

# Semarak International Journal of Innovation in Learning and Education

Journal homepage: https://semarakilmu.my/index.php/sijile/index ISSN: 3030-5497



## Seating Arrangement and Students' Behaviour in the Language Classroom: A Qualitative Case Study in Higher Education in Malaysia

Saira Riaz<sup>1,\*</sup>

1 Kulliyyah of Sustainable Tourism and Contemporary Languages, International Islamic University Malaysia

### **ARTICLE INFO**

### **ABSTRACT**

### Article history:

Received 15 July 2025 Received in revised form 26 August 2025 Accepted 20 September 2025 Available online 29 September 2025

# This study was conducted at a higher educational institution in Malaysia. The purpose was to observe how seating arrangement influences the learning behaviour of students. The students were taught in modern and traditional classrooms. The research design was qualitative in nature; semi structured interviews and class observations were conducted. The students received language instruction in rooms with different seating arrangements. The findings indicated that in the modern classroom students enjoyed learning a language owing to factors such as round tables seating arrangement, multimedia facilities, less proximity with the instructor, creativity and amicable class environment. These factors resulted in improved motivation and engagement in class activities, heightened confidence, less shyness, courage to ask questions, peer correction, attentive students' behaviour and more focused approach to accomplish the tasks. However, the traditional classroom with linear seating arrangement created problems for the students such as less visibility, proximity between the instructor and students and shyness to ask questions and lack of free movement.

### Keywords:

Communication; motivation; engagement; learning

### 1. Introduction

The educational research highlighted the factors that influence the learning behavior of students such as room temperature, room lighting, and acoustics [10,15]. Another important element is the physical layout and its effects on students' learning [19,20]. This paper examines the factors that influence students' learning. Specifically, it examines the impact of seating arrangement on students' learning behaviour, attention, student and teacher relationships and classroom participation. The educational researches indicate that fewer studies have been conducted on the classroom seating arrangement and its impact on students' learning [19,20]. Active engagement positively affects students' learning and increases higher order thinking skills.

E-mail address: sairarz@iium.edu.my

https://doi.org/10.37934/sijile.6.1.5059

<sup>\*</sup> Corresponding author.

### 2. Background

In the twenty first century, the idea emerged that physical factors such as lighting, space, ventilation, and cleanliness were equally important for good learning outcomes and promoting teamwork. The research of Kostourous and Olivier (2014) insisted on freedom to choose seats for long attention span in the classroom. After few years, the concept emerged that the physical layout created an amicable class environment in which students were happy, motivated, performed and interacted with each other [33]. The appliances and the objects arranged in the classroom such as visual aids, book shelves, LCDs, tables and chairs also enhanced students' attention and involvement in class activities. However, the configuration of room dimensions and furniture could result in negative students' performance [16]. The studies revealed that both teaching and learning were affected by seating arrangement [26]. The studies of Juhary [25] showed that the way students sit in the classroom corresponded to their performance, those sitting infront were more active than those at the back. Thus, students' performance and teaching and learning methods were dependent on the physical factors such as classroom size and capacity and affected students'engagement and teachers' performance. The studies of Peter et al., [31] explained that the physical layout enhanced confidence and engagement level of students since healthy interactions were observed among students and between students and teachers. It has been seen that the classroom environment directly influenced students' grades specially interaction between students and teachers while highlighting positive learning process [23]. The researches of John [24], and Jusan [27] proved that the physical layout modified positively students' behaviour inside the classroom as they were more attentive and engaged in class activities thus resulting in positive learning outcomes.

### 3. Literature Review

Downer et al., [12], Canter and Canter, Curwin and Mendler [8], Badia-Martin [4] studied the link between the classroom and students' performance. Physical layout in the given space was sometimes never changed by the instructors as they considered it conducive for a particular type of task or class activity [1]. Another factor was highlighted by Richard [33] and Black [6]. They explored that poor seating arrangement weakened student's performance by almost 50%, if they stood or had distance of 6 meters from the visual aids within the classroom. Therefore, it was essential to change the seating arrangement if it failed to enhance students' performance and resulted in disruptive behaviour. However, the traditional classroom setting was usually limited to three seating layouts: rows, horseshoe, and clusters [38].

