

**Redesigning a Graduate Student Center through Employing an
Evidence-Based Design Approach**

Assist. Prof. Dr. Ahmad Ebrahim. Alansari

*Assistant professor in the Department of Interior Design at College of Basic Education -
The Public Authority for Applied Education and Training, Kuwait.*

Abstract

Developing interior design that meets human needs is one of the fundamental roles of interior designers. The purpose of the study is to investigate the functions and activities of graduate students that take place in a graduate student lounge. The main objective of this study is to develop and formulate the built environment of a graduate student lounge in a way that adequately satisfies students' desires and needs. The study was conducted among three hundred ($N=300$) graduate students at Texas Tech University in the United States who were administered an online survey to obtain the needed information. Participants were recruited through their university emails. The study employed both quantitative and qualitative methods. Its findings showed that students' preferential third places to spend time were a coffee shop, the university library, a restaurant, a friend's place, and the gym. The main expected activities at the graduate student center were doing school assignments, eating and drinking, taking a nap, and having a small party. Graduate students considered the most essential facilities to be the labs, study rooms, couches, sleeping areas, dining rooms, and kitchenettes. Based on the findings of this study, an interior environment for the graduate student lounge was designed and proposed to the graduate school administration. This paper brings together practical information that can help in designing student centers that accommodate student needs.

Keywords: Graduate student center, students' activities, students' preferences, place attachment, university students.

Introduction

Several studies have been conducted to determine how university students may be influenced by their physical environment and surroundings. Waxman (2007) found that environmental design may strongly impact college students and their attachment to the campus. In national surveys, graduate students have reported that they often felt little sense of community or connection to one another or to the larger university (Golde & Dore, 2001). One means to amend for this lack could be to have an attractive third place for students to congregate. Such a new graduate student center (GSC) specifically designed to meet the interests and preferences of university students would create an attachment to the campus as well as develop and enhance students' sense of belonging. Waxman, Clemons, Banning, and McKelfresh (2007) found that socialization, interior atmosphere, and appropriate location are the most important characteristics that students consider when choosing a third space to gather. Nevertheless, a gap in literature exists regarding the preferences, needs, and activities of graduate students in their physical GSC environments.

Evidence-based design, meanwhile, refers to the practice of adopting reliable evidence from the literature for designing built environments, enabling interior designers and architects to employ the findings of reliable research when developing interior designs meant to satisfy and improve people's health, safety, and welfare. Therefore, in this study, the researcher employed an evidence-based design approach, conducting a study among a group of the population that occupies the space in consideration and using key findings from other reliable studies. In this study, data were collected from among the population that he would use the proposed built environment researchers, and additional information were gathered from currently published studies.

This study was based upon the idea that the first place for students to spend their time would be the residential places where they live. The second place for college students would be on campus, while the third place would be wherever they go during the day to spend their time. The study's purpose was to design a graduate student lounge by integrating the major functions and characteristics of their preferred third place.

Purpose

The purpose of this study was to determine the preferences and needs of graduate students at one of the southwestern universities in the United States regarding the environmental design of the new GSC in terms of activities, equipment, and constructively comfortable areas. The Planning and Operation division at the school had previously developed a tentative design; however, this was rejected by graduate students since it poorly met their needs and preferences.

The main objective of this paper, therefore, is to determine the preferences and activities of graduate students regarding the environmental design of the new GSC at one institution in the United States. Based on the findings of this survey, the researcher developed a lounge design built environment that meets participants' expectations, activities, and preferences. After the development of the design project, the researcher proposed it to the graduate school official as a design model for the university framed by graduate students.

Significance

A gap exists in literature regarding the features and activities that foster place-attachment to the student lounge among university students. Designing a GSC that meets students' needs and activities would likely increase their attachment to the place. One of the main targets for schools is improving upon students' experience within the built environment.

