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Establishing design criteria for hobby garden huts: A case study at Selcuk University

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Abstract: This study aims at developing standardized design criteria for the hobby gardens at Selçuk University, ensuring compatibility with environmental conditions, enhancing aesthetic value, prioritizing user satisfaction, and catering specifically to the institution's context. The study was conducted within the hobby garden in the Alaeddin Keykubat campus of Selçuk University. The extant parcels in the hobby garden have 70 m2 of open space for the landscape design area and 20 m2 of semi-open and closed space on hard ground for the hut design area. Two distinct questionnaires were utilized in the study. In the initial phase, a preliminary test was conducted, with the involvement of design professionals. In this preliminary stage, 30 huts previously designed by experts were presented to a panel of professionals for their opinion on various criteria such as color, material and form, and the 15 huts with the highest scores were selected. A questionnaire was then administered to the existing users of the hobby garden through the identified huts. The aim of this questionnaire is to determine the hut design criteria. Based on these criteria, the two most successful hut designs in terms of spatial quality and social cohesion were determined. The data collected were subsequently analyzed using the SPSS statistical software. The study employed the psychometric measurement method. The survey was designed using a 5-point Likert-type measurement model, in which 1 denotes a negative value and 5 a positive one. The study used the independent t-test, frequency analysis, normality test, and Cronbach Alpha reliability analysis.

1. Introduction

In today's contemporary society, individuals possess diverse expectations that include the demand for a fast-paced work environment, enhanced financial stability, and the opportunity to escape congested living conditions. The increasing urban population, influenced by socioeconomic factors, has prompted many city dwellers to seek alternative living arrangements. One significant pursuit among these individuals is the desire for leisure environments that are situated in natural surroundings, away from the noise and congestion of urban life and the high density of buildings. Recreation is defined as the activities people engage in during their free time to enjoy themselves and to safeguard their physical and

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mental well-being, which is at risk due to stress and adverse environmental impacts [1]. The type and length of free time, the manner of participation, the climate, the state of the economy, the geography, and social culture can all influence the areas used for recreational activities [2]. First and foremost, recreation is defined as the voluntary activities that people with free time engage in, either alone or with others [3].

The city's green spaces can be thought of as ecosystems that combine cultural and natural elements. These ecosystems include "parks and public gardens, natural and semi-natural areas, green corridors, outdoor sports activity areas, play and entertainment areas, hobby gardens, public gardens, urban farms, cemeteries and religious building environments, accessible natural areas in the vicinity of the city, structural and hard-surface areas such as squares and markets, pedestrian zones" [4]Under pandemic conditions, the value of having green spaces has become abundantly clear. Unquestionably, one of the social trends in the current pandemic process is the shift in people's perspectives and methods of dealing with nature. The psychological impacts of the restrictions on mobility imposed during the pandemic, along with the resulting sense of confinement, are fundamental factors contributing to the current situation. The already vulnerable relationship individuals had with nature has been significantly weakened. Consequently, there has been a pronounced desire for a lifestyle that is closely connected to nature, serving as an escape from the sociological challenges and negative psychological states induced by the pandemic. This inclination to reconnect with the natural environment is reflected in a collective movement toward rediscovering nature, which exemplifies these emerging tendencies [5].

Hobby gardens serve a significant function within urban recreational spaces by contributing to the establishment of green networks. These gardens provide ecological environments where urban residents can escape the pressures of daily life and reconnect with nature. Erduran and Sülüşoğlu (2006) [6], assert that the primary objectives of hobby gardens are to satisfy individuals' desires for engagement with soil and plants, to enable them to cultivate their own plots and produce their own food, to instill a passion for gardening in future generations, and to offer a sanctuary from the demanding atmospheres of work and academic environments often found in urban areas. The presence of green spaces within urban environments is essential for fostering sustainable growth in metropolitan areas and enhancing the overall quality of life for residents. Effectively anticipating the needs of users—based on their physical, physiological, psychological, and social attributes—is critical for creating environments that promote both physical and psychological well-being. Open spaces must be thoughtfully designed to align with these diverse needs. Currently, many cities have become excessively dense and are characterized by haphazard urbanization, which has resulted in the phenomenon commonly referred to as concrete jungles. Moreover, various environmental challenges, including soil pollution, noise pollution, air and water pollution, and the improper use of agricultural land, significantly undermine urban life. The increasing density of urban populations contributes to elevated land rents and restricts the availability of public spaces, particularly green areas, which are vital for community well-being and ecological balance [7].