The seating plan can be a challenging task for the teachers who decide about how to integrate students with different abilities and from different backgrounds in the classroom and to develop a sense of belonging to the class. The class management can be so complex at times that it results in teacher burnout. Steinzor [37] and Gump [17] emphasized the fact that students around tables established direct connections easily and more happily than those seated in columns and rows. Active learning, healthy and positive interactions were observed in the circle or cluster seating arrangements. Heindselman *et al.*, (2007) observed that seating arrangement not only influenced student performance but also their grades in the class tests. The same concept was re-inforced by Rennells and Chaudhari [32]. Pace and Price (2005) emphasized students' behaviour and attainment owing to the seating arrangement. Sylvain (2003) discovered that students' behaviour was observed to be modified with age. It was equally important to understand the students' perspective on the seating arrangement with an objective to create suitability of layout for an amicable learning environment, especially in multicultural context. However, the U-shaped arrangement encouraged

and improved social interaction among students and developed a sense of collaboration and community. Because not only they confronted the teacher but also each other [21]. Students' engagement and participation also enhanced in U shaped layout [36]. Also, students were asked more questions while sitting in a semicircular arrangement than rows and columns. Atherton [3] indicated that row arrangements supported a top-down (teacher-student) approach to learning and students were passive and inattentive in this arrangement.

Studies of Chieu and Cheng (2016) and Reinke (2019) emphasized on keeping the students actively engaged in the classrooms inorder to achieve learning outcomes. In the language learning classroom, organizing activities were an effective way to enhance students' noticeably in the blended classrooms in higher education. The physical classroom environment specially seating arrangements [19] was found to be a crucial factor to boost students' attention, engagement, and participation in the language learning process in the blended learning environment. The physical classroom layout represented the instructional paradigm and linked with students' attitudes, behaviour, communication, engagement students' social connections inside the classroom and academic performance. Lotfy [26] highlighted that the priority should be given to the classroom seating arrangement in the creation of classroom environment with an objective to maximize students' participation in the activities. Lewinski (2015) also pointed out that the most powerful tool to improve students' high performance is the seating when effectively arranged in the blended learning setting.

The study of educational literature indicated **three dimensional effects** of the seating arrangement on student engagement and commitment. Firstly, the relationship between seating arrangement and students' level of **communication** and **social interaction** with classmates was observed as mentioned in Figure 2.

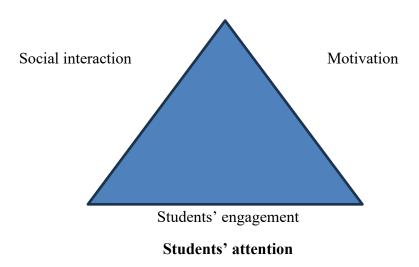


Fig. 2. Three dimensional effects of the seating plan

### 4. Research Design

This research is a qualitative study. A case study approach was used "to study the characters in real life situation" [39]. The research instruments such as semi structured interviews and class observations were found to be the best for this study. By using the case study approach, this study deeply observed the impact of seating arrangement on students' behavior in the classroom in the institution of higher education. The interview protocol was designed with fourteen questions. The interviews were conducted as per interviewees' convenience. Class observations were also taken.

A group of twenty students were selected through probability sampling. Students A, B, C were interviewed. They used to sit in the modern classroom equipped with the latest facilities and the layout was cluster seating with round tables and chairs. They were given freedom to choose the seats of their choice as well as peers. They were given different tasks and activities to perform within the classroom. Author (2014) explained an observation process in which he used a "teaching attribute instrument; qualitative notes of behaviors." (P.6)

The studies of Saldana [34] emphasized analyzing data through codes and themes. For this study, the elements of engagement, attention, communication, interaction, and class environment were thoroughly observed in the undergraduate students.

### 5. Findings and Discussion

The data was analyzed through codes and themes.

### a) Physical layout

The data analysis revealed that the students preferred circular seating. The interviewees highlighted several advantages of round tables seating such as motivation, comfort, peer support, quick learning, easy to focus, easy access to teacher and engagement in group work. Student A indicated:

"Yes, I prefer circular arrangement. I enjoy group work. I communicate easily with my teacher...I enjoy working in groups and bonding among us."

Student B highlighted:

"I am satisfied with seating arrangement because I can sit anywhere, I want and move easily...."

Student C gave her opinion:

Seating arrangements make it easier to pay attention to teacher because we aren't far from teacher, so she can see us, so we just need to focus on our work.

### b) Attention Span

It was found that the cluster physical layout facilitated attention, bonding, motivation, engagement, among students. The rows arrangement created problems in visibility for those who were sitting at the back. Students found time consuming to move back and forth. Engaging in class activities with peers was also challenging in rows.