The findings of this study provided insight into how students would most likely use this space. University facilities administrators, planners, interior designers, and architects may use this information as they develop spaces that support students gathering for eating, resting, studying, socializing, and meeting new people. These activities lead to the development of place attachment and emotional bonds, and they add to individually meaningful experiences on university campuses. The research question was, "What characteristics do graduate students seek in the environmental design of a graduate student center?"

Review of Literature

Conceptual Framework

Place attachment theory, which studies the relationship between humans and our experiences in the physical environment (Seamon, 2014), has guided the conceptual framework of this study. Place meanings and attachment are influenced by the special qualities

associated with a place that originate from interpersonal and communal communication and the engagement of a building's users. Seamon defined place as a generator of interactions between building users and the built environment, including the factors that maintain or erode place attachment. Place attachment, meanwhile, is a set of emotions that binds individuals to a certain place (Waxman, 2006). In order to successfully design spaces that serve as useful third places after home, school, or work, interior designers should understand the social and physical attributes of interior spaces that improve human experiences within our built environments.

Factors Influencing Place Attachment to Interior Environments

There are several aspects of a designed space that influence the attachment of humans to a certain place. Ujang asserted that, since meeting the needs of users has a strong influence on the development of place attachment (2010), humans tend to visit and develop attachment to places where they can find their needs met. Naturally, interior design elements also have a strong influence on developing place attachment. For example, in her study, Waxman (2006) found that the interior design factors that influence place attachment to a coffee shop are adequate lighting, an appealing aroma, comfortable furniture, an attractive outside view, and cleanliness. Therefore, interior designers of coffee shops can design built environments that include certain features to attract visitors.

Creating places with the aim of fostering human connections and socialization can encourage people's intentions to visit those places frequently. As Brandes (2006) acknowledges, meanwhile, GSC provides opportunities to meet, socialize, share knowledge, and work with other students in different programs. Since such places are used to create social forums, interior designers should consider designing areas in them for large, medium, and small groups to communicate. The built environment for this place should be designed with flexibility—such as movable furniture and walls—in order to fit unexpected, big events.

Building relationships and friendships should be one of the goals when designing a GSC. Given the heavy workloads that face graduate students during their educations and limited opportunities for doctoral students to communicate and interact with others on campus, as Billups and Kite (2010) asserted, they feel isolated from the academic community. Therefore, institutions should provide graduate students

with environments on campus that let them socialize and interact with their peers in different fields.

Most universities aim to recruit talented and passionate students. Once students arrive on campus, several environmental factors can influence their school experiences, especially if they are away from homes. Homesickness, the feeling of missing those from whom one will be away for a long time, is found among foreign students who are studying abroad, but as well as among Americans who relocate to attend college. Scopelliti and Tiberio (2010) found that several factors eliminate homesickness among humans in our new places. These are social activities, companionship, and leisure. Therefore, interior designers should focus on creating spaces that support socialization, restoration, and relaxation in schools where students come from different parts of the country and world. Such social activities serve to eliminate the feelings of homesickness and to improve school experiences among graduate students, resulting in better academic performance.

College Students' Needs

One of the main goals of many U.S. colleges is to develop a great experience for their students on campus. However, the literature shows that schools poorly meet students' needs. This is why college students spend most of their time in places off-campus, most commonly for socializing, relaxing, eating, and drinking (Waxman, 2007). Providing students with places on campus to meet these needs would positively influence their intentions to stay on campus, reinforcing friendships within the academic community.

Methodology

Both quantitative and qualitative research approaches were used in this study—specifically, closed-ended and partially-closed-ended questions. A survey questionnaire instrument that measured the preferences and interests of graduate students at one of the southwestern university in the United States was developed as the data collection method for this study, which was conducted in the spring 2013 semester and which targeted a population composed of both Master's and Ph.D. students who were enrolled in on-campus courses. Three hundred ($N = 300$) graduate students participated in the study, comprising one hundred and twenty four ($n = 124$) male and one hundred and seventy six ($n = 176$) female students (see Table 1).

