Conflict Management in Collaborative Learning in Architectural Education

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Abstract

Construction is a collaborative process where different stakeholders work together for the same goal. Although teamwork is one of the essential points of the construction process, architectural education is mostly designed as an individual process or as a team consisting of architecture students. There are many advantages for architecture students to work in a collaborative environment from different professions. However, as in professional life there are some negative features of teamwork such as conflict. It has been stated that performance of a construction process can be improved by managing the relationship between the stakeholders, and conflict resolution has an important effect on the quality of relationship.This study is conducted to analyze the conflict management styles of architectural students in an interdisciplinary collaborative project-based environment. The project was designed with teams of students that are from the department of architecture and computer engineering. Rahim's ROCI-II scale is used to define five styles of handling conflict which are integrated, obliging, dominating, avoiding and compromising. When the results are analyzed , it has been found out that most of the architecture students choose integrating and compromising conflict management styles

1. INTRODUCTION

Construction is a sector in which many stakeholders from different proficiencies work together around the same goal [1, 2, 3]. The stakeholders of construction work together through a very complex process therefore the collaboration among them is crucial. Architecture is mostly perceived as a single designer problem solving activity, but it is more a collaborative process [4]. When different stakeholders from architecture, engineering and construction work together as integrated teams, the process becomes more efficient by avoiding rework [5]. Collaborative working in construction has many advantages however, it is very important to manage the relationship and conflicts that arise because of different perspectives. It has been stated that the performance of a construction process can be improved by managing the relationship between the stakeholders, and conflict resolution has an important effect on the quality of the relationship [1].

Although architects and engineers work together as a team in the professional environment, in universities the architectural education is not designed to experience working in collaborative interdisciplinary teams. The collaborative characteristic of the construction process makes it necessary for architecture students to experience a collaborative process in their education. Thus, teamwork in architecture courses can be interpreted as a representation of professional life where design is a collaborative activity [6]. Researchers suggest interdisciplinary project-project-based experiences for design students to prepare them for a collaborative professional environment. Also, when we analyze the situation from the perspective of the students, in Ali's[7], research students stated that collaborative learning is extremely important as a prospective to real-life situations and they generally described the collaborative process as "positive". Also, many researchers [8,9] found out that collaborative learning in architecture has a direct effect on learning by increasing the motivation of the students. The researchers stated that there is a need for a multi-discipline collaboration in architecture and engineering education [7]. Some researchers stated that at least one year of collaborative interdisciplinary project provide experience for students [3] Also, the study of Chioccio et al. [3] shows that even short term projects can provide interdisciplinary experi-

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ence in terms of conflict and collaboration. Interpersonal conflict can be divided into two categories as task conflict and relationship conflict. Task conflict involves conflicts related with the completion of a goal while relationship conflicts are emotional and personal. Conflict can both have a negative and a positive effect on the process and it has been stated that while task conflict can have a positive effect on the process, relationship conflicts have negative effects [1]. In this study, task conflicts are taken as a base for the questionnaire.

This study is conducted to analyze the styles of conflict used by architecture students during teamwork. The main aim of this study is to clarify the most frequently used conflict management style- that can be used as an input when designing collaborative learning environments in architecture schools and to enable architecture students to explore their conflict resolution styles for their personal development- by architecture students. The research is conducted for a one term collaborative learning process with the group of first year engineering and architecture students. Since there is no research based on conflict management styles of architecture students in a teamwork using the Rahim's ROCI-II scale, the Rahim Organizational Conflict Inventory is used to define five styles of handling conflict which are integrated, obliging, dominating, avoiding and compromising [10]. The findings of the study can be an input to design new collaborative courses in the following years of architectural education and also add courses that focus on managing the communication and conflicts between different stakeholders of the construction process.

2. COLLABORATIVE LEARNING IN ARCHITECTURE

Collaborative learning is a strategy in which small groups of students of different capacities work together to learn a subject and also help other team members to learn [9]. Because architecture is a collaborative profession, collaborative learning in architectural education has the advantage of being close to professional life. The traditional education in architecture is teacher-centered but collaborative learning is opposed to this approach and is learner-centered [8]. The study of Emman et al. [8] found out that collaborative processes in architectural education increase the motivation of the students. Also, this learning approach creates an environment where students share their knowledge and increase their learning capacity by using learning tools.