Small agricultural spaces known as hobby gardens give city people who live far from natural areas the opportunity to spend their free time working with soil and plants. Hobby

gardens offer people the chance to engage in social, ecological, economic, and recreational activities in addition to cultivating plants [8]. The history of hobby gardens illustrates their economic importance. During the Industrial Revolution, declining living conditions for workers prompted the creation of allotted gardens as a means to combat poverty. The earliest mentions of these gardens can be traced back to the early 17th century in Europe, particularly in England. Interest in allotted gardens experienced a revival in the early 1900s, driven by rising unemployment rates between World Wars I and II. In the United States, the first Public or Community gardens emerged in the late 19th century [9]. Today, hobby gardening is embraced by many European nations.

The research into hobby garden design criteria will be conducted within the designated hobby garden area on the Selçuk University Alaeddin Keykubat campus. This study will draw upon insights gathered from field research involving designers and users, as well as an extensive literature review. The study is distinctive in that it will specifically assess individuals with formal design education alongside those who utilize the hobby gardens on the Selçuk University Alaeddin Keykubat campus. The study aims to evaluate the extent to which the proposed design criteria's social compatibility and spatial quality affect user experience. To establish the design criteria, a survey was administered. The survey would facilitate a comparative analysis between individuals possessing design education and those with practical experience in utilizing the space.

The study is organized into four primary sections. The initial section delineates the objectives, significance, and limitations of the research. The second section comprises a comprehensive review of literature, wherein previous domestic and international reports, articles, and online resources about hobby gardening were examined. Various definitions of the term "hobby garden" were identified, and the historical development of hobby gardens both globally and within Türkiye was addressed concurrently. Additionally, a survey of hobby gardens on university campuses in Türkiye was conducted, with findings summarized in a tabular format. This section also encompassed an exploration of recreational spaces on university campuses as well as relevant research in the field. The third section elaborates on the study's methodology and approach, detailing the survey process, steps undertaken during the field study, and the findings. Finally, the fourth section discusses the study’s conclusions and implications.

2. Literature

People are more in need of natural spaces than ever before due to the fast population growth. To address the demand for green spaces, green networks are also being developed inside or outside of cities. Hobby Gardens are at the forefront of urban recreation spaces as a component of green networks. The following are the definitions of hobby gardens found in the literature; Hobby gardens are defined from an administrative perspective by Özkan et al. (2023) [10], who indicate that local governments are primarily responsible for the planning, design, and management of these gardens. Yılmaz et al. (2006) [11] note that hobby gardens are established on public land and typically feature playgrounds and viewing gardens. Erduran and Sülüşoğlu (2006) [6], characterize hobby gardens as recreational areas

that enable individuals, especially those residing in large urban centers, to connect with nature while cultivating a variety of vegetables and ornamental plants. Moreover, according to Özkan et al. (1996) [12], hobby (urban) gardens are described as recreational spaces situated within or near urban environments, subsidized by local government entities, and available for lease to city inhabitants for a predetermined period and cost. These gardens are composed of parcels of varying sizes, serving as venues for families to engage in food production activities.

Aliağaoğlu and Alevkayalı (2017) [13] have highlighted in their study of hobby gardens in Balıkesir province that these initiatives are primarily undertaken for non-financial purposes, such as the cultivation of produce and as a means of retreat from urban environments. Similarly, in research in Kızılca, a district within Yalvaç in Isparta city, Demiralay (2023) [14] posits that the development of a hobby garden concept tailored for agrotourism should not solely focus on recreational activities involving the production of fruits, vegetables, and aromatic or medicinal plants for urban residents. Instead, it should be designed to provide multipurpose added value, especially in the context of enhancing agricultural tourism.

