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EXPLORING THE GROUP DYNAMICS IN PEDAGOGIC DESIGN STUDIO CONTEXT

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Abstract: The design studio has been practiced as a key deliverable mechanism in architectural education. This study is aiming on exploring the group dynamics of architectural students within the design studio environment. For this study researchers have used naturalistic observation and focus group interviews as key data collection methodologies. For this, 30 design students participated and they were divided in to six groups. The students' level of collaboration was explored and recorded by the researchers throughout three studio days with the engagement of eighteen studio hours. The results were analysed by six phased thematic analysis and the results have been contributed on developing group dynamics models of each group type. We have observed the group dynamism with in the groups and the results depicted four major dynamics such as Collaborative, multiple leadership dynamism, Leader centric, leader dominant dynamism, Virtually active, physically passive dynamism and Grouping within the group. The study has shown the patterns of engagement and how it could affect to the collaborative group behaviour.

Keywords: *Group dynamics, collaboration, design studio context*

1. Introduction

Design studio is the place where design students are collaborating mostly, and as such, this signature pedagogy promotes collaboration and peer learning. Design studio has identified as a collaborative learning space where students could work in groups to develop design ideas together. This learning space is typically known and treated as a reflective learning space where students get multiple inputs form design tutors and peer learners (Schon, 1987), and that is why its groups dynamics require special attention in design pedagogy. Currently, studio pedagogy is adopting the reflective practice with master apprentice model. Abdullah et.al (2011) finds that the design studio comes with a specific culture, and we have observed that leaners adopt this culture eventually as members of a particular group.   Design studio has its own practices and those practices are having a typical way of doing it. At the same time, the design studio provides the material space for students to learn a design process through practice (Corazzoa 2019). Being a collaborative learning environment, with its own cultural practices, design studio is where students and design expertise are working together (Abdelmonem 2016). However, as Kay (2009) has also noted the studio follows a master-apprentice model which may encourage multimodal learning, reflections and critiques but while inhibiting the learning and the growth of creativity. Our aim is to investigate the existing group dynamics to find out if they could be modified to preserve the sanctity of the design studio as a collaborative learning space.

1.1. GROUP COLLABORATION IN DESIGN STUDIO
In the realm of architectural design, the power of collaboration cannot be undermined. The architectural design studio serves as a hub of creativity, where architects, designers, and professionals come together to craft remarkable structures that shape our built environment (Afacan 2012). Effective group collaboration within these studios is vital to harnessing diverse perspectives, fostering innovation, and producing designs that transcend expectations. This study investigates the significance of group collaboration in the architectural design studio and such collaborations are mostly dependent on group dynamics in the studio . Group collaboration in the architectural design studio opens the floodgates of creativity by providing a platform for the exchange of ideas and perspectives (Apfelbaum, Sharp, and Dong 2021). Each team member brings their unique experiences, knowledge, and expertise to the table, enriching the collective pool of creativity. Through collaborative discussions, brainstorming sessions, and design charrettes, ideas are refined, challenged, and molded into coherent design concepts. The fusion of diverse viewpoints leads to innovative solutions and pushes the boundaries of architectural design. Successful group collaboration hinges on effective communication and coordination as well as how comfortable the learners within their learning environment.

Furthermore, collaboration in the design studio nurtures a culture of continuous learning and growth. By working together, team members including the tutor have the opportunity to learn from one another's strengths, experiences, and skills (Makaklı Elif Süyük 2019). Collaborative environments should provide a safe space for individuals to share their knowledge, ask questions, and seek feedback, which in turn promotes professional development and improves overall design capabilities(Kee 2014). The collective wisdom of a group elevates the proficiency of each individual, allowing them to tackle complex design challenges with greater confidence and expertise (Fathallah 2021). Collaboration thrives in environments that embrace adaptability, flexibility, and equity. Architectural design projects often evolve over time due to changing client needs, site conditions, or technological advancements. Embracing a flexible mindset enables the team to adapt new ideas, pivot design directions, and incorporate feedback effectively. Openness to change fosters resilience within the group, allowing them to navigate challenges and seize opportunities, ultimately leading to more innovative and successful design outcomes.

