

PEER DESIGN JURIES: The Implementation Of Group Pin-Up In Architecture Design Studio

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Abstract: *The architecture design studio is a core course in architectural learning that trains students' abilities in the architectural design process. Unfortunately, students often fail to meet scheduled task targets, even though the time allotted is sufficient. This article examines the application of the group pin-up as a teaching method and its effectiveness in helping students meet deadlines for completing tasks in the Architecture Design III course, a studio attended by second year students. This study uses documents analysis (reviewing student design drawings to measure student achievement), and interviews (investigating changes in attitudes and perceptions of the students in pin-up group applications). We found that using the group pin-up strategy to impose an in-between deadline leads to improved discipline, better teamwork, and higher motivation due to competition in the group. This method is recommended in architectural design studios as a simulation practice for students before they move up and begin to work in the architecture profession.*

Keywords: Architectural design studio, Group pin-up, Peer group judging

1. Introduction

Architecture education has a teaching pattern that focuses on the design studio by creating an atmosphere of active learning through *project-based learning*. The design studio is organized in order to foster students' creativity and assist them in developing their ideas into architectural works as professional architects. In general, the design studio is intended to equip students with the various sciences and skills needed, both in practical and intuitive contexts, in order to produce competent, innovative and creative design solutions (Lukman, Ibrahim, and Utaberta, 2012). Beyond merely considering the beauty and strength of a building structure, students are also required to utilize a multi-disciplinary approach in the design studio, in order to accommodate the level of complexity associated with the interconnected social and cultural aspects of projects (Lukman et al., 2012). In the implementation of the design studio, students are directed to complete a case study through a series of design processes, driving them to make design decisions individually and in groups. This hones their creativity, part of the must-have skills they must develop as future architects. In the project-based learning setting, students are trained and learn to apply various theories through a series of processes of identification, data collection, evaluation, and development of alternative designs, which are communicated through manual and digital images, models, and other architectural communication media (Gross and Do, 1997).

The design studio system has evolved to reflect different approaches by each lecturer and at each architecture school. Although it is considered the most effective system in introducing the world of architecture to students, several problems can hinder the successful achievement of learning outcomes. One such problem is a lack of relationship between students, which affects their ability to learn about studio tasks that must be completed. This has an impact on the studio

learning process, which is then hampered, diminishing the quality of the designs, and ultimately fulfillment of tasks and project targets are not achieved. The attitude of students often inhibits the course of the design process in studio learning, which results in poor learning outcomes. Lack of responsibility for tasks, lack of initiative in finding solutions to problems faced, and students' lack of confidence often inhibits them, and they have difficulty in completing their tasks in the architecture design studio (Ciravoglu, 2014).

This article examines the application of the pin-up group to the Architecture Design III studio (sophomore) in the Architecture Study Program at the University of X in Indonesia. In this program, studio design courses are core courses that comprise six stages. Data shows that only 41% of students in Architecture Design III were able to complete the task according to the target achievement in their previous studio (Architectural Design II). This lack of achievement is also accompanied by the failure of students to develop the creativity they need to discover solutions for design problems. In addition, many students ignore the standards of drawing presentations. These problems adversely impact the expected quality and presentation of designs. Therefore, the teaching team formulated improvement efforts that were implemented in the development of Architectural Design III, to enable students to successfully complete their tasks as established in the terms of reference of the course. This study applies the group pin-up method as a preliminary deadline before the final collection of tasks in the Architectural Design III course. Group discussions such as those conducted in a group pin-up is a method that might apply at any level, to examine the results of the work in progress (Chen and Heylighen, 2006). This article aims to examine the process of implementing group pin-ups, scheduling them as intermediate deadlines to promote successful completion of tasks in the Architecture Design III course, and to identify the role of the group pin-up method that has been implemented and its effect on students in the completion of their tasks. The study focused on the affective domain, which indirectly influences student outcomes and whether they are able to successfully complete their projects.