Ceaser Pelli stated that even if the students are ready for the practice of architecture, they see themselves as individual designers [8]. Crosby [4] states that architecture studios deal with the individual but architectural practice mostly requires collaborative work [8]. Also the collaborative design process is very important in developing a dialogic practice between different stakeholders of construction work. However, architectural education mostly focuses on craft and professional vision. It is important for students to learn how to deal with a number of variables and conflicting values from different stakeholders for their professional life [2]. In design education, it is stated that teamwork can lead to development in students by building interpersonal and critical thinking, moving students to active learning, improved peer learning and development in lifelong learning [11]. In the research of Emam et. Al [8], a case study is conducted to make a comparison between traditional teacher centered teaching approach and collaborative learner centered approach in terms of effectiveness in teaching and learning processes. It has been found out that collaborative learning is effective in increasing the motivation of students and creating an environment to help students share knowledge.

There are many advantages of working in a collaborative environment for an architecture student such as being an active problem solver, public presence, learning group expectations, collaborative work instead of being competitive with peers [8]. The nature of architectural education is focused on a project based and open ended problem where each student has his own approach to solve, many conflicts can arise when they work as a team. Also it has been stated that collaborative learning in architecture has a positive impact on academic integration, social ties between students, behavioral integration through participation, managing the design process, managing the time, problem solving and critical thinking [9]. Thompson et al. [12] stated that teamwork and collaborative practices in architecture have many advantages and disadvantages, however the feedback collected from students is mostly positive. It is said that working in groups is valuable and that the application and development of interpersonal skills are

important for professional life.. , Naturally, because developing interpersonal skills are challenging, there are concerns about free-loading students within the group.

Besides collaborative learning in design education , there is also a crucial need for interdisciplinary collaborative learning. The aim of the interdisciplinary process in education can be defined as "deepen learning and teaching in order to acquire a more holistic picture of the complex phenomena of nature, society and real life" [13]. Collaborative learning is adapted to faculty of architecture as working in teams for the projects is often used, but interdisciplinary collaborative learning is not frequently used.

Construction is a process in which many stakeholders from different professions are involved. To improve the performance of the project, the relationship between these stakeholders should be managed carefully. When the professional work environment in construction is analyzed, it can be seen that collaboration is very crucial for construction work because management problems, communication problems and coordination issues extend the construction time. Besides extended duration in construction, collaboration has a positive effect on the quality of the process [3]. Also Arditi and Günaydın [5] stated that "lack of cooperation may result in inconsistent design, which then may cost extra time and money throughout the construction process". In multidisciplinary teams as design, stakeholders often have conflicting design options and have negotiation about these options, therefore having teamwork skills are essential for the players of the game [11]. Since construction is a complex process, conflicts between these stakeholders cannot be avoided [1].

As in the construction process, conflicts arise in collaborative learning environments. The study of Tucker and Abbasi [11] found out that most of the reasons for dissatisfaction from teamwork can be categorized as unfair assessment, individual differences in the team, conflicts that arise from the process of design, team formation and task design. Working in multidisciplinary teams raises the type of conflicts however, integrating different disciplines in construction is a very important opportunity for students to learn from each other and also experience challenges that can arise in the professional working environment [7].

In Turkey, different professions work together in the design and construction process, and they are educated in different faculties; this in turn makes collaborative learning more difficult. It has been stated that bringing individuals from different professions together has the advantage of developing insights to complex systems. The research of Ali [7] concluded that although many conflicts arose, the students from different professions found the collaborative learning process very useful and generally defined the experience of working with a student from another discipline as positive.

3.CONFLICT IN COLLABORATIVE LEARNING

However, most researchers [2,4,8,9,11] stated that collaborative learning in design and architecture has a positive effect and important advantages for professional life, it is important to manage this process. If conflicts during teamwork are not managed appropriately, they can be harmful for the relationship and affect the team performance in a negative way. The term conflict has many definitions. For example Rahim and Magner [10] defines conflict as such "conflict is a process manifested in incompatibility, disagreement, or dissonance within or between social entities". Conflict can be defined as a kind of disagreement that is caused by limited sources of the organization [14]. Also Wall and Callister [15] defined conflict as ''a process in which one party perceives that its interests are being opposed or negatively affected by another party''. In this study conflict can be defined as "a process that comes out in disagreement or dissonance between individuals that work for the same project".

Jehn [16] stated that there are basically two types of conflicts being task-focused and relationship focused . Both types have an effect on the outcome of the project by decreasing mutual understanding and spending time by conflict resolution. Jehn also stated that there is a third type which is called process conflict. These three types of conflicts sometimes can be related to each other. For example, if a task or process conflict cannot be solved, it then becomes a relationship focused conflict. Kurtzberg (2005) defined three kinds of conflicts which are task based conflict, relationship based conflict and process based conflict. Task based conflict is related to the discussions about the work being done, relationship based

conflict is related with the interpersonal relations within a team and process based conflict is related with how the work is done. Different types of conflicts affect the outcome of the project in a different way. Task and process oriented conflicts might have a positive effect on the outcome, but relationship focused conflicts have a negative effect. The research of Jehn [16] showed that groups that have a high level of relationship focused conflict, have lower performance than the other groups. It has been found out that relationship conflict has a negative correlation with performance. In this study, students have a common goal which is given to them as a brief of a project. The aim of the project is same for all students so the task based conflicts are eliminated but relationship based conflicts cannot be eliminated because at some point of the process if the process based conflict cannot be solved, as Jehn [16] stated, they can turn into relationship based conflicts.