The group dynamics of collaborative groups is an important fact which has not much explored in scientific literature. The group engagement and group behaviour of design students are unique and having their own ways of engaging in the tasks assigned. Group dynamics and the engagement patterns need to be explored to understand the best distribution among groups. Not only that the activities happening with in the groups and how they interact with each other are important factors which made us curios on exploring the making and evolving these groups. This study is aiming on exploring the group dynamics with in the groups and those groups will not collaborate with the other groups assigned.

2. Problem Statement

Exploring group dynamics in an architectural design studio is of paramount importance as it directly impacts the success and effectiveness of collaborative endeavors, and as such design learning. Understanding and managing group dynamics allows architects and designers to harness the full potential of their teams, enhance communication, foster creativity, and create a positive work environment. Group dynamics influence how team members communicate and interact with one another (Hill 2016). By exploring group dynamics in pedagogic design studio helps to identify the communication patterns, strengths, and challenges within the team. This understanding enables educator to tailor communication strategies to improve information sharing, minimize misunderstandings, and enhance overall collaboration. It also facilitates effective collaboration with external stakeholders such as clients, consultants, and contractors in future practice.

In conclusion, exploring group dynamics in an architectural design studio is critical for effective collaboration, innovation, and success. By understanding how team members interact, communicate, and contribute, architects can optimize group dynamics, create a supportive work environment, and leverage the collective expertise to produce exceptional architectural designs. Furthermore, this understanding allows architects to constructively address conflicts, promote inclusivity, and nurture the growth and development of each team member. Ultimately, the exploration of group dynamics strengthens the overall capabilities of the architectural design studio to facilitate the growth of its learners to face any design challenge.

The group dynamics of collaborative groups is an important fact which has not much explored in scientific literature. The group engagement and group behaviour of design students are unique and having their own ways of engaging in the tasks assigned. Group dynamics and the engagement patterns need to be explored to understand the best distribution among groups. Not only that the activities happening with in the groups and how they interact each other are interesting factors which made us curios on exploring. For this study, students have got a design task to engage with and they have to develop a design proposal with in the group. They will not get regular tutoring as usual and this was an independent task for them to develop design proposals and they will not get the guidance or tutoring from studio tutors. We have observed their undisturbed group behaviour to develop group dynamism models.

2.1. RESEARCH QUESTIONS
1. How does collaboration happens within the studio culture?
2. What are the factors impact group dynamism?
3. What are the collaborative patterns identified in each group when they are collaborating?

3. Methodology

Qualitative research methodology was adopted when conducting this study. For this study 30 Interior design students were selected by adopting convenience sampling technique. 30 number of students were divided in to 6 random groups and assigned them to develop a multifunctional working table for a university student. For this study, we adopted convenience sampling technique. Convenience sampling technique allows the researcher to select the sample within the population based on the convenience and accessibility. This falls under the non-probability sampling technique which is widely used in qualitative research domain. The advantage of utilizing convenance sampling techniques is it allows the researcher to recruit participants according to the scope and time plan of the research. For this study students who are in second year second semester were selected and the reason to select an

actual class, because it reflects the natural skill distribution in a typical design class with good ,average and below average students with multiple skill levels.

The selected sample of students were divided in to six groups with contains five students in each. For this division, we utilised the alphabetical order of their names. The students were assigned with a task of developing a multifunctional furniture piece for a selected undergraduate. For this task 18 studio hours were allocated, and each group was observed through naturalistic observation. For this task 3 studio days were utilised, and students spent 6 studio hours per day collaborating each other.

3.1. DATA COLLECTION

For this study, we utilized multiple data collection methodologies to collect data to increase the credibility of the data. Naturalistic observation is a research method used in various fields, including psychology, anthropology, and sociology, to study and understand human or animal behavior in its natural setting. It involves observing individuals or groups in their everyday environment without any interference or manipulation by the researcher. The goal of naturalistic observation is to gain insights into behavior as it occurs naturally, without the potential biases introduced by laboratory settings or controlled experiments. Naturalistic observation aims to capture behavior as it naturally occurs in its authentic context. Researchers observe individuals or groups in their natural environment, such as homes, schools, workplaces, public spaces, or natural habitats. This method provides a realistic and comprehensive understanding of behavior by capturing the complexities, nuances, and contextual factors that influence it. To record the data gathered by the naturalistic observation, we utilized a field diary, photographs, and video recordings.