1.1 Learning Process in Architectural Studio

Basically, pedagogic processes and methodical didactics in design studios refer to project orientation, which is adapted from the way the architectural bureau works to solve a real project case (Chen and Heylighen, 2006). The learning process in architectural design studios is conducted through the process of creating new thoughts, gathering information, and designing products by paying attention to various related knowledge in the process (Paker and Lu, 2008). The cognitive process built through the design studio model has several components: (1) knowledge, such as knowing the design requirements; (2) understanding, which goes beyond simple knowledge to grasping the reasons which drive those design requirements; (3) application, such as using that information to determine and solve design problems; (4) analysis, exemplified by comparing and quantifying the effectiveness of various design components, (5) synthesis, that is, proposing a new and original design solution; and (6) evaluation, drawing final conclusions about the appropriateness of the proposed design solution (Lukman et al., 2012). The influence of the affective domain on the learning process within design studios is related to student attitudes, such as responsibility and response to tasks, enthusiasm and interest, and collaboration. Student attitudes are affected by both intrinsic and extrinsic motivation, and definitely impact whether they are successful in learning the competencies needed by a practicing architect (Savic, et al., 2013). Psychomotor domains in the design studio are reflected in the mastery of skills, especially architectural communication techniques, the ability to adapt changes in design creation, and the ability to develop and demonstrate creativity.

1.2 Architecture Studio Assessment

An essential component of the learning process is assessment. In architectural studios, assessment is an ongoing series of activities and metrics carried out during the process of finishing the task. It is not conducted through tests, but through a series of presentations and discussions held during the various phases of the project (Oh, Ishizaki, Gross, and Do, 2013). Lecturers, instructors and classmates provide both positive feedback and constructive criticism. During a critique session, students can evaluate their designs and develop focused, critical thinking skills that enable them to learn to modify and refine the projects they are designing. There are two fundamental categories that influence success in critiquing a design (Oh, Ishizaki, Gross, and Do, 2013). The first factor is the set of conditions that must be considered by the lecturer/instructor

when conducting a critique session; design phases/stages, individual differences, knowledge/experience, student responsiveness, design artifacts, and learning objectives, among others. The second factor is the actual critique method, which also consists of several aspects; type of criticism, lecturer-student relationship, communication, type of delivery, and method of delivery (Oh, Ishizaki, Gross, and Do, 2013). Critiques in architectural studios are divided into six categories from individual critique, interim critique, final critique, peer critique, expert critique, public critique, written critique, seminars, and panel discussions (Utaberta, Hassanpour, Bahar, Ani, 2012). Critique can be done through formal and informal situations, both carried out by peers, lecturers, and visiting expert (Kuhn, 2001).

Pin-up is one method of critiquing designs that are carried out both in class and in small groups. In the pin-up method, the lecturer and peers participate in constructive criticism sessions in the interim phases between the beginning and the conclusion of the overall design task. The pin-up method involves an oral presentation conducted in a more relaxed situation when compared to the final presentation (Gul, et al, 2018). Discussions conducted in groups, such as group pin-up sessions, are methods that can be applied at any level, to reflect on the results of the work that has been completed thus far (Chen and Heylighen, 2006). In a pin-up session, students display their works on the media or walls in order to receive input and feedback from their lecturers and peers. During this session, students must show the extent to which they have completed their work, and be prepared to receive feedback based on their achievements (Dannels, 2005). Because the pin-up is a learning tool implemented during an period of ongoing project work, any criticism delivered is not a means of assessment; it is simply valuable, positive feedback.

2. Research methods

Metrics for this study included both quantitative and qualitative analysis. In this study, pin-ups were designated to be held twice during the process of completing student tasks in the Architecture Design III course. This study focuses on the impacts the pin-up sessions had on the affective domain, assessing both any changes as perceived by the students and the success level of the tasks, basing measurement of achievement according to the task terms of reference. Therefore, when each pin-up was conducted, the corresponding developments were noted. Along with assessing the level of achievement demonstrated by the successful completion of the project task, the quality of expected architectural communication was also evaluated. The depth and detail of analysis was related to the impacts arising from applying the group pin-up method, based on observations made during the implementation of the task (8 weeks) and on interviews with purposively-selected students.