Research instrument

An on-line based survey delivered through the Survey Monkey website to all graduate students via their university email was developed to gather the data. Participants were invited to take part in the survey and were informed that their participation was voluntary, that no information gathered could be used to identify them, and that their identities would be completely anonymous.

Participants	Percent	N
Male	41%	124
Female	59%	176
Total	100%	300

Table 1. Demographic information of the participants.

Data Analysis

A quantitative method was used to seek answers to the close-ended questions while a qualitative method was used for the partially close-ended questions and the participants' comments. Statistical Program for Social Sciences (SPSS) was used to code and analyze the quantitative data, illustrating percentages and frequencies for the participants' responses to each question.

The qualitative data were analyzed using an open-coding technique. Open-coding allows the researcher to read a manuscript closely and code similar words and concepts into themes and patterns. The process of finding similar concepts and grouping them around a phenomenon is called categorizing. The discovered themes represent the key points illustrated by the survey results. During open-coding, the data for this study were broken down into discrete themes.

Validity of the Survey

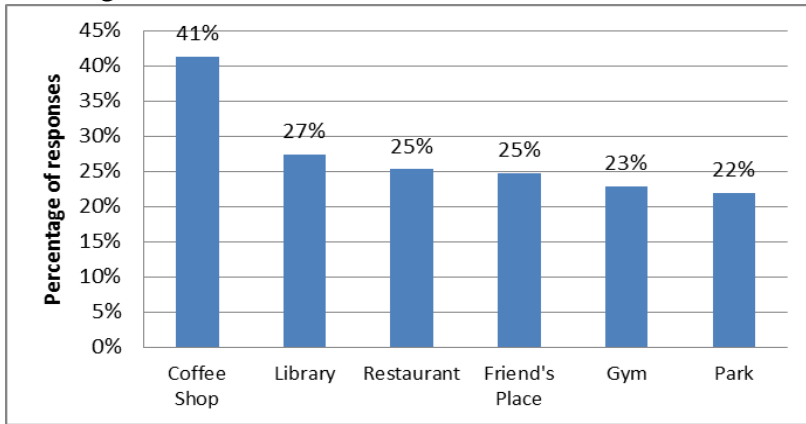
To validate the research instrument, the researcher conducted a pilot test among 10 interior design students in an interior design department class. The pilot test also ensured the readability and clarity of the survey statements and confirmed that the survey indeed measured the concepts it was intended to measure. The comments and suggestions that the interior design students offered in response to the pilot test helped to refine the survey.

Findings and Discussions

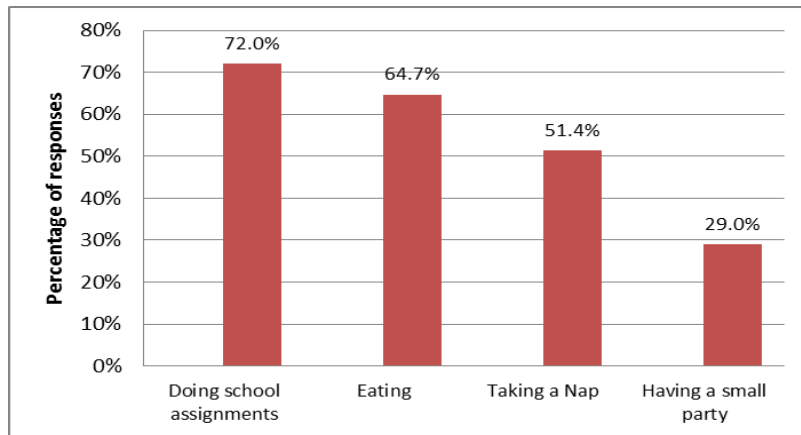
Participants were asked about their preferred places to spend time after leaving home or campus. The students' preferential third places, in order, were a coffee shop (41%), the university library

(27%), a restaurant (25%), a friend’s place (24%), at the gym (23%), and in the park (22%) (see Graph 1). The primary activities that graduate students anticipated engaging at the GSC were doing school assignments (72%), eating and drinking (65%), taking a nap (51%), and having a small party (29%) (see graph: 2).