Many researchers stated that if the conflict cannot be managed effectively, there will be some negative effects of conflict in a team such as, reduced creativity, decreased individual satisfaction and decreased team performance [3]. Kurtzberg [17] stated that interpersonal interactions, as conflict, influence the creative process. The disagreements about a problem can lead individuals to think of different possible solutions through the process. Also researchers demonstrated that conflicts in a creative process, like architecture, can bring new perspectives and viewpoints to the design problem. The study of Kurtzberg [17] has remarkable conclusions on the effect of conflict on the creative process. It has been stated that relation based and process conflict have a negative effect on the perceived creativity. Besides, task conflict has a negative effect on creativity on the first day, it has a positive effect after the day of the conflict.

Rahim [10] stated that there are functional and dysfunctional outcomes of the conflict in an organization. Functional outcomes are improving decision making process, encouraging innovation and creativity, finding synergistic and alternative solutions to the problems, enhancing individual and team performance and encouraging team and individual to clarify their position. However there are many functional outcomes, there are dysfunctional outcomes of the conflict that lead to job stress and dissatisfaction, reducing the communication lines, creating an environment of distrust and suspicion, damaging the relationship, reducing the job performance and increasing resistance to change [18].

4. CONFLICT MANAGEMENT STYLES

While conflicts that arise during the collaborative process may have a beneficial outcome, it is critical to manage these conflicts that will have an important effect on team performance. Effective conflict management has a positive effect on the team performance, satisfaction and team viability [18].There are many studies which are focused on the causes of conflict in teams. The research of Abbasi et al. [18]focuses on the team conflict among design students. This research concluded that there were four different causes of conflict in student design teams as non-contributing team members, differences among team members, dominant team members and lack of communication among team members.

Although task conflict has a positive effect on the performance and is helpful for the team, how you manage the conflict is a critical determinant of the performance of the team [3]. Mostly, researchers focused on conflicts between groups which have different goals but based on effectiveness of the group productivity conflict in groups with a common goal is also important [16]. When people that have a common goal have a conflict, they do not conflict about the goal, it is about the process of reaching that goal. As Jehn [16] stated, studies show that conflict can have a positive effect for the task-related organizations because the members have a common goal. Usually, people cannot work effectively even if they have a common goal and experience conflict.

Conflict management styles also have an important effect on the relationship of the two parties [1]. Conflict management styles can be defined as integrating, compromising, dominating, obliging and avoiding styles. Integrating has high concern both on self and the others so it can be called as win-win style. It has a positive effect on the quality of relationship . Obliging style represents high concern for others and low concern for self, it is not a win-win situation but it is stated that this has a positive effect on the relationship. Compromising style means that both parties should sacrifice their interests. Although it seems as an optimal style for satisfaction of both parties on some level, it is not. Losing interest increases dissatisfac-

tion therefore compromising has a negative effect on relationships as a conflict management style. Both dominating and avoiding conflict management styles have a negative effect on the relationship because of the low concern for the other party [1]. It has been stated that conflict resolution is related with the level of anxiety and depression because conflict resolution style is important for the individuals related with the social environment [18].

5. METHODOLOGY

This research is based on a project that is held both in the department of architecture and in the department of computer engineering. The project was to design a sustainable urban furniture that gives opportunity to people to gain tickets or to charge their batteries etc. There were 41 architecture students and 18 computer engineering students in the project but the questionnaire was applied only to architecture students to have an idea about conflict resolution styles in interdisciplinary collaborative learning. Although it has been stated that questionnaires have some disadvantages for studying conflict management such as, sensitivity of the subject, validity of the questionnaires and self-serving bias, it can be an appropriate method for the subject conflict [19]. The validity of the questionnaire problem is solved by using a questionnaire existing in the literature.