To increase the credibility of the data, we conducted focus group interviews after the allocated 18 studio hours. Each group was interviewed by the researchers and the entire interview conversation was audio recorded and later transcribed for the data analysis.

3.2 DATA ANALYSIS

The data was analysed through six phased Thematic analysis. Thematic analysis is a qualitative research method used to identify, analyze, and interpret patterns or themes within a dataset, such as interviews, focus groups, or written texts (Braun and Clarke 2006). It provides a systematic approach to understanding and organizing qualitative data, allowing researchers to extract meaningful insights and develop a comprehensive understanding of a particular phenomenon or research question. Not only that thematic analysis allows researchers to explore complex qualitative data in a structured and rigorous manner, facilitating the identification of key patterns, insights, and implications.

As the initial stage we were to be familiar with the data in hand. For that initial scanning of the data was run by the researcher. All the data was categorized and text-based data and non-text-based data. Text based data such as observation records in the field diary and the transcribed focus group interviews were stared coding initially. Meaningful reflections, phrases and important explanations have been identified as initial codes. For non-text-based data such as photographs, and coding were conducted separately. Once the coding is done, meaningful and reflective codes were grouped together as categories. After careful scanning of the meaningful categories identified, those were re-cluster to generate themes.

3.3. RESULTS

The group dynamics observed through the naturalistic observation has been summarised in Table 1.

Table 1: Observation summery

Group	Observation Summery
Group 1	Group leader is dominating the team. The team is following the commands, instructions given by the leader. The team leader was automatically chosen among students, and he is central in all discussions. Brainstorming is happening with in the 4th hour of the group study. 3 students are actively engaging in the discussion and 2 students are listening. One student is always making notes on a paper. Group leader is connected to other external bodies through WhatsApp. He is getting ideas from third parties and distributing that knowledge among the others. 3 students are collaborating well within the group and another 2 is separately engaging in a drafting activity.
Group 2	Two students are very active in the discussion. They are arguing, agreeing, and distributing their thoughts with the others. Two students are leading the group. One student is responding to one leader and other 2 are connected to the leader no 2. It seems like students have chosen a particular line of communication while working in a group.
Group 3	At the beginning students had a collaborative discussion. (20 mins). They started working individually after the initial discussion. One student started cross checking the outcome time to time.

	They have created a WhatsApp chat and posting their individual outcome into the group chat time to time. Students are active in the virtual group than the physical group. They are individually developing their design ideas
Group 4	One student is leading the group. Two students are actively collaborating with the group. Two students are having a separate discussion. Acting like two groups within one group. They also created a WhatsApp group and started collaborating virtually by posting the outcomes into the chat. 3 students are collaborating throughout, and the other two students are communicating with them time to time.
Group 5	One student is leading the group. He is assigning tasks to the others. Three students are working along with the leader. One student is not much active with the other 4 students. He is always individualized with in the group. He is communicating with the leader time to time. His attention was not much focused on the given task. He is active in social media rather than the task assigned. The leader started another brainstorming session at the beginning of the second day. He assigned tasks to each. The isolated student started collaborating with one student to get information time to time.
Group 6	The group activity stared with a collaborative discussion. All the members are actively engaging in the discussion. Two students are using mobile phones and collecting information browsing internet. Those two students are leading the group. They started developing a mind map on table. Everyone is giving their inputs and two students are marking them on paper. Four members are very active in the given activity. One student is bit distracted, but he is collaborating time to time. He is using the mobile phone, browsing internet and chatting in social media groups.