In urban environments, the increasing demand for green spaces necessitates a focus on both the quantity and quality of such areas. Hobby gardens serve a critical function in this context by supporting local businesses and positively influencing social cohesion and public health through the integration of environmental and social benefits [15]. Empirical studies indicate that seniors engaging in hobby gardening experience drug-free therapeutic advantages comparable to those provided by pharmacological interventions [16]. Moreover, these gardens promote physical activity, which contributes to overall fitness and mitigates obesity. The benefits of hobby gardens extend to enriching the production of organic products and fostering positive psychological well-being among participants. Overall, these gardens represent a multifaceted approach to improving community health and environmental quality [17].

Yilmaz et al. (2006) [11] conducted a study on hobby gardens within the province of Erzurum, highlighting the importance of situating these gardens in proximity to the city. They noted that such locations should be equipped with recreational facilities and essential infrastructure, allowing individuals to cultivate primarily fruits and vegetables according to their personal preferences. Furthermore, Çildam (2022) [15] emphasized the various advantages associated with the Hobby Gardens at the Kezer Campus of Siirt University. These gardens not only mitigate the fatigue and stress of daily life but also promote physical fitness and fulfill an individual's desire for engagement with nature. Additionally, they play a significant role in fostering a culture of production among residents in a society that is predominantly characterized by consumerism.

In the context of urban transformation research in Erzurum province, hobby gardens represent an alternative approach to utilizing green spaces within revitalization initiatives for informal settlements. Furthermore, Demircan et al. (2018) [7] suggest that implementing hobby gardens can effectively increase the quantity of available green spaces. Hobby gardening, as elucidated by Norwood (2022) [18] constitutes a leisure activity that not only enhances sociological well-being but also provides physiological benefits, including improved nutrition, hydration, and physical exercise.

According to Yılmaz and Şahin (2023) [19] involvement in hobby gardening contributes positively to individuals' sociological and sociopsychological well-being. In addition to yielding fruits, vegetables, and flowers, hobby gardens create opportunities for social interactions among families, friends, and colleagues. Moreover, research indicates that hobby gardening yields both physiological and sociopsychological benefits, such as increased motivation, mental relaxation, and stress reduction. In their study, Yeler et al. (2022) [20] aimed to develop appropriate equipment for 87 hobby gardens situated on the campus of Van Yuzuncu Yıl University (Van YYU), each encompassing an area of 7,830 m2. The researchers identified the necessary structural components and wooden tools required for effective land use planning of these gardens. In response to user feedback obtained through in-person interviews with hobby gardeners, three innovative models of wooden equipment and structural components were established.

Although frequently underappreciated, Koç (2003) [21] highlighted the strategic significance of plants cultivated in various urban settings as essential to 21st-century city life, adding that "Local governments should prioritize and enhance support for agricultural production in hobby gardens and similar areas, given their importance for food security." Koç further indicated that urban agriculture serves as a critical mechanism for production, particularly in times of economic crisis or during ongoing pandemic conditions. Bakırcı et al. (2019) [22] conducted a study in the city center of Van to examine the effects of hobby gardens on middle school students. The researchers found that engaging in the creation of hobby gardens was an enjoyable experience for the students, yielding multiple benefits. Their findings indicated that involvement in such gardening activities significantly enhanced the students' environmental awareness, positively influenced their attitudes toward science classes, and fostered a greater appreciation for the subject.

Similarly, Reis et al. (2020) [23] advocated that the cultivation and maintenance of flowers and ornamental plants—activities that were particularly recommended to mitigate the spread of disease during the pandemic—could serve as an effective means of safeguarding the mental health of the population. This approach may help address a range of concerns, including social isolation, depression, stress, apathy, and loneliness. Yasak et al. (2020) [24] discovered that the predominant use of hobby gardens is for agricultural purposes. However, their field study indicated that individuals also utilize these spaces as weekend retreats or summer residences. Common residential features in hobby gardens include single-room and prefabricated structures.

