

# LEARNING SPACES AND SOCIAL CLIMATE IN ARCHITECTURAL EDUCATION: DESIGN STUDIO VS. TRADITIONAL CLASSROOM

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## ABSTRACT

This study examined social-academic climate as perceived by design students in learning spaces such as the design studio and in the architectural courses. A survey was conducted to evaluate this measure with regard to eight factors proposed by Moss: orientation to study material, innovation, social connections, teachers' support, competitiveness, social involvement, order and organization, teachers' control, and an index for general social-academic climate. Findings shed light on the importance that architectural students attribute to social-academic climate. These factors (mainly, students' involvement, competence, innovation, and teacher support) were rated higher in the design studio than in the courses. Social-academic climate measures such as involvement, order and organization, teacher's control, and orientation of the learning material were higher in the first year than in more advanced years. Implications for design education are discussed.

*Keywords: Learning spaces, social climate, architecture, design studio, traditional classroom*

## 1 INTRODUCTION

This study investigated the relation between learning spaces and social climate in architectural education from a psycho-social perspective. In particular, it centred on the relevance of social climate in the design studio, and in the traditional classroom as perceived by students.

In the architectural studies, the design studio is largely accepted as an essential component of design education. In this learning environment, students work in collaboration with teachers and other mates to develop creative outcomes [1]. Interactions in the studio normally take place in individual sessions, where students work in a learning-by-doing manner while they receive feedback from their tutors [2]; [3]. In contrast, lectures delivered in the traditional classroom are frontal, and directed to large and almost anonymous groups of students, who assimilate knowledge mainly as passive learners.

The perception that students have on the social climate is an influential aspect of teaching that affect their learning and performance in their design studies. Social climate can be defined as the ambiance that comes out during the studies as a consequence of the interactions between the physical elements of the learning environment, and the interpersonal interactions between students and teachers [4]; [5]. Investigating social climate in departments of architecture is vital for design education due to their singular curricula, and the use of different learning spaces. However, the relation of teaching and learning, and the perceived social climate in different learning environments has been largely ignored in most design studies. It is believed that differences in these learning environments affect the perception that students have on their studies, and the social climate that develops. Therefore, a major goal will be to explore the influence of learning spaces such as the design studio, and the traditional classroom on social climate as perceived by students. To this aim a number of dimensions of social climate in education will be considered.

## 2 SOCIAL-ACADEMIC CLIMATE AND THE TRADITIONAL CLASSROOM

Students' perceptions of social climate have been recognized as an influential aspect of teaching, and central to student learning and involvement. In classrooms with positive social climate, students feel comfortable and engaged [6]. In general, social climate develops progressively as students become more familiar with each other, and increase their motivation to share knowledge and expertise [7].

Social climate in the classroom can be divided into two dimensions: (i) context, which is concerned with the physical elements of the learning environment, such as space, furniture, light, etc., and (ii) teaching, which encompasses all the factors affecting performance and interactions between teacher and students.

Research on classroom climate started in 1936, and since then numerous studies have developed models and questionnaires to measure it. In our study, we selected the approach developed by Moos [8], which is accepted and commonly used in the education system. Moos claimed that behaviour is largely affected by environmental and situational factors. The model he constructs presents social climate as a product of bilateral pressure systems - environmental pressures that affect the individual, and pressure that the individual exerts on his or her environment. Accordingly, each learning environment has the following main features: (i) architectural (building shapes, convenience of use, surroundings of the buildings); (ii) organizational (school size, classroom size); (iii) the learner population (sex, IQ, background, personality); and (iv) academic (teaching methods, subjects, norms). Whereas each group of features can directly or indirectly affect classroom climate, this becomes a source of attraction/repulsion between teachers and pupils (Moos, 1970).

Despite its importance, social climate in classroom has been largely ignored in studies of higher education [9], as in studies of academic design programs. Most studies on classroom climate explore the perceptions of teachers rather than views of students themselves. Of the several studies on classroom climate that have been conducted, none investigated how social climate develops over time, from the first year onward. Teaching, as perceived by students and measured by social-academic climate, may be instrumental in cultivating students' sense of achievement in their academic studies.

