principles, and standardization. Not undergoing the design stage in accordance with the planning or group discussion.	Precedent studies are taken in accordance with the discussion and are able to describe design problems via applicable rules, principles, and standardization. Not undergoing the design stage in accordance with the planning or group discussion.
Library project group (3)	1. Classification; 2. Analysis and synthesis; 3. Evaluation.	Undergo the design stages in accordance with the planning or group discussion. Precedent studies are taken in line with the discussion and used to describe design problems such as applicable rules, principles, and standardization.	Precedent Studies are taken in accordance with the discussion and are able to describe design problems clearly in line with rules, principles, and standardization. These studies are also able to compile all data as a reference in the design.
Museum and entertainment facilities project group (4)	1. Classification; 2. Analysis and synthesis; 3. Evaluation.	Precedent studies are taken in accordance with the discussion and are able to describe design problems clearly in line with rules, principles, and standardization.	Precedent studies are taken in accordance with the discussion and are able to describe design problems in line with applicable rules, principles, and standardization.
Office project group (5)	1. Classification; 2. Analysis and synthesis; 3. Evaluation.	Precedent studies are taken in accordance with the discussion and are able to describe design problems clearly in line with rules, principles, and standardization. These studies are also able to compile all data as a reference in the design.	Precedent studies are taken in accordance with the discussion and are able to describe design problems clearly in line with rules, principles, and standardization. These studies are also able to compile all data as a reference in the design.

3. Analysis and reflection

At this stage, data synchronization between the test and the results of observations is carried

out by determining the changes based on the pre-test and post-test results ([Sudradjat 2020](#)). At each stage, the result showed all the performance given

through group assessments, and the lecturers assessed and re-evaluated from the first and second cycles. This was in the form of follow-up activities that remained focused on group collaboration plus individual assessments. Mastery of the design process was directed at the first cycle, while the output design was produced in the second. The classification, analysis & synthesis processes, and evaluation in the design stage were assessed from the indicators previously described, as shown in figure 10. This chart shows that the classification aspect has the highest achievement, followed by the data analysis and synthesis, and finally, evaluation. Therefore, lack of time in the process and students' awareness are important activities.

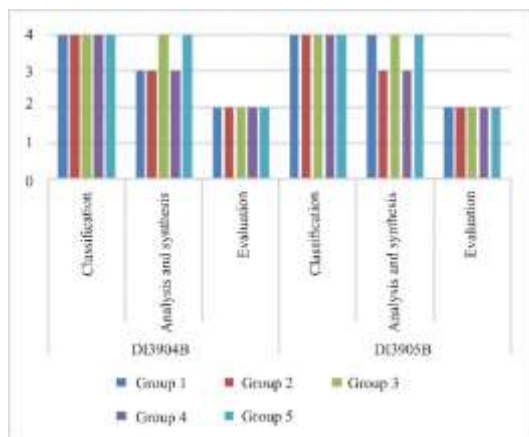


Figure 10. Discussion group assessment chart in class DI3904B and DI3905B on the design studio V course

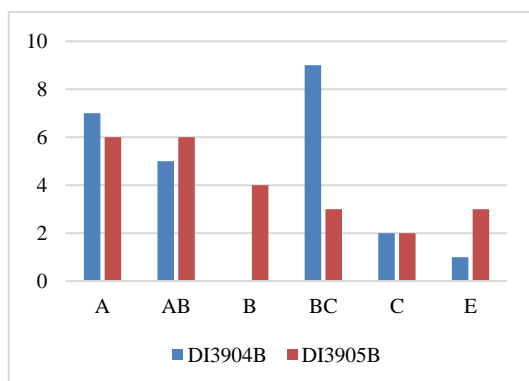


Figure 11. Graduation score chart in class DI3904B and DI3905B on the design studio V course

The results of individual and group assessments are important in this second cycle. Furthermore, they are considered adequate and satisfactory, considering the conditions in

classroom action research and within a short time. On average, the students graduated with satisfactory grades and some with average results due to lack of individual achievements. However, some failed due to attendance problems and image plagiarism.

Conclusion

In conclusion, the research objectives were achieved in the overall classroom action by testing the Studio Oriented Learning Environment application. The result showed that all students and lecturers that use this action applied appropriate methods. Furthermore, because of the large student involvement in the design process, group collaboration, and learning assessments, they are a reference for joint learning in the studio class. The success level achieved is identified through a higher understanding of students, therefore the design is in accordance with their problems and creativity.

This research concluded that the Design Studio course focuses on the final result and the process stages in the studio. It also involves the full role of students by applying the Studio Oriented Learning Environment design method. The review of this Studio Oriented Learning Environment method is that carrying out actions takes sufficient time with flexible design stages. Hence the design process runs smoothly and in accordance with the objectives. The design process with sequential and systematic stages uses the evaluation stage to determine the design method of the Interior Design studio. This process is made using learning methods in line with current conditions and contexts. Studio Oriented Learning Environment is expected to act as an alternative design method that can be applied. Therefore, the complexity of each design studio is anticipated and obtains a more active response by students.

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Author(s) contribution

Ully Irma Maulina Hanafiah contributed to the research concepts preparation, methodologies, investigations, data analysis, visualization, articles drafting and revisions.

Doddy Friestya Asharsinyo contribute to methodology, supervision, and validation.