The fast-paced lifestyle and demanding work schedules prevalent in urban environments enhance the desire for individuals to escape their surroundings in search of relaxation and recreational activities. Consequently, there is a growing aspiration for natural, rural living spaces. However, due to the pressures of increasing urbanization, fulfilling this desire is often challenging. In this context, parks, squares, zoos, hobby gardens, playgrounds, and similar locations are essential for meeting the needs of individuals for social interaction, entertainment, and rejuvenation. It can therefore be asserted that the primary objective of hobby gardens, as one of these venues, is to facilitate opportunities for individuals to engage in the cultivation of vegetables, fruits, and flowers, while also enjoying leisure time and fostering relationships with friends and family through various social activities.

2.1. Recreational Areas on University Campuses

Students, faculty, and administrative personnel share enduring memories of a university campus. In recent years, the significance of social living spaces, parks, and gardens on campuses has increased as critical factors in the selection of educational institutions. Beyond their function as centers of education, university campuses serve as venues for social and cultural events. They host a diverse population of staff and students from various social, cultural, and ethnic backgrounds. Academic and administrative staff particularly value campus spaces that fulfill the needs of students. Therefore, a comprehensive evaluation of multiple factors should inform the planning of university campuses [25].

In addition to the essential buildings and architectural structures required for education and training, there is a necessity for spaces designated for social gatherings, parks, and open green areas that provide recreational and relaxing attributes. Essential features may include wooded areas, both active and passive recreation zones, walkways, roadways, fountains, sculptures, monuments, pathways, and outdoor amenities such as benches and pergolas [26]. Green spaces on university campuses serve several vital purposes. These include preserving the integrity of the campus and its buildings, providing outdoor areas that meet recreational needs, fostering a relationship between individuals and their environment, supporting the physical development of the campus, and enhancing the aesthetic appeal of the surroundings [27].

Kiper examined students' recreational preferences, levels of participation in existing activities, and recreational requirements, noting deficiencies in current facilities and advocating for the development of recreational spaces that emphasize strong social elements, including cultural, sporting, and nature-oriented activities [28]. A study carried out by Topay et al. (2021) [29] indicated that the Kılıçarslan campus of Isparta University of Applied Sciences failed to meet user expectations regarding leisure activities, with an 80% dissatisfaction rate. Additionally, 73% of students reported that the campus's green spaces were inadequate, and 58% claimed that the existing equipment was insufficient. Büyükşahin and Çınar (2012) [30] accentuated the importance of establishing communal spaces at Selçuk University, Alaeddin Keykubat Campus where students can engage socially. These areas, which are crucial for social interaction and idea exchange beyond academic and administrative objectives, contribute to the enhancement of the overall quality of university education and are highly regarded by other educational institutions.

In this context, there has been a distinct increase in the establishment of hobby gardens that incorporate recreational spaces on university campuses. A list of universities in our nation that feature hobby gardens on campus is presented in Table 1.

Table 1: Hobby gardens located within University Campuses

University	Allocation Status	Cottage Allocation
Gaziantep University	Academic and Other Staff	+
Hatay Mustafa Kemal University		+
Malatya İnönü University		+
Samsun 19 Mayıs University		+
Selçuk University		+

3. Materials and Methods

Table 1 presents a flow chart that delineates the procedural steps undertaken in this study. The initial phase involved the identification of research questions and the completion of a comprehensive literature review on the subject matter. Subsequently, surveys were developed to collect data on the design criteria applicable to hobby garden huts, with refinements made based on insights gained from preliminary survey studies. The primary objective of this research, which engaged both hobby gardeners and professional designers, was to establish the design standards for hobby gardens at Selçuk University. Figure 1 illustrates the operational framework and the experimental design employed in the study.