Student A gave opinion:

"This creates bonding between us, and we can pay more attention to teacher and activities...yes, I am attentive in class. Yes, the seating arrangement makes it easier to pay attention to the teacher.".

Student B explained her views:

"Yes, I am focused, the circular seating is helpful to pay attention in class. I feel motivated to work with my friends, they give me motivation, rather than I sit alone".

Student C shared his experience:

"Seating arrangement really helped me because the teacher is infront of me so I must be more focused and engaged in class activities.... Its easier to pay attention with this seating, there is no blocking from the person infront of you so you can easily see and pay attention to teacher. One of the things that make students pay more attention."

### c) Class environment

Data analysis indicated that the round tables seating created healthy class environment. The seating arrangement facilitated good communication and interaction. Students found it easier to move in the classroom. Learning was fun based but in traditional classroom it was not very comfortable and helpful in interaction.

Student A highlighted:

"Seating arrangement makes environment comfortable and flexible. In traditional classroom, communication is not easy with classmates but in circular, we can engage ourselves."

Student B shared her opinion on communication:

"When we sit in circular arrangement, we can see each other and we can communicate easily without the need to move around."

Student C highlighted his sentiments:

"Yes, I enjoy working in groups. Circular layout makes learning more interesting."

### d) Communication:

Effective communication and healthy social interaction among students and between students and teacher was established owing to cluster seating. Student A expressed her positive opinion:

"When me and my friends are around the table, we can communicate easily since we can see each other's face easily.".

Student B expressed her view that she felt a sense of belonging while sitting next to her friends:

"When I sit near my friends, I feel connected with each other rather than far from them or sitting alone."

Student C expressed his views:

"Yes, I communicate easily, it really facilitates social interaction, it does feel too far in the room, you feel close to your friends."

### e) Confidence:

It was found that the physical layout in cluster boosted students' confidence as they used to sit with their peers in groups and peer correction also played an important role to uplift the level of confidence. They preferred the circular seating to rows as rows were found to be less facilitating.

Student A gave his opinion:

"Everything is perfect and fine. I really like this type of arrangement, and I enjoy French class very much."

Student B positively talked about her high level of confidence:

"I have become more confident to ask questions, and I am no more a shy person to ask questions to my teacher."

Student C appreciated the freedom of movement:

"We move around, interact with each other that enhanced my confidence."

### f) Proximity:

The data revealed that students from the modern classroom were satisfied with the learning environment and highlighted proximity with teacher in cluster seating arrangement. Direct contact proved to be beneficial in establishing healthy interaction with teacher.

Student A shared his views about learning:

"In circular arrangement, the space is big, you can move around, the lecturer can see students better and students can see lecturer better."

Student B highlighted circular seating plan:

"The circular arrangement is quite convenient because it's not far from my teacher. Even its easy for teacher to hear us and see what we are doing."

Student C explained the discomfort of rows:

"In lecture halls, the number of students is huge, we have to talk louder with discomfort but when we sit closer, we feel that we are close to teacher and it's easy to ask questions."

### 6. Class Observations

The two groups A and B were observed throughout the semester. Students from group A were observed in modern classroom equipped with modern facilities for French language learning. The students from group B were taught French language in the traditional classroom. The observations of group A indicated that students were much more enthusiastic and motivated than group B. In group A, improved interpersonal communication was observed in students' learning behaviour. It was found that the circular layout of the modern classroom was quite convenient and comfortable for the students. Students picked the seats of their choice and sat with their friends, enjoyed friendships while productively working in groups. Their classmates were constantly assisting each other in discussions to accomplish the given language tasks around the tables. Excitement, enthusiasm, and motivation was observed among students as soon as they entered the classroom. Some of them entered the classroom about 20 min before class. They sat and read French books together, while turning the pages of colorful French picture books with great zeal and exchanged views with their friends. They also enjoyed collaborative learning while exploring French as a foreign language.

Students' attendance, motivation and confidence were observed to be heightened and fear of teachers and learning a foreign language was diminished. Creativity was observed in groups as well. The weak students were supported by the brighter ones. Mutual learning developed a culture of caring and sharing. Students were found attentive and disciplined. Even when the lecture was over, it seemed that students did not feel like leaving the classroom and remained thrilled and excited in

the room with their classmates. Learning with peers and peer correction of errors in oral production around the tables was noticed. While correcting the pronunciation, peers giggled and teased each other. The act of asking questions both to the teacher and their classmates indicated a positive sign of curiosity for learning and attentive behaviour in class. Changes in students' thinking, attitude and behaviour were noticed. Students were found to be more responsive in groups in the circular seating arrangement than in rows.