The data gathered from the naturalistic observation and focus group interviews were scanned properly and started coding. The meaningful phrases, sentences and related photographs were coded ass the initial stage. We have utilised on desk screening process for the coding at the beginning and later used an affinity diagram to project codes, categories, and themes. Once the initial coding was done, meaningful codes were clustered into meaningful categories. Those categories have projected meaningful themes which could explain the group dynamics of the sample selected. The
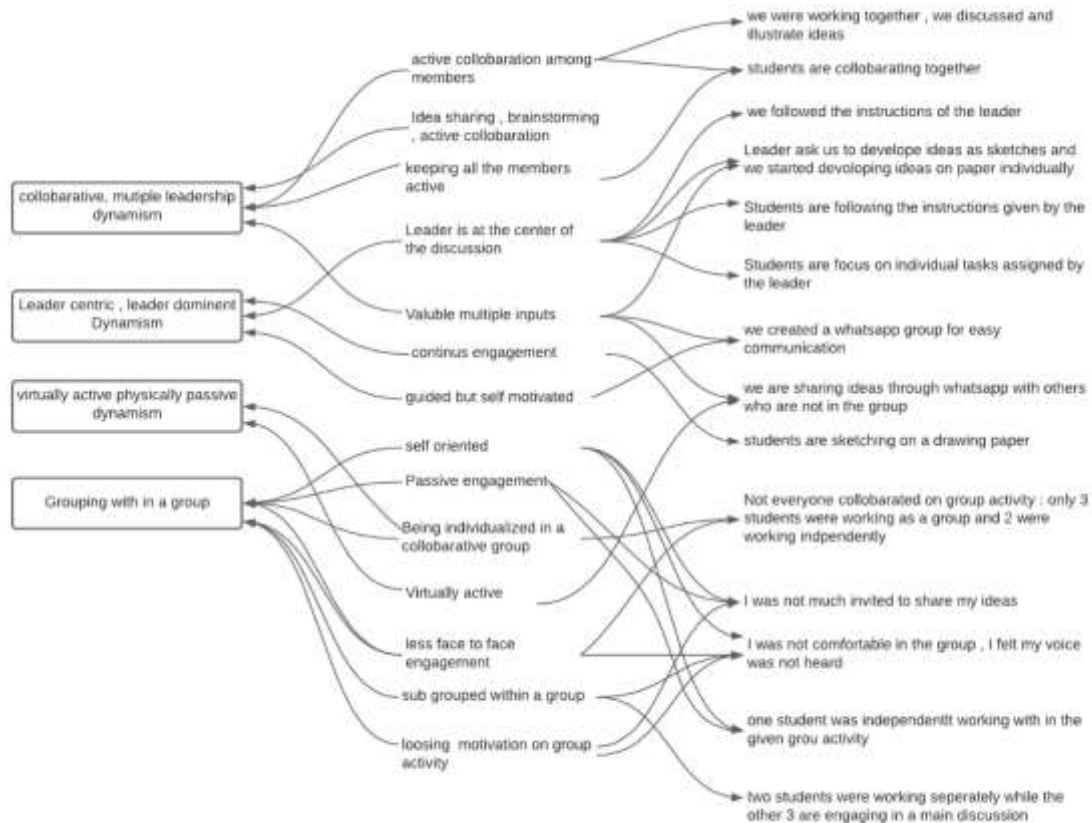

Figure 3.1: Thematic Map of the results with codes, categories and themes

Figure 3.1 illustrates the use of codes, categories and themes generated from the data gathered through the observation, photographic study and focus group interviews.

We have identified 4 types of group dynamics from the results of the study.
        (a) Collaborative, multiple leadership dynamism
        (b) Leader centric, leader dominant dynamism
        (c) Virtually active, physically passive dynamism
        (d) Grouping within the group

3.3.1. Answering RQ 1: How does collaboration happens within the studio culture?
In architectural design studio groups, collaboration plays a vital role in creating successful and innovative designs. The collaborative process involves bringing together the diverse skills, perspectives, and expertise of individuals to collectively develop architectural solutions. Through the study, we noticed several modes of collaborating with in the group. Active leadership, brainstorming sessions, effective idea sharing, continues engagement are the most important ways of collaborating with in the groups. The groups who have showed a high level of collaboration have maintained good communication chain between all the, embers. Not only that they have followed instructions given by the leader. We noticed, there was a hidden protocol of following commands and guidance given by the leader. The members tends to follow instructions and this has limits the critical thinking ability of the other group members. But the active leadership has made the entire group active and engaged thought-out the allocated hours.