The time allotted for conducting research was aligned with the timeframe for the implementation of tasks in the Architecture Design III course. In this course, students were asked to complete the design of a residential home complex. Each group had a different location target, with the same parameters for size/area and location features. The purpose for providing nursing home occupancy cases was to train students to design a complex which consisted of multi-mass buildings, and to pay particular attention to six aspects: conceptual, contextual, programmatic, formal, structural, and utility.

The research sample consisted of 39 second-level students who were enrolled in Architecture Design courses. The sampling decision was based on several factors: second-year students have gained experience in two previous design studio courses, thus were expected to be familiar with design studio learning models; the complexity of the Architecture Design III course tasks was high enough to drive students to be more specific in implementing knowledge obtained in other subjects; and the number of work achievement targets that must be completed was significant, therefore students were required to demonstrate their commitment and attitudes in order to finish successfully.

Research data was collected using the techniques of document analysis, observation, and interview. Document analysis involved task assessments such as literature studies, precedent studies, group-conducted site analyses, design concepts, site plan implementation, design, views, pieces, and individual solutions and perspectives. During the studio process, observations were conducted regarding the implementation of the studio; these included the work processes of students (both individually and in groups), and the interactions of individual students with other students and with supervisors in the process of work, supervision, or group pin-ups. Interviews were also conducted, forming a triangulation point relative to the data obtained through document

analysis and observation. Interviews were carried out individually on 6 students who received A scores, 6 students who got B scores, and 4 students who got C scores. These interviews explored the experiences and opinions of students about the studio process and have been thoroughly validated.

3. Results and Discussion

3.1 The Implementation of Group Pin-Up

Group pin-up sessions are scheduled at milestone points before the final task is due to be completed. This is intentional, giving the ability to use these points to monitor the students' progress and work output. To be successful, the students must accomplish the target tasks before each group pin-up session. In this study, pin-up sessions were implemented at two different times during the period designated for the completion of the studio tasks. The pin-up sessions were conducted using previously-formed groups. Feedback, criticism, and assessment was also provided privately by both the individual student's supervisor and group of friends. The first group pin-up was carried out when students had finished working on the first four aspects (conceptual, contextual, programmatic, and formal). The projects shown at that time are centered around ideas (themes and design concepts), and project images consisting of site plan drawings and design. In comparison, the second group pin-up is implemented near the deadline for all course-related tasks to be completed. In this second pin-up, students must exhibit their projects in such a way as to demonstrate their level of mastery of all the required aspects, including concepts, site plans, designs, views, pieces, and perspectives.

The first pin-up was attended by all students of Architecture Design III. At the time of the first session, 56.41% of the class, that is, 22 students, had not reached the assigned task target. Seventeen of the students were only able to work on target tasks below 50%. However, every student was still asked to comment on other friends' tasks. In this first session, not many students were inclined to give comments or questions to other students, so the atmosphere tended to be passive and communication was mostly uni-directional. Because these limiting conditions were anticipated, students were also asked to write comments on previously-prepared forms. Then the supervisor gave input based on the project that was presented.

The implementation of the second pin-up was conducted as the final task deadline approached. In this second session, a collaborative atmosphere had begun to build, and students were more interactive, giving comments and asking questions verbally to the presenting students. Students also were still encouraged to write comments. They also gave scores on a piece of paper collected by the supervisor at the end of the presentation session. Data shows that 12 students had not been able to hit the target or achieve completion of the task at this point, while 26 other students successfully completed the assigned task target.