The social constructivist elements of learning were facilitated by the grouped seating by making the teacher more accessible as the distance between students and teacher was less and the content was comprehensible. Students' engagement dominated their classroom activities that led to the positive ambiance. Students were found to be highly engaged in language related tasks such as watching videos on You tube, exercises, worksheets, and dialogue writing. Each member concentrated on the activity, participated with vigour and enjoyed the process of learning by doing with their classmates sitting around the table. It was found that learning in groups in circular seating arrangement sharpened students thinking process and cooperation through interaction with peers for the completion of tasks. High energy level, enthusiasm, and dynamism was found among groups. Even the quiet and timid students' performance in class improved as well. All the group members gave their input in mutual discussions and did research work together with high motivation. Each group member was found focused and absorbed in the tasks. The element of collectivity was discovered to be stronger such as collective thinking process and collective research for vocabulary and synonyms etc. The creative group presentations uplifted the excitement of the class. And made the class environment interesting. Weaker and less confident students were found to learn from the active students. Open communication, healthy interaction, sense of competition, motivation to perform better than others were manifested by the students. It was noticed that students' creativity was at its peak in working with peers in groups Cross questioning and comments among the groups, peer correction of French pronunciation and repetition exercises with peers. Mime session, theatrical presentations, freedom of expression and movement in the classroom, noise, laughter, friendly environment, freedom of performance, fun based learning were the noticeable elements in the modern classroom with the circular seating. A variety of styles of group performances and presentations also created humor in class. On the other hand, group B in the traditional classroom with rows was found to be passive. Students who were sitting infront were more motivated and attentive than those sitting at the back. The level of engagement also varied among students. The ones having less proximity with teachers were more productive than others. From the perspective of behaviour, students sitting in the back rows were found chatting, playing with their cell phones and distracting others. Teacher had to point them out and make effort to keep them engaged in class activity. The level of attention and engagement was less. In the rows seating, teachers had to work harder on the group formation, movement was difficult and some of the students preferred to stand near their classmates to participate in group work. It was found to be more time-consuming and less convenient for the students.

This enquiry was made to study students' learning behaviour in a traditional and a modern classroom designed for learning. The study probed into the relationship of seating arrangement with students' learning behaviour while focusing on students' engagement in class activities, confidence, communication, social interaction with teacher and students. Both modern and traditional classrooms had their positive and negatives aspects. Circular classrooms created strong communication, bonding, and a sense of belonging among the students. They learned more quickly with their peers sitting around them at round tables and were more motivated, engaged and learning. The physical layout of the classroom represented the instructional paradigm and linked with students' attitudes, behaviour, communication, engagement students' social connections inside the

classroom and academic performance. The data indicated the fact that students around the tables, had face to face direct contact joyfully than those seated in columns and rows as mentioned by Steinzor [37] and Gump [17]. Considering the rows and columns arrangement, it was convenient from teachers' perspective for students' monitoring and students could view and interact easily with the teacher. Those from the back rows found it difficult to interact with teacher and visibility was less clear. However, this arrangement was beneficial for watching the videos. At the same time students could not see other students. Hence, rows were considered unfavorable for peer communication which created inconvenience for engagement in activities.

### 7. Conclusion

This qualitative study has been conducted at a higher education institution in Malaysia. The Case study approach was used to study the key actors' the students from the Undergraduate programme. The research instruments were semi-structured interviews of the students and the class observations throughout the semester in both traditional and modern language learning classrooms. The importance of seating arrangement and its effects on students' learning behaviour was studied. Two different seating arrangements circular and rows were chosen through purposive sampling. Two groups of students who were learning in two different classrooms with different layouts were closely observed and interviewed.