### **3 SOCIAL-ACADEMIC CLIMATE AND THE DESIGN STUDIO**

In addition to gaining knowledge and experience, the design studio offers an environment for talking, reflecting and participating in discussions designed to cultivate design and creative thinking [3]; [10]. One major aim in the studio is to encourage students to develop their creative and innovative capabilities [11]. But the studio is not only a producer of knowledge; it is also a site of social practice and social interaction, where social climate plays a critical role. In many ways, the structure of the studio reflects the social structure of most workplaces that are based on systems of hierarchy, and obedience [12]. This similarity raises the question of how social climate might be affected by the structure of the studio educational environment. In this sense, Dutton [12] and Yanar [13] criticized the hierarchical organization in the studio, arguing that it hinders the possibility of conducting a true dialogue. Instead, in their view knowledge should be constructed interactively through common interests [14], and in a social-academic climate based on trust, and mutual concern [15]. It is the teacher's role to be aware of students' needs, be supportive [13], and provide them with adequate pedagogical content knowledge, which is the knowledge about how to teach in particular field [16]. Competition is another important social-academic climate factor, and possibly one of the major motivators of success in architectural studies. There is disagreement, however, on whether competition is positive or detrimental to social-academic climate [12]; [17]. In many cases the studio setting becomes a teacher-centred experience, where dependency upon teachers remains high. As such, teachers are more likely to impose their own views, rather than to help students discover the innovative processes behind their own creations [18]. Despite the relevance of social-academic climate in architectural studies in general, and in the design studio in particular, no empirical studies have been conducted on this topic to date.

### **4 EMPIRICAL STUDY**

The manner in which educational settings differ in their social climate makes social-academic climate an essential issue. The identification of critical dissimilarities between learning settings plays a role in supporting a positive development in higher education. This study assesses social-academic climate in an architectural program, focusing in the studio and the traditional class. Social-academic climate is assessed according to the eight dimensions proposed by Moss [4] (See Method). Whether social-academic climate in architectural studies is affected differently by course type, and by the year in the program, needs to be addressed. The design studio rather than the traditional classroom remains dominant in many contemporary architectural programs. Due to differences in approach, activities, and physical characteristics of each setting, it is suggested that social and educational needs in the design studio may differ from those in the classroom. Thus, the first goal is to explore whether

students have a similar sense of social-academic climate in the design studio as in the classroom. It is hypothesized that academic satisfaction and all social-academic climate dimensions will be higher in the design studio than in the classroom.

The learning experience of the first year in the architectural program is known to be different from the remaining years in the program. This is in part because first-year architectural students are known for their high socialization, involvement, compromise, and positive attitudes in their studies. Although their perceptions of social-academic climate and academic satisfaction might differ from those of the students who are in more advanced stages of the program, no empirical study has been performed to assess this. Therefore, the second goal is to understand if students in the first year and more advanced years of study rate the measures of social climate differently. It is hypothesized that all social-academic climate dimensions will be higher in first year than in the advanced years.

## **5 METHOD**

### **5.1 Participants**

Research participants were 93 students (39 men and 55 women) of architecture, recruited from the population of first-year to fifth-year students in a school of architecture in a medium-sized public university. Their mean age was 24.36 years ( $SD = 2.54$ ). Slightly over one half (53.2%) of the participants were in their first year of the program, and 46.8% were in more advanced years. The sample was representative of the population studying at the school architecture.