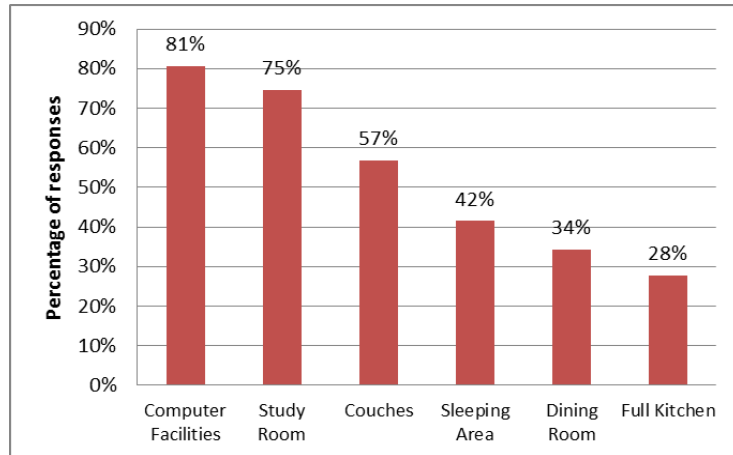
When asked about the most essential facility that they would like to have in the GSC, the participants most highly valued computer facilities (81%), study rooms (75%), couches (56%), sleeping areas (41%), dining rooms (34%), and a full kitchen (27%) (see Graph 3). When asked whether they cared if their peers brought their kids to the GSC, almost half (47%) stated that they did not care as long as there was enough quiet space, about (15 %) had no problem with kids in the GSC, and (37%) of the participants preferred working without kids in the student lounge.



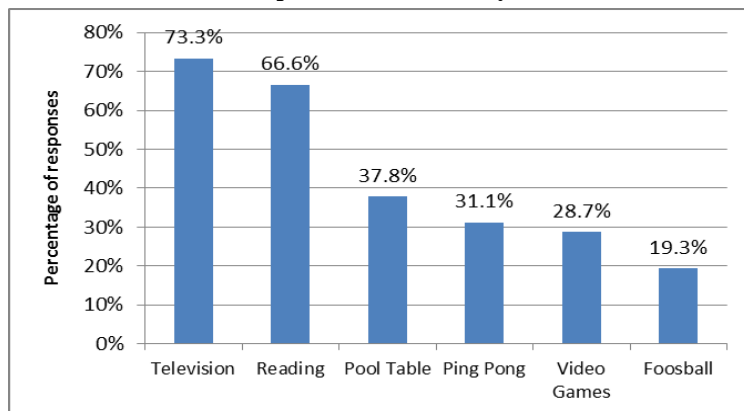
Graph.1. Third preferred places of graduate students.



Graph 2. Primary activities in the graduate student lounge.



Graph.3. Preferred facility in the GSC.



Graph.4. Type of entertainments considered in the lounge.

The majority of participants (73.5%) indicated that they preferred going to the student lounge by themselves or with a group of friends. When participants were asked, “What type of entertainment would you consider in your free time?,” they responded with television (73.3%), reading (66.6%), pool (37.8%), ping pong (31.1%), video games (28.7%), and foosball (19.3%) (see Graph 4). The last question on the survey asked participants to express their desires for the GSC, providing them with the opportunity to write their thoughts regarding the built environment. Their responses were coded and analyzed by grouping similar concepts together. Several concepts had high repetitions: adding charging plugs and stands for computers and devices, designing places to hang out, and supporting group work.

Implications

This research supported taking an evidence-based design approach to a new GSC. The current location available for the project is a basement in the administration building at the university. A previous design was developed by the Planning and Operation division (see Figures 1 & 2); however, the design was rejected by graduate students at Texas Tech University because it did not meet their needs and preferences. A revised interior environment was designed based on the findings of this study and submitted for implementation to the graduate school administration (see Figures 4 & 5).