The findings revealed that rows were good for individual work. The students in the front rows are more attentive as they face the teacher than those who sit at the back. Group work becomes challenging in the rows as students are bound to move and physically adjust themselves to engage in group activities. This consumes time and becomes time wasting strategy. On the other hand, students in the backrows face problems such as focus, attention and interaction become difficult. Collaborative learning becomes exhaustive in this seating arrangement. However, circular arrangements are proved to be more suitable and they avoid positional discrimination in blended learning. Considering the rows and columns arrangement, the whole classroom space was used. It is convenient from teachers' perspective for students' monitoring and at the same time students viewed the teacher and interacted easily. Therefore, teachers were found to move to facilitate students' discussions, and group work than in the rows and columns. From students' perspective, they sit closer and maintained direct eye contact. Students in group seating enjoyed social interaction with peers and ask questions without shyness.

Three dimensional effects of the seating arrangement on students' engagement and commitment were proven. Firstly, the relationship between seating arrangement and students' level of convenience of communication and social interaction with classmates and teacher was stronger in circular seating. Students' performance, creativity, confidence and motivation for learning were prominent features as well as peer support, peer correction and a culture of collaborative learning dominate the classroom. The weaker ones also show their involvement and good performance after sitting with the bright students. A culture of caring and sharing and a sense of belonging was instilled within classroom community with overall positive effects on learning, emotions, and well-being owing to circular seating arrangement.

### References

- [1] Anderson, Timothy M. "The effects of seating arrangement on students' on-task behavior." PhD diss., Capella University, 2009.
- [2] Hargis, Jace. "A ten year study of faculty classroom observations." *Transformative Dialogues: Teaching and Learning Journal* 7, no. 2 (2014). https://doi.org/10.59236/td2014vol7iss21219