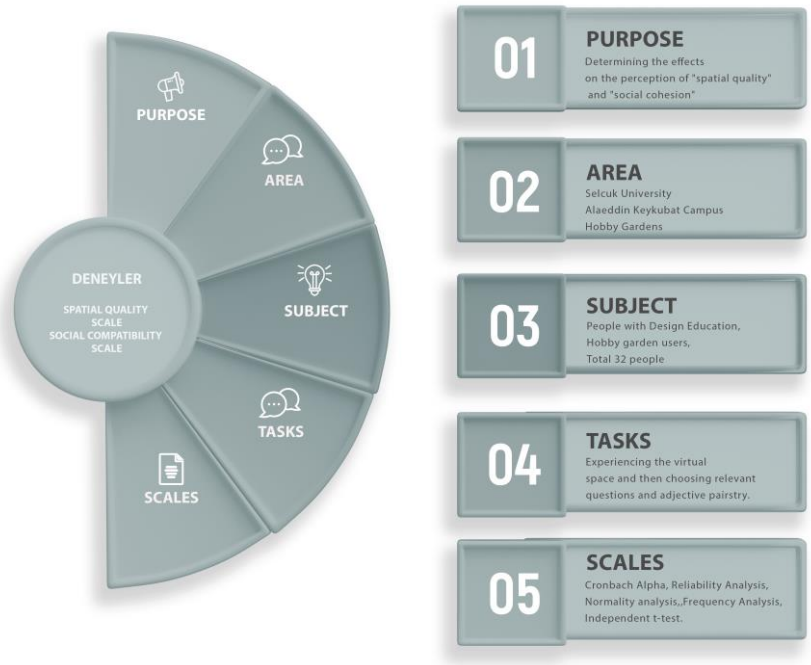

Fig. 1: Operational framework of the study

In the subsequent phase of the project, fifteen distinct hut design processes were initiated for implementation in hobby gardens. Initially, the existing hobby garden survey procedure was employed, utilizing Autodesk's AutoCAD 2024 to develop both two-dimensional and three-dimensional representations of the data. Subsequently, three-dimensional design tools such as Autodesk 3ds Max, Lumion, and SketchUp were utilized to create virtual environments. After completing hut modeling process, participants were instructed to conduct survey measurements. The survey design encompasses sections aimed at evaluating social compatibility, collecting demographic data, and posing general questions related to hobby gardens, hut design, and spatial quality. The survey measurements were then employed to digitize the data. Following this phase, the collected data underwent a comprehensive series of statistical analyses, resulting in the formulation of research findings. The process concluded with an assessment of the study's results, accompanied by the preparation of a section delineating conclusions and recommendations.

3.1. Measurement Methods and Data Analysis

This study utilized a 5-point Likert scale survey, where a value of 1 denotes a negative response and 5, is a positive response. The survey was administered through Google Forms platform. Responses from participants were subsequently recorded in an SPSS version 29

database and subjected to a normality test in accordance with the survey statements. Following the establishment of a normal distribution of responses, parametric tests were applied. The statistical analysis included reliability assessment, frequency analysis, and independent sample t-tests to evaluate statistically significant differences between the social compatibility and spatial quality scales across independent groups. The independent sample t-test was employed to compare measurements from different groups. The research aimed to assess the potential positive or negative influences of social compatibility and spatial quality scales on users' preferences, which will contribute to the formulation of criteria for hobby garden design. Table 2 outlines the categories and adjective pairs associated with the scales used in this study.

Table 2: Semantic differentiation scale used in the study

Scale Category	Adjective Pairs
Spatial Quality Scale	• Practical - Impractical • Inviting – Repulsive • Appealing – Distracting • Spacious - Boring
Social Compatibility Scale	• Pleasing – Unpleasing • Enabling Communication - Inhibiting Communication • Relaxing - Disturbing • Friendly - Formal

3.2. Space Limitation

In the context of this field study, the focus is on the hobby garden area located within the Selçuk University Alaeddin Keykubat campus. This specific site has been selected due to its accessibility, the straightforward acquisition of information, and the anticipated positive effects the study may have on the surrounding environment. The area is shown in Figure 2.

Fig. 2: Images from the study area

This study examines an area of 37,000 m2 designated for hobby garden use on the Alaeddin Keykubat campus of Selçuk University. The primary objective is to establish design standards for the 202 parcels and 11 blocks allocated for hobby gardening. The parcels are categorized into three distinct sections: open, semi-open, and closed areas.