The Proposed Interior Design

After reviewing the findings of this study and the currently published research, the researcher formulated programming documents for the design project (see Figure 3). The first step toward reaching the design goal was sketching blocking diagrams. Then, the researcher identified the challenges of the built environment, which is the location of the student lounge in the basement, allowing no external view or natural light. Thus, to foster a natural lighting view in the basement, the designer installed lighted wall panels in the lounge.

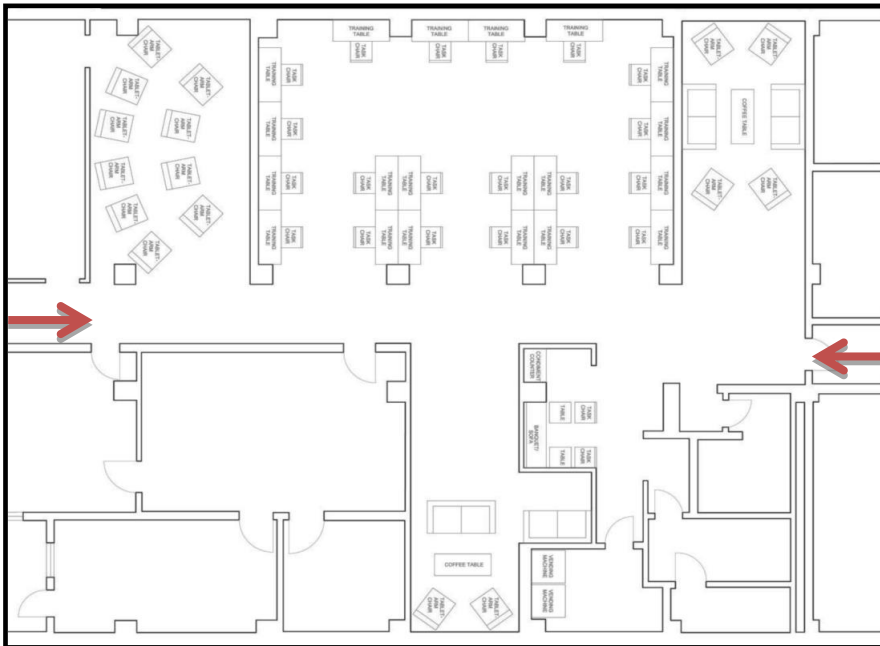


Figure1. Previously designed floor plan.



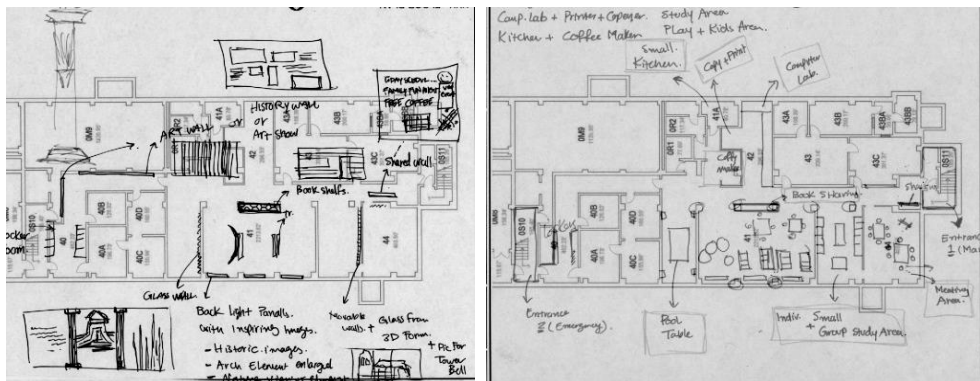
Figures 2. Previously designed perspectives

The proposed design of the built environment included the following guidelines:

- *Lockers.* Lockers were added at the entrance of the GSC to attract more graduate students to visit.
- *Game room.* A game room was included in the proposed design. The game area included a pool table, which was in the top third form of entertainment for the participants. It also included a seating area with a table and four chairs to accommodate peer interactions.
- *Lounge.* In the lounge area, several couches were provided, as the study’s participants desired, to facilitate resting and relaxing and to provide an area in which to spend free time. Also, two big televisions were included in the student lounge for sports, movies, and video games. Movable seating was incorporated into the lounge, allowing students to customize the area easily. A bar with high stools and a bookshelf to store books for graduate students to read was also included in the lounge.
- *Study room.* The study room included 12 personal study tables for graduate students to do their work on. Each table has an electrical plug for charging personal computers and devices to facilitate students’ power needs when studying or doing assignments. Since the first priority for graduate students to do is school assignments, accommodating this activity takes up a significant part of the proposed design, which included a large area where students can do their assignments. Although almost half of the participants considered taking a nap to be an important use of the lounge, the researcher was not able to accommodate this due to the limited area available. One participant recommended providing a nap area for

students somewhere on campus, either in the library, the undergraduate lounge, or the student union building.

- *Meeting room.* Graduate education requires collaborative work. The findings of this research showed that two-thirds of the study's participants indicated that they would consider doing school assignments at the GSC. In order to facilitate group meetings, a meeting room with four movable tables and chairs was included.
- *Computer laboratory.* According to the findings of this study, the computer lab is highly sought by graduate students. Perhaps, due to their needs to work on class assignments in-campus, the lab area included computers, printers, and a scanner. The computer lab is expected to attract more graduate students to visit the center to print and scan their work.
- *Kitchenette and Coffee table.* The researcher also designed a kitchenette with a microwave and coffee table for the use of graduate students. The findings of this study, in fact, illustrated that the top third-place for participants to spend their free times was a coffee shop, which is similar to the findings of other studies conducted among undergraduate students (Waxman, 2006; Waxman, 2007). Since undergraduate and graduate students from different parts of the United States have similar preferred third places where they spend their free times, it is important to add coffee carts when planning to foster student gathering on campus.



Figures 3. Concept development and blocking diagrams.

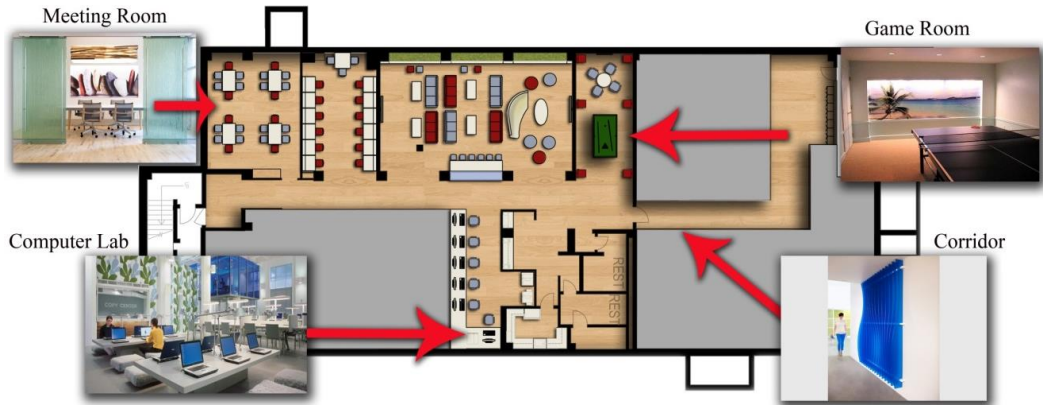


Figure 4. Proposed floor plan by the researcher



Figures 5. Proposed perspectives by the researcher

Conclusion

The purpose of this study was to understand graduate students' desires for, and preferred activities in, a graduate student lounge built environment. In the twenty-first century, it is important to understand the preferred functions of the places where students spend most of their time so that interior designers can better understand their clients who they design for and so that people will embrace those spaces as their third places.