There are many questionnaires defined in the literature for styles of conflict management starting with the Conflict Management Survey (CMS) in 1969. Rahim [20,21] constructed a scale for measuring the five styles of handling conflict which are independent and called ROCI-II. The questionnaire consists of 28 items with a 5-point Likert scale that are defined and analyzed for integrating, avoiding, dominating, obliging and compromising styles. Although Rahim's scale was conducted in 1982, there are more than 300 journals in all professions that used this method after 2016. Rahim used a scale that classifies interpersonal conflicts as; concern for self and concern for others. This classification is firstly used by Blake and Mouton [22]. Five styles of interpersonal conflict can be defined by using the scale of concern for self and concern for others. Integrating style involves high concern for others and high concern for self., obliging style involves low concern for self and high concern for others, dominating involves low concern for others and high concern for self, avoiding style involves low concern for others and low concern for self and finally compromising style involves moderate concern for self and moderate concern for others [21].

In the implementation part of the questionnaire, the recommendations of Nauta and Kluwer [19] are taken into account without using the word 'conflict'.. All students that are from architecture and computer engineering are first year students. The questionnaire is given only to architecture students in Turkey. The questionnaire was in English, so it is translated into Turkish and checked for accuracy. The scale of Rahim [20] is selected in this study to measure the conflict management style because this scale is widely used by the researchers [1].

6. FINDINGS AND ANALYSIS

The questionnaire consists of 28 questions and a five-point Likert scale was used to demonstrate students' perceptions. When the Cronbach's reliability test is applied to the research it has been found out that the study is highly reliable with the Cronbach's alpha 0,79. When the results of the questionnaire are analyzed, the results are as listed and can be seen at Figure 1:

Only 1 student out of 35 concluded as using the avoiding conflict management style.
5 students out of 35 concluded as using the dominating conflict management style.
15 out of 35 students concluded as using the integrating conflict management style.
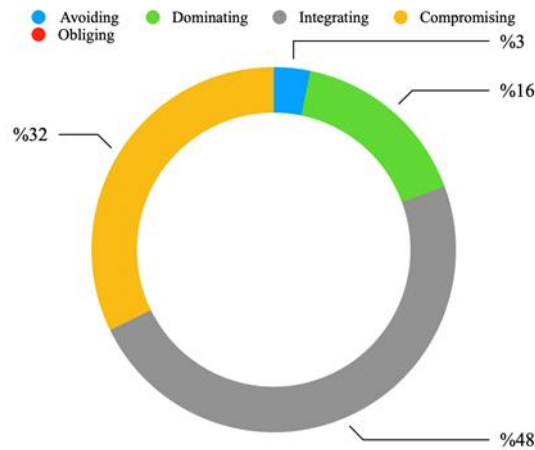10 out of 35 students concluded as using the compromising conflict management style.

Figure 1. Conflict Management Styles

When the answers of the students are analyzed, it can be seen that first year architecture students mostly focused on the integrating and compromising conflict management styles. These results are consistent with the study of Lu and Wang [1], that focuses on the conflict management styles of owners' and contractors' employees working for the construction project. In both studies it has been found out that the most commonly used conflict management style is integrating, following with the compromising conflict management style.

Also in this study, it has been found out that the least used conflict management style is avoiding, which is consistent with the study of Lu and Wang [1]. Avoiding conflict management style is very rare and found out that only one student is using this conflict management style to solve the conflicts between team members. The obliging conflict management style is not found out as a chosen management style for any of the students. It can be interpreted as high concern for others and low concern for self is not an option for them. According to the literature [1], integrating conflict management style has a positive effect on the relationship quality. Integrating has a potential of exploring differences between parties and ended the conflict with a common solution. While compromising is selected as the second most used conflict management style by architecture students, compromising is harmful for the relationship quality in the interpersonal level [1] and it is not recommended to manage conflicts effectively. But this result can differ according to the organizational culture. For the following research, it is suggested that compromising conflict management style can be analyzed based on the organizational culture of the construction sector.

7. CONCLUSION

Construction is a sector where many stakeholders work together in a very complicated process. Because of the complicated and stressful nature of the process, many conflicts can arise among these stakeholders. If these conflicts cannot be managed carefully, they can have a negative effect on the performance of the project. The conflict resolution process should start at architectural education to prepare the students for professional life. Also, the collaborative nature of architecture is very important for practicing the relationship between different stakeholders. It has been stated that performance of a construction process can be improved by managing the relationship between the stakeholders, and conflict resolution has an important effect on the quality of relationship .

There are many studies that focus on conflict management in architectural practice, however, there are very few studies about the conflict in architectural education. The importance of this study is focusing on the conflict management styles of students in a multidisciplinary environment which is very close to professional life.

The results of this study are analyzed to find out the most frequently used conflict management style of architecture students in a first year project-based studio. It has been found out that architecture students tend to adopt integrating and compromising conflict management styles in Turkey. Avoiding conflict management style is the rarest used management style according to the findings.

The results cannot be generalized, but they can help us design more interdisciplinary collaborative learning environments in schools of architecture and help architecture students to understand their conflict management styles for personal development.

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