- [3] Atherton, J. S. (2005). Teaching in learning: Physical layout. Retrieved December 20, 2007 from https://www.learningand.teaching.info/teaching/layout.htm
- [4] Badia-Martin, M. (2006). Disruptive behaviour in schools. Educational Journal, 92, 33-35.
- [5] Bennett, Neville, and David Blundell. "Quantity and quality of work in rows and classroom groups." *Educational Psychology* 3, no. 2 (1983): 93-105. <a href="https://doi.org/10.1080/0144341830030201">https://doi.org/10.1080/0144341830030201</a>
- [6] Black, Susan. "Achievement by design." American School Board Journal 194, no. 10 (2007): 39-41.
- [7] Bonus, Michelle, and Linda Riordan. "Increasing Student On-Task Behavior through the Use of Specific Seating Arrangements." (1998).
- [8] Canter, Lee, and Marlene Canter. *Assertive discipline: A take charge approach for today's educator.* Canter & Associates, 1976.
- [9] Chingos, Matthew M. "Class size and student outcomes: Research and policy implications." *Journal of Policy Analysis and Management* (2013): 411-438. https://doi.org/10.1002/pam.21677
- [10] Conners, Dennis A. "The school environment: A link to understanding stress." *Theory into practice* 22, no. 1 (1983): 15-20. https://doi.org/10.1080/00405848309543032
- [11] Curwin, Richard L., and Allen N. Mendler. "Packaged Discipline Programs: Let the Buyer Beware." *Educational Leadership* 46, no. 2 (1988): 68-71.
- [12] Downer, Jason T., Sara E. Rimm-Kaufman, and Robert C. Pianta. "How do classroom conditions and children's risk for school problems contribute to children's behavioral engagement in learning?." *School Psychology Review* 36, no. 3 (2007): 413-432. https://doi.org/10.1080/02796015.2007.12087938
- [13] Fernandes, Amanda Careena, Jinyan Huang, and Vince Rinaldo. "Does Where A Student Sits Really Matter?-The Impact of Seating Locations on Student Classroom Learning." *International Journal of Applied Educational Studies* 10, no. 1 (2011).
- [14] Falout, Joseph. "Circular seating arrangements: Approaching the social crux in language classrooms." *Studies in Second Language Learning and Teaching* 4, no. 2 (2014): 275-300. https://doi.org/10.14746/ssllt.2014.4.2.6
- [15] Granström, Magnus, and Olle Inganäs. "White light emission from a polymer blend light emitting diode." *Applied physics letters* 68, no. 2 (1996): 147-149. https://doi.org/10.1063/1.116129
- [16] Gifford, Robert. "Environmental psychology: Principles and practice." (2007).
- [17] Gump, P.V. (1987), school and classroom environments. In D. Stokols and I. Altman (Eds.), Handbook of environmental psychology (pp, 691-732), New York: Wiley.
- [18] Hammang, Angela Jean. The effect of seating assignments on student achievement in the biology classroom. 2012.
- [19] Haghighi, Mohammad Moslemi, and Mahmud Mohd Jusan. "Exploring students behavior on seating arrangements in learning environment: a review." *Procedia-Social and Behavioral Sciences* 36 (2012): 287-294. <a href="https://doi.org/10.1016/j.sbspro.2012.03.032">https://doi.org/10.1016/j.sbspro.2012.03.032</a>
- [20] Hoekstra, Nathalie AH, Yvonne HM van den Berg, Tessa AM Lansu, M. Tim Mainhard, and Antonius HN Cillessen. "Teachers' goals and strategies for classroom seating arrangements: A qualitative study." *Teaching and teacher education* 124 (2023): 104016. <a href="https://doi.org/10.1016/j.tate.2023.104016">https://doi.org/10.1016/j.tate.2023.104016</a>
- [21] Hurt, T, H., Scott, M, D., & McCroskey, J. C. (1978), Communication in the classroom. Reading, MA: Addison-Wesley.
- [22] Idayu, N., B. Mohd, A. R. Ahmad, and M. M. Awang. "Classroom environment enhance in determining students' success." In *International Conference on Education and Regional Development*, vol. 1, pp. 652-656. 2016.
- [23] James, W. Z. (2016). *The flipped Classroom, a review of the literature*. Emerald Group Publishing Limited, 48(2), 97-103. <a href="https://doi.org/10.1108/ICT-05-2015-0039">https://doi.org/10.1108/ICT-05-2015-0039</a>
- [24] John, A. W. (1999). Classroom Arrangement and student behaviour. Lakehead University, Thunder Bay, Ontario.
- [25] Juhary, Jowati. "An assigned seating arrangement based on students' performance: A critical review." *Journal of Education and Practice* 3, no. 14 (2012): 10-16.
- [26] Lotfy, Nohayer. "Seating arrangement and cooperative learning activities: students' on-task/off-task participation in EFL classrooms." (2012).
- [27] Jusan, Mahmud Bin Mohd. "Means end chain, person environment congruence and mass housing design." *Open House International* 35, no. 3 (2010): 76-86. <a href="https://doi.org/10.1108/OHI-03-2010-B0009">https://doi.org/10.1108/OHI-03-2010-B0009</a>
- [28] Minchen, Brian J. "The effects of classroom seating on students' performance in a high school science setting." *Education and Human Development Master's Theses. Paper* 414 (2007): 149-157.
- [29] Usaini, Mudassir Ibrahim, Norsuhaily Binti Abubakar, and Ado Abdu Bichi. "Influence of school environment on academic performance of secondary school students in Kuala Terengganu, Malaysia." *The American Journal of Innovative Research and Applied Sciences* 1, no. 6 (2015): 203-209. https://doi.org/10.6007/MAJESS/v3-i1/1899
- [30] Ngware, Moses Waithanji, James Ciera, Peter K. Musyoka, and Moses Oketch. "The influence of classroom seating position on student learning gains in primary schools in Kenya." *Creative Education* 4, no. 11 (2013): 705-712. https://doi.org/10.4236/ce.2013.411100
- [31] Barrett, Peter, Yufan Zhang, and L. B. Fay Davies. "Clever Classrooms. Engine House Islington Mill Studios." (2015).

- [32] Rennels, Max R., and Ramesh B. Chaudhari. "Eye contact and grade distribution." *Perceptual and Motor Skills* 67, no. 2 (1988): 627-632.
- [33] Richards, Jan. "Setting the stage for student engagement." *Kappa Delta Pi Record* 42, no. 2 (2006): 92-94. https://doi.org/10.1080/00228958.2006.10516441
- [34] Saldaña, J. (2021). The coding manual for qualitative researchers. sage.
- [35] Slavin, R.E. (2003) Educational Psychology: theory and practice (seventh edition), Boston MA: Pearson Education, Inc.
- [36] Sommer, R. (1969b) Personal Space: The behavioral basis of design. Englewood Cliffs, NJ: Prentice Hall.
- [37] Steinzor, Bernard. "The spatial factor in face to face discussion groups." *The Journal of Abnormal and Social Psychology* 45, no. 3 (1950): 552. <a href="https://doi.org/10.1037/h0061767">https://doi.org/10.1037/h0061767</a>
- [38] Weinstein, Carol S. "Designing the Instructional Environment: Focus on Seating." (1992).
- [39] Yin, Robert K. Case study research: Design and methods. Vol. 5. sage, 2009.