The survey results revealed that the students' preferential third places are, in order, the coffee shop, the university library, a restaurant, a friend's place, and the gym. The primary activities that graduate students anticipate engaging at the GSC are doing school assignments, eating and drinking, taking a nap, and having a small party. The facilities that graduate students consider most essential for the new center, ranked in order, are the computer facilities, study rooms,

couches, sleeping areas, dining room(s), and a full kitchen. The entertainment activities that graduate students most strongly prefer for their free time are television, reading, pool, ping pong, video games, and foosball.

Limitations

This study is limited to graduate students, both Masters and Ph.D., and undergraduate students were not included. The study took place at one southwestern university in the United States; if it had been conducted at another institution, it may have returned different results. This study provided a snap shot of students' activities and their preferences for a graduate students lounge design at a certain point in a time. Thus, if the study is repeated in ten years, it might generate different results due to the advancement of technology and ideological differences between generations.

Future Directions

A post occupancy evaluation (POE) should be conducted after the implementation of the project design. Such a study would determine whether the proposed design has adequately met graduate students' needs and investigate issues that may surface during the design construction. A POE study would find out, also, whether more activities are needed to maintain students' interest in the lounge, such as tutoring, small classes, and research method seminars. Moreover, similar studies should be conducted in the eastern or western United States to determine whether students' activities, needs, and preferences differ in those regions. Another study should be conducted among a group of undergraduate students to examine their activities, needs, and desires concerning an on-campus student lounge.

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إعادة تصميم إستراحة طلاب الدراسات العليا في الجامعة من خلال إستخدام النتائج البحثية

د. أحمد إبراهيم الأنصاري

أستاذ مساعد بقسم التصميم الداخلي

كلية التربية الأساسية، الهيئة العامة للتعليم التطبيقي و التدريب ، دولة الكويت

ملخص البحث

أحد الأدوار الأساسية للمصمم الداخلي هو خلق بيئة داخلية ملائمة لإحتياجات الانسان . الهدف من هذه الدراسة هو معرفة الأنشطة والمهام التي يقوم بها طلبة الدراسات العليا في مبنى إستراحتهم الطلابية بجامعة تكساس تك -في ولاية تكساس بالولايات المتحدة الأمريكية. الغاية الجوهرية من البحث هو عمل تصميم داخلي لإستراحة الطلاب بما يتوافق مع رغباتهم وحاجاتهم. طبقت الدراسة على عينة عشوائية تتكون من ثلاثمائة (300) طالب وطالبة في مرحلة الدراسات العليا . تم ارسال استبانة إلكترونية إلى عينة البحث لجمع المعلومات المطلوبة.

أظهرت نتائج الدراسة أن المكان الثالث المفضل للطلاب من بعد المنزل و الجامعة هو المقهى، المكتبة الجامعية، المطعم، منازل الأصدقاء، و النادي الصحي بالترتيب. أهم المهام الذي ينوي الطلاب عملها في الإستراحة هي الأعمال الدراسية، الأكل و الشرب، الراحة والاسترخاء، والتجمعات الشخصية. بينت النتائج أن أهم الأمور التي يريدها طلاب الدراسات العليا في الإستراحة تتمثل في الأدوات المكتبية (كمبيوتر، ماسح ضوئي، طابعة ... إلخ)، غرفة للدراسة، أماكن كثيرة للجلوس، أماكن للراحة و الاسترخاء، غرفة طعام و مطبخ تحضير. بناءً على نتائج الدراسة، قام الباحث بعمل تصميم مقترح للبيئة الداخلية لإستراحة الطلاب و تم إرسالها لإدارة كلية الدراسات العليا في الجامعة كتصميم مقترح نابع من رغبات مستخدمي المكان. هذا البحث ثري بالمعلومات التطبيقية التي تفيد تصميم إستراحتات الطلاب داخل الحرم الجامعي بناءً على رغباتهم.