3.3. Findings

In order to determine the hobby garden design criteria, the data sets gathered from the surveys were subjected to reliability, normality, frequency, and independent sample t-test analyses. Table 3 provides the results of the Cronbach Alpha reliability test used for general questions, spatial quality, and individual productivity scales.

Table 3: Hobby garden design criteria reliability analysis results

Scale	N	%	Cronbach's Alpha	Evaluation
Spatial Quality Scale	32	100	,902	Strong
Social Compatibility Scale	32	100	,901	Strong
Total	32	100	,921	Strong

Following the reliability analysis conducted on the data, it was determined that Cronbach's Alpha values were 0.902 for the spatial quality scale, 0.901 for the social cohesion, and 0.921 for the general questions (Table 3). These values confirm the reliability of the statements included in the surveys. The results of the normality tests indicated that the kurtosis and skewness values were within the range of -1.5 to +1.5. According to established criteria [31], this range is indicative of a normal distribution. Therefore, it was concluded that the groups exhibited normal distribution across all courses, thereby justifying the use of parametric tests for data analysis. The survey comprised 14 female, 18 male participants, 21 academicians, and 11 administrative staff members. The demographic characteristics of the participants are detailed in.

Table 4: Demographic characteristics of the participants

		Frequency	Percent
Demographic Characteristics of Participants	Female	14	43,8
	Male	18	56,3
	Total	32	100
	Academic	21	65,6
	Other	11	34,4
	Total	32	100

The study is classified into two different groups: first involving professional designers and the other focusing on hobby garden users. In the initial phase, the objective was to present 15 hobby garden huts, which were visualized in three dimensions using various software programs, including Autodesk, Lumion, and SketchUp. These visuals were subsequently evaluated by 10 professional designers, who assessed each hut based on attributes such as

color, material, and shape. Designers were instructed to assign a score to each hut utilizing a scale from 1 to 10. The 15 hobby garden designs are displayed in Figure 3.

Fig. 3: Hut alternatives for hobby gardens at Selcuk University

Table 5 and Figure 4 show the frequency distributions of the most popular huts within the parameters of the pilot study on hobby garden hut design alternatives.

Table 5: Frequency distribution of hut alternatives

Alternative 1		**Alternative 2**		**Alternative 3**		**Alternative 4**		**Alternative 5**	
Mean	Std. D.	Mean	Std. D.	Mean	Std. D.	Mean	Std. D.	Mean	Std. D.
5,57	2,62	5,35	2,56	4,42	2,26	5,07	2,89	4,64	2,27
Alternative 6		***Alternative 7***		***Alternative 8***		***Alternative 9***		***Alternative 10***	
Mean	Std. D.	Mean	Std. D.	Mean	Std. D.	Mean	Std. D.	Mean	Std. D.
6,00	2,62	**5,71**	2,71	4,28	2,51	5,50	2,62	**7,00**	2,55
Alternative 11		***Alternative 12***		***Alternative 13***		***Alternative 14***		***Alternative 15***	
Mean	Std. D.	Mean	Std. D.	Mean	Std. D.	Mean	Std. D.	Mean	Std. D.
5,24	2,36	4,71	2,27	**6,07**	2,65	4,07	2,28	5,28	2,62

Mean: Average value Std D.: Standard deviation
Variable means are ranked from 1 to 10. Higher values indicate positive responses.