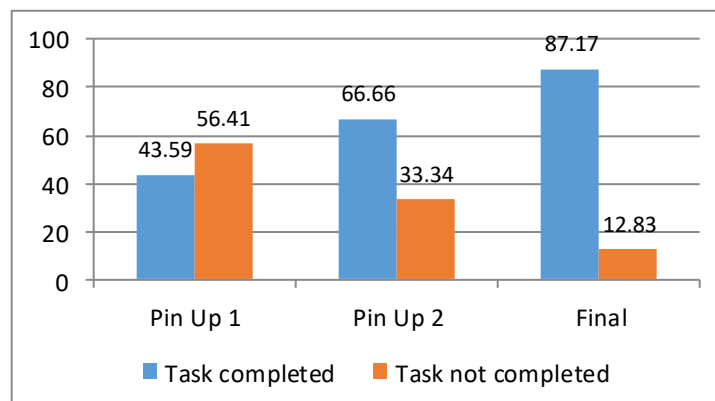


Figure 1.1 Chart of the progress in achieving the fulfillment of student tasks in the Design Studio 3 course (Source: research data)

At the final assessment, 34 students were able to complete their projects based on the assigned task targets. 23 of 39 students participating in Architectural Design III were able to accomplish their tasks with scores demonstrating “good quality” work. Of these, the highest score was 90 and the lowest score was 60.70, and 11 more students fulfilled the task requirements with

sufficient scores to pass. The other 5 students failed, achieving less than 50% of the target. Of the 16 students whose progress at the time of the second pin-up was still under 50%, 11 successfully completed the task; the lowest percentage of the task target achievement was 55% and the highest was 78.27%. The graph of the progress in achieving the student tasks can be seen in Figure 1.1. Compared to the learning outcomes from Architectural Design II, there was an increase of 46.17% in the achievement of tasks assigned in Architectural Design III.

3.2 Impact of the Pin-up Group Implementation

The affective domain, in educational terms, refers to student behavior during the learning process. This includes the personal goals of each individual as well as their attitudes toward learning outcomes (Savic, et al, 2013). As mentioned in the introduction, it was evident that there were challenges rooted in the affective domain for certain students, which reduced the likelihood of successful learning outcomes. Low levels of confidence, lack of a sense of responsibility, and lack of initiative have affected students' ability to finish their tasks. In theory, the affective domain is influenced by an individual's motivation, which has its origins both from inside (intrinsic) and outside (extrinsic) that individual. The interview results identified that extrinsic motivation in the form of assessments boosted students' enthusiasm toward finishing their tasks; however, intrinsic motivation, especially the self-confidence required to finish the tasks, was still an issue which hindered some of them from achieving the assigned task. In addition, the extended periods of time involved in the design studio learning environment often diminished students' feelings of responsibility toward finishing their tasks.

Students' opinions regarding the implementation of the group pin-up are all positive. Comments made during the interviews, both with groups of excellent students and those who experienced delays in completing tasks in the Architectural Design III course, indicated that students believed the group pin-ups helped them establish a more definite schedule compared with a single, final collection deadline. Because the pin-up sessions established interim deadlines for student projects, implementing the group pin-ups demonstrated improvements in both the level of achievement and rate of task completion. There is clearly a quantifiable increase, as 64.71% of students who were declared unsuccessful in pin-up were able to complete their tasks by the deadline set for the course. In the final collection, 34 of 39 students, or 87.17%, were able to finish the tasks according to the task terms of reference, although in terms of design quality only 58.97% were categorized as good. This is a fairly significant increase, considering that in the previous studio courses only 41%, or 16 of 39 students, were able to complete their tasks in accordance with the parameters set by the terms of reference.

During the first group pin-up, the level of achievement (measured by the number and type of project images that were on display), and the number of students who dared to express their opinions directly, were both fairly limited. In student interviews it was identified that there were a number of personal barriers experienced, including a lack of familiarity with the pin-up method, limited communication skills, and doubts about giving opinions to others because the projects prepared by certain individual students did not turn out as they expected. During the first group pin-up, peer-to-peer interaction enabled students to observe how their friends in the group solved the problems they all faced. They also paid attention to friends in the group that had successfully completed the targets achieved. Supervisors not only provided comments and assessments but also were able to draw inferences about various weaknesses and obstacles faced by particular students. After the first pin-up session, the students took the initiative to discuss within their groups, brainstorm solutions to design problems, and help each other solve issues with presentation techniques.