### **5.2 Questionnaire**

Social-academic climate was assessed using measures that appear in a questionnaire developed by Moos (1979). This questionnaire is based on the rationale that a consensus of individuals regarding the attributes of an environment is an indication of the environment's social-academic climate. The instrument contains 90 items, which respondents rate on a 5-point Likert scale from 1 (*not true for my academic studies*) to 5 (*very true for my academic studies*). The items address the following dimensions: (i) Involvement: students' attention and interest in classroom activities; (ii) Social connections: friendship among students and their willingness to help each other; (iii) Teacher's support: assistance, interest, trust, and friendliness that the teachers demonstrate to the students; (iv) Orientation to course materials: the extent to which the teacher directs students to acquire knowledge to complete the planned activity; (v) Competitiveness: the extent of competition among pupils to achieve high grades and gain recognition (vi) Order and organization: students' proper conduct and the proper management of classroom activities; (vii) Teacher's control: the extent to which teachers attribute importance to enforcing rules, and the severity of punishments for violating the rules; (viii) Innovation: the number and diversity of activities that take place in the learning environment, and the degree to which the teacher encourages creative thinking. The internal consistency for the questionnaire was  $\alpha = 0.68$  for courses, and  $\alpha = 0.62$  for the design studio.

### **5.3 Procedure**

Students were approached in the school of architecture, and informed that the survey was about their perceptions of the social climate of the architectural program. They rated each item on the questionnaire twice: once regarding the design studio, and once regarding other courses in the architectural program. Students were coded by their identity number. Scoring, recording, and analyses of the data were performed anonymously. ANOVA statistical tests were used to examine the research hypotheses.

## **6 RESULTS**

General social-academic climate in the design studio scored significantly higher than in courses, and was significantly higher for first-year students than for advanced students. An interaction effect was observed between course type and year of study. Post hoc analysis indicated that for the advanced years, general social-academic climate in courses scored higher than in the design studio. There was no difference between studio and courses ratings of first-year students. General social-academic climate in first year was higher than in the advanced years for both design studio and courses.

As expected, social involvement in the studio scored significantly higher than in the courses and significantly higher for first year than for more advanced years of the program. An interaction effect

was found between course type and year of study. Post hoc analysis showed that while social involvement in courses scored higher in first year than in the advanced ones, no differences existed in the design studio by students' year in the program. However, social involvement in the studio was higher than in courses, for all years.

In contrast to our predictions, there were non-significant main effects of course type and study year, and no interaction between of course type and study year on social-academic climate connections.

As hypothesized, teacher support in the design studio scored higher than in courses. However, no significant main effect was found for study year. A significant interaction effect was observed between course type and year of study on teacher support. Teacher support in advanced years of the program scored higher in the studio than in the courses, but no differences existed in first-year students' ratings by course type. In both courses and design studio, teacher support in the first year was higher than in more advanced years.

As expected, competitiveness in the design studio scored significantly higher than in the architectural courses. However, there was no main effect of year of study on this factor, and no interaction effect between course type and year of study was found.

In accordance with the predictions, order and organization in first year scored higher than in the advanced years, but no main effect of course type was observed. An interaction effect, however, was found between course type and year of study on order and organization. Whereas order and organization for the advanced years was higher in design studio than in courses, there were no differences in first-year students' ratings. In the courses and studio, order and organization in first year was higher than in advanced years.

As hypothesized, teacher control in first year scored significantly higher than in the advanced years of the program. However, no significant main effect of course type was observed. There was an interaction effect between course type and year of study on teacher control. While teacher control in first year was higher in the courses, no differences were observed in the advanced years by course type. Teachers had greater control in first year in both design studio and courses.

In accordance with the predictions, innovation in the design studio scored higher than in the courses taught at the school of architecture. However, no main effect of year of study was observed this factor, and no interaction effect between course type and year of study was found.

As hypothesized, orientation to study material in first year scored significantly higher than in advanced years. However, no main effect of course type, and no interaction effect between course type and year of study was observed for this factor.

## **7 DISCUSSION**

The study examined perceived social-academic climate [4], and its connection to course type and year of study in the architectural program. Although social-academic climate was found to be an influential factor in the classroom [19], its relation to the design studio was never assessed. Understanding how students with different levels of expertise perceive social climate in the different course types is an important aspect of design education that can aid to improve the learning and teaching environment.