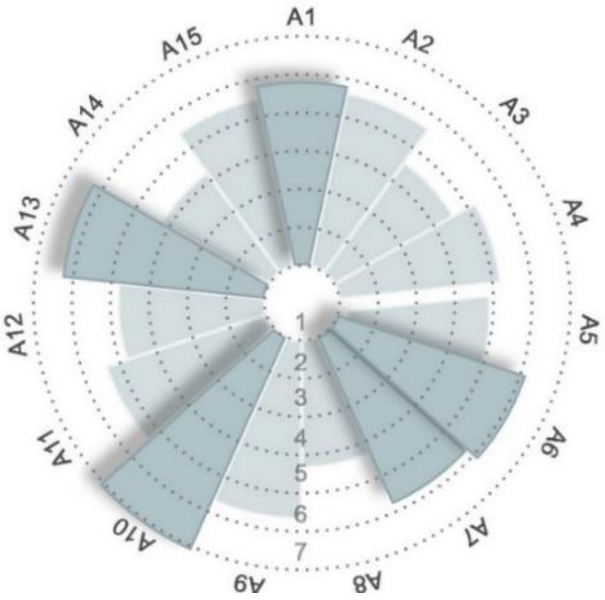

Fig. 4: Frequency distribution graph of hut alternatives

Based on the information presented in Table 5 and Figure 2, the designers have selected visuals from alternatives 1, 6, 7, 10, and 13 for inclusion in the field study. These selected visuals are illustrated in Figure 5.

Fig.5: Hut alternatives utilized in the field study

The field study phase on hobby garden users was initiated following the selection of hut alternatives to be utilized in the research. Before establishing the design criteria for huts, assessing the necessity of these structures, and standardizing their design, the participants were requested to evaluate three statements as part of the field study. Specifically, they were asked to indicate whether they experienced discomfort with the current situation. These are;

- Statement 13: The existing huts in Selçuk University's hobby garden, which exhibit a variety of colors, shapes, and materials, are perceived as unsettling.
- Statement 14: It is essential for the hobby garden to feature accommodation huts that incorporates both enclosed and partially open areas.
- Statement 15: From an institutional perspective, the huts within the hobby garden should exhibit a consistent and standardized aesthetic.

The responses to these statements elucidate the pertinent issues and requirements of the study. Table 6 illustrates the frequency distributions associated with the three statements as reported by users of the hobby garden.

Table 6. Frequency distribution table of the statements 13-14-15

	Statement 13		Statement 14		Statement 15	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Strongly Disagree	3	9,4	2	6,3	4	12,5
Disagree	6	18,8	3	9,4	4	12,5
Undecided	5	15,6	5	15,6	4	12,5
Agree	7	21,9	11	34,4	9	28,1
Strongly Agree	11	34,4	11	34,4	11	34,4
Total	32	100,0	32	100,0	32	100,0

Table 6 reveals that 56.3% of participants expressed dissatisfaction with the condition of the huts mentioned in statement 13. Statement 14 indicates that 68.8% of participants consider the hobby garden's hut to be essential. Additionally, according to statement 15, 62% of participants endorse the idea of implementing a standard design for huts.

3.4. Spatial Quality Scale

The frequency distribution data is illustrated in Figure 6, while Table 7 provides the results of the independent t-test conducted on data regarding the effects of five different hut designs. This research aimed to establish the design criteria for the Selçuk University hobby garden, focusing on the participants' perceptual evaluations according to the spatial quality scale.

Table 7: Spatial quality scale independent t-test

Levene's Test for Equality of Variances				*t-test for Equality of Means*						*95% Confidence Interval of the Difference*	
						Significance		Mean D.	Std. Error D.		
		f	Sig.	t	df	One Sided p	Two-Sided p			Lower	Upper
A1	E.v.a.	1,857	,183	,538	30	,297	,595	,83333	1,54988	-2,33194	3,99860
	E.v.not a.			,568	29,082	,287	,575	,83333	1,46842	-2,16957	3,83623
A6	E.v.a.	6,374	,017	-,900	30	,188	,375	-1,45238	1,61390	-4,74841	1,84365
	E.v.not a.			-,968	26,766	,171	,341	-1,45238	1,49963	-4,53063	1,62587
A7	E.v.a.	,926	,344	-,121	30	,452	,905	-,23016	1,90660	-4,12396	3,66365
	E.v.not a.			-,124	29,816	,451	,903	-,23016	1,86302	-4,03594	3,57562
A10	E.v.a.	,061	,806	,069	30	,473	,945	,09524	1,37310	-2,70901	2,89949
	E.v.not a.			,070	28,311	,473	,945	,09524	1,37019	-2,71008	2,90056
A13	E.v.a.	,009	,924	-,597	30	,277	,555	-,80952	1,35493	-3,57665	1,95761
	E.v.not a.			-,603	28,921	,276	,551	-,80952	1,34319	-3,55697	1,93792