The level of collaboration got limited due to excessive usage of phones and being active in virtual platforms than face to face groups, being individualized and regrouping with in original groups. Some students became heavily individualized within the group and their voice was not heard. Some groups have shown the multiple leadership dynamism where two students became centric in line of communication.

3.3.2. Answering RQ 2: What are the collaborative patterns identified in each group when they are collaborating?
Through thematic analysis we have identified four major patterns of dynamics The first pattern we identified is collaborative multiple leadership dynamism. Here the appearance of two leaders was noticed. The guidance and leadership were centered to two students and they dominated the group activity.
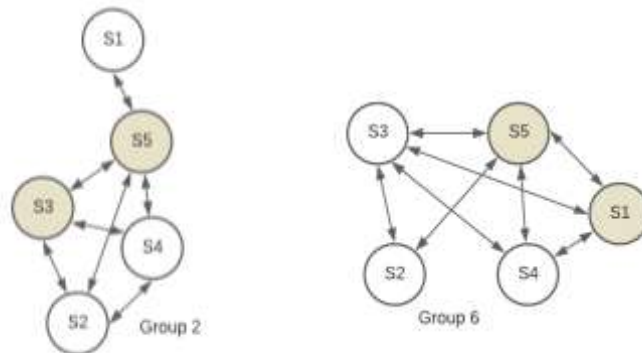

Figure 3.2: Collaborative, multiple leadership dynamism

The second pattern we identified is leader centric, leader dominant dynamism. The term "leader-dominant" implies a leadership style characterized by a strong and assertive presence of the leader. In the leader-dominant approach, the leader exercised substantial authority and control over the group, often making decisions unilaterally and expecting compliance from followers. This style tends to be more directive and hierarchical, with the leader assuming a dominant role in shaping the direction and actions of the team engagement. Being leader centric places a significant emphasis on the role and actions of the leader. In a leader-centric approach, the leader takes a central position and exerts a high level of control and influence over the group. Decision-making and direction were primarily driven by the leader, who was seen as the primary source of authority and expertise by the rest of the team.
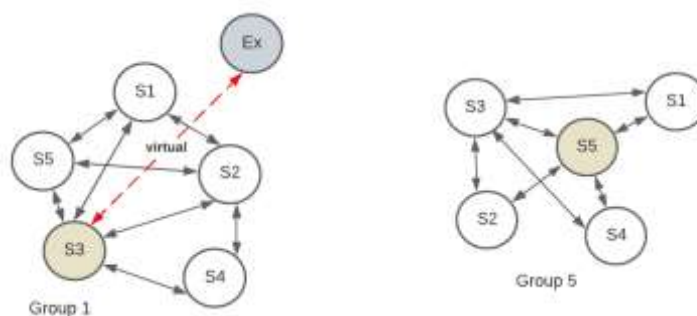

Figure 3.3.: Leader centric, leader dominant dynamism

The third dynamism identified is "Virtually active, Physically Passive Dynamism". Here the students collaborated more on virtual platforms other than being in a physical face to face collaboration. The theme "virtually active, physically passive group dynamism" explaining a scenario where the group is highly engaged and interactive in a virtual or online setting but exhibits lower levels of physical activity or involvement. The group collaborated more on WhatsApp group they created and increment of individual mobile phone usage was clearly visible with in this group. Students were engaging in active participation in the group chat created and they have use various digital channels to share their ideas. Physically passive" indicates a relatively low level of physical activity or involvement within the group. In the context of virtual collaboration, the group was not engaged in physical activities together or be physically present in the same location. The focus was primarily on digital interactions rather than physical co-location or face-to-face interactions.
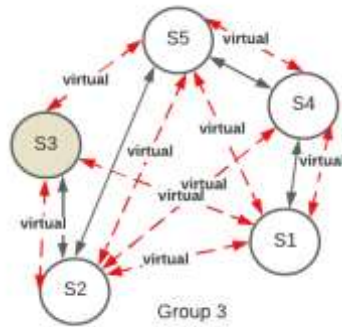