That general social-academic climate was stronger in the first year than in the advanced years seems to question previous findings suggesting that social climate develops progressively [9]. It is possible that social climate increases as students and teachers become familiar with each other within a specific course, but decreases in relation to the beginning of the program. The finding that students' positive perceptions tend to decline as they advance in the program represents a major challenge for architectural educators.

Involvement was prevalent in the design studio for both groups of students, supporting the views that the traditional studio is an ideal place to develop interpersonal relations in the teaching and learning process [1], and to enhance a positive social climate. This is in line with Davidovitch and Soen [20], who found that students assigned high scores to student involvement in educational environments characterized by strong interpersonal interactions. That involvement was superior in first year suggests that novices are more positive and engaged, and establish stronger friendship networks.

Furthermore, teacher support was more dominant in the studio, indicating students' extensive reliance on their design instructors. This educational environment is characterized by a pedagogical approach that encourages help, interest, trust, and openness from teachers to students. Strong reliance of design students was found to undermine the capacity for independent learning [21]. Therefore, while teacher

support can be considered a positive aspect of the learning process, educational approaches should take care to avoid students' over-dependence, especially in the first years of the program.

Moreover, sense of order and organization, and teacher control were more significant in the first year, independent of course type. These suggest that in addition to a supportive environment characterized by inter-personal interactions, freshman perceived a climate that is oriented toward organization and supervision. This might be partly caused due to the needs of new students, who are still unfamiliar with the existing rules for order and organization in group activities. However, this perception is subject to change as they progress in their studies and become more aware of the learning context, and their perceptions about a controlled environment decreases. This makes sense, considering that architecture is a discipline characterized by the development of creative abilities. Less structured environments were seen to be more suitable for learning in creative contexts [22], as is the case in architecture. However, in order to be seen as positive factors for the social climate, teachers' control and sense of order and organization need to be understood as having a favourable effect on students' well-being and self-development, rather than as mere authoritarianism [23]. For example, it was demonstrated that when teachers explain their rules and desirable behaviour into more detail, they have a better chance of managing their groups more effectively.

That the studio is a highly competitive environment does not necessarily imply an absence of supportive relations or conflicts among students, as claimed in some studies [11]. Whereas competitiveness in the traditional classroom may conduct to an atmosphere of rivalry and antagonism, in the design studio it might reflect a positive social climate dominated by students' intentions and ambitions to strive for excellence in their personal development [18], and for self-achievement [24]. A reason for supporting the above finding is that while exams in the classroom usually involve standard responses, problems in the studio are ill-defined, and entail the generation of an unlimited number of possible design solutions, a situation that may encourage knowledge sharing. In this regard, Chiu [17] demonstrated that competition and cooperative behaviour in the studio can coexist. He showed that competition was not divorced from the sharing of knowledge among pairs, a behaviour that increased as the design problem becomes more complex.

That innovation was more prominent in the design studio than in the courses is related to the fundamental nature of the studio, characterized by the promotion of creative and innovative outcomes [25]. This is not to say that innovation is not important in the traditional classroom. But there is an indisputable difference in emphasis and variety of activities carried out in each environment, and the stress placed on creative thinking [11]. Opportunities to foster creative thinking in the studio are considered to be an indicator of the quality of social climate [22]; [26].

Finally, guidance concerning study materials was found to be prevalent in the first year. This result is supported by Benner [27], who claimed that novice students who lack experience and knowledge adhere firmly to existing principles and theoretical background, and thus they need the most support and guidance of learning materials to progress in their studies.

Intervention programs aimed at enhancing social-academic climate can implement these findings mainly by acknowledging the existing differences between the design studio and the traditional classroom, and by reinforcing the specific dimensions of social climate that are seen as being more critical for novice and advanced students, respectively. For example, implementing pedagogical approaches suitable to enhance student involvement, and calibrate teacher's support as requested by each educational environment, could be one aspect. Adapting study materials to actual needs, mainly in environments such as the design studio with a more practical orientation, could be another issue. The development of a curriculum that takes into consideration the contribution of social climate measures, and avoids its declining impact through the years represents a major challenge for the future.

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