The overall implementation of the second group pin-up was better than the implementation of the first group pin-up. Results of the analysis of the interviews with students revealed procrastinators were motivated or encouraged to catch up and make progress. This was confirmed by data showing 69.56% of students who were lagging behind schedule in the first session of the group pin-up successfully caught up and made their final deadlines. The results of the assessment of tasks in the implementation of the second session of the pin-up found not only students who were lagging behind increased the percentage of tasks they accomplished, but also students who excelled in the first session were motivated to continue to meet and exceed their targets. Interviews also showed that, by the second session, students understood the pin-up method as it had been implemented. Superior students in the first session continued to improve their performance in the studio tasks in order to maintain their position, including those who received the highest ratings in the first session. As a methodology, pin-up is clearly beneficial, as evidenced by the ultimate

success of eleven students in this course, as well as the proof that students at lower levels managed to catch up where they had been previously delayed.

Pin-up sessions carried out in small groups help the participants build self-confidence. Students stated that they had difficulty dealing with nervous feelings if they were required to make presentations in front of classmates. In smaller groups, they are able to overcome these feelings before and during their presentations. Although there are still some feelings of fear and shame when it was time for the presentations, they channeled these feelings into motivation to complete their tasks on time. Moreover, in group pin-ups, students can build togetherness and motivate each other. Critiques and suggestions from peers are important elements for students to develop their individual capacities to assess and correct themselves (Mc Clean and Hourigan, 2013). In this study, it was found that the constructive criticism given by supervisors and friends through the group pin-up method allowed students to experience different perspectives. Those who paid attention in the pin-up sessions were equipped for the final assessment of the design task, which was carried out through norm reference assessments based on the best performances in the class. They also gained self-confidence as they felt as if they were only competing with a limited group. With the same group at each pin-up session, they found it was easier to understand and learn various things from the presentations and opinions of their peers, as well as receiving opinions and suggestions from the supervisor. Critique carried out in small groups will facilitate greater student involvement, and will increase the level of concentration (Smith, 2011). As another benefit, within the small pin-up groups, supervisors could easily monitor the progress of each student, and discuss weaknesses and obstacles being faced.

The increase in students' motivation due to the impact of small groups demonstrates the validity of theories about *peer pressure*, which motivate individuals to appear at least equal to other friends in the group. Peer orientation is an important determinant that initiates student motivation in the learning process and increases student learning success (Hancock, 2010). In addition, creating a challenging learning environment increases concentration, focus, interest, self-esteem, and intrinsic motivation from students (Shernof, et al, 2016). A number of studies on the use of peer group learning methods also show that peer learning is proven to be successful in improving learning outcomes significantly. A group pin-up, which involves group judging, is a natural development of peer tutoring methods.

4. Conclusion

The process of discussion and assessment carried out by friends in the group through the implementation of a group pin-up was proven to increase discipline and motivation, enabling students to catch up if they were behind schedule. The process of monitoring and evaluating tasks prior to the course deadline allows students to participate in assessing their ability and achievement through the feedback they receive, and determine how much they have to catch up to align the quality of their tasks with other students. This process also enables supervisors to identify student weaknesses during the design completion process, so they can immediately make recommendations to help students overcome these weaknesses. It is recommended that this type of discussion system and assessment is included, along with the deadlines for completing the tasks on schedule, in the implementation of the design studio; it then becomes a tool for supervisors/instructors to evaluate and monitor the achievement of student tasks, as well as an evaluation tool for the student to identify and understand the various disadvantages and weaknesses he has. This research also strengthens the findings of the role of peers in the learning environment in architectural studios in order to increase learning motivation and achievement of tasks and project targets by students. However, the group pin-up methodology still needs to be studied, specifically in relationship to the method and timing for the delivery of constructive criticism to students who are more active or more passive in the studio setting, in order to understand further effectiveness of criticism or assessment in increasing the level of achievement and quality of student projects.

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