Figure 3.4: Virtually active, physically passive dynamism

The fourth pattern has been identified as "Grouping with in the group". The theme "Grouping within the group" refers to the process of forming smaller subgroups or divisions within a larger group. It involves organizing individuals within the group into smaller units or teams based on specific objectives. This happens when the sub team lost the interest or the trust on collaboration. We identified this as an unhealthy dynamism which could affect to the performance of the group.
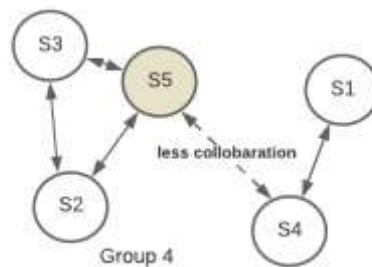

Figure 3.5 : Grouping within the group

3.3.3. Answering RQ 3: What are the factors impacted to group dynamism?
We noticed there are multiple factors impacted to the collaboration. Followings are the key noticeable factors we identified.

    (a) Being leader centric and dominant
    (b) Being Individualized
    (c) Being sub grouped within the original group
    (d) Being virtually connected

The groups which have shown a group centric dynamism has shown more collaboration but ultimately it was more towards dictating a role which dwindled the design thinking ability of the others. Following leader's instructions always is not a healthy dynamism for a group. It will bring out one unique individual personality than presenting group collaboration. Yet, the positive side of this pattern was, the groups had a proper representation and one focus throughout the studio. Not only it provided limited room for the others to bring up and implement their own ideas but also, they did not want to be responsible for the assigned tasks.

Being individualized has again impacted to the group dynamism of the established groups. Some students tend to be individualized and they have not much collaborated with the entire group. We noticed certain students in some groups are collaborating only with selected individuals within their group. This is happening because they have less confidence to express their ideas to the entire group. Not only that, because of being heavily leader centric will reduce the ability and freedom of expressing of the other group members. However, to become a successful in group

activities, it is important to get all positive and critical reflections from all the members to increase the level of performance.

The other important factor which has been affected to the collaboration is being virtually connected during the time they are engaging in a group work. This has limited the face-to-face collaboration. The students got connected through WhatsApp and they were sharing. Ideas, inspirations, and concepts through WhatsApp chat. This made the face-to-face collaboration passive and limited. The group was individually busy on searching in internet and posting information into the chat they have created. Being virtually connected will limits the interpersonal interactions and mutual learning which is important in a team act.

5. Conclusion

This study was conducted to identify the group dynamics in face-to-face collaborative groups within architectural design studio. for this study 6 groups were observed with 5 group members in each. The data was collected through naturalistic observation and focus group interviews. Results were analysed through six phased thematic analysis. The results have shown four patterns of group dynamics. Identifying those patterns are helpful in understanding the group behaviour within the team. In conclusion, group dynamics play a crucial role in shaping the interactions, relationships, and overall effectiveness of a group. Understanding and harnessing the dynamics within a group can lead to enhanced collaboration, productivity, and satisfaction among its members.

Roles, norms, communication, leadership, cohesion, conflict, decision-making, and diversity all contribute to the complex web of group dynamics. Recognizing the importance of these factors allows individuals and organizations to create and sustain positive group environments. Effective communication and active listening are essential for fostering an open and inclusive atmosphere where diverse perspectives can thrive. Leadership styles that encourage participation, shared decision-making, and conflict resolution contribute to healthier group dynamics and improved outcomes. Building strong group cohesion through trust, support, and shared goals cultivates a sense of belonging and commitment among members. Embracing and valuing diversity within a group brings fresh ideas, different viewpoints, and creative problem-solving approaches.

Ultimately, by studying and understanding group dynamics, we gain insights into how to navigate group interactions, facilitate effective teamwork, and maximize the potential of collective efforts. Whether in the workplace, educational institutions, or community settings, a deep understanding of group dynamics empowers individuals to contribute meaningfully and collaborate successfully in diverse group environments.

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