E.v.a.: Equal variances assumed E.v. not. a: Equal variances not assumed

An independent sample t-test was conducted to analyze the differences in attitudes towards the spatial quality scale between male and female hobby garden users regarding the five hut designs indicated in Figure 6. The results of the analysis indicated that there was no statistically significant difference between the female group (A1=9.50, SD=3.22; A6=5.71, SD=2.86; A7=7.21, SD=4.79; A10=11.42, SD=3.81; A13=7.85, SD=3.65) and the male group (A1=8.66, SD=5.04; A6=7.16, SD=5.46; A7=7.44, SD=5.74; A10=11.33, SD=3.89;

A13=8.66, SD=3.91). While the attitudes of male participants toward the spatial quality scale were comparatively more positive than those of female participants, this observed difference was not statistically significant. Furthermore, Alternative 13 (A13) was evaluated more favorably by users on the spatial quality scale in comparison to the other hut alternatives.

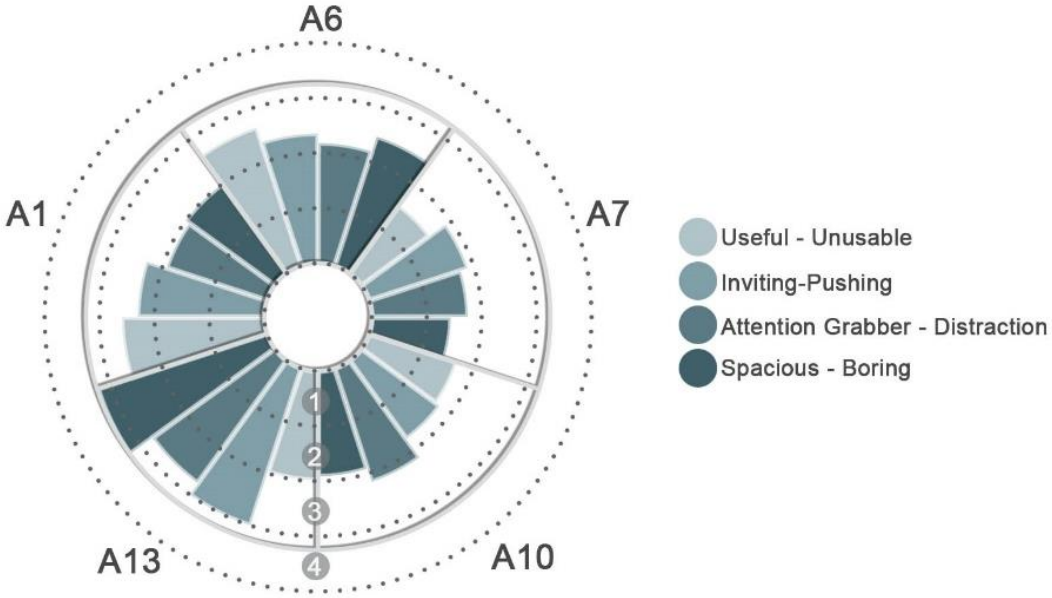

Fig.6: Spatial quality scale frequency distribution graph for huts 1-6-7-10 and 13

3.5. Social compatibility scale

The frequency distribution data is illustrated in Figure 7, and Table 8 provides the statistical outcomes of the independent t-test applied to the data. This research examines the effects of five distinct hut designs on the participants' perceptual evaluations, as assessed by the social compatibility scale, within the context of the Selçuk University hobby gardens.

Table 8: Social compatibility scale independent t-test

LEVENE'S TEST FOR EQUALITY OF VARIANCES				T-TEST FOR EQUALITY OF MEANS						95% CONFIDENCE INTERVAL OF THE DIFFERENCE	
						Significance					
		f	Sig.	t	df	One Sided p	Two-Sided p	Mean D.	Std. Error D.	Lower	Upper
A1	E.v.a.	,912	,347	,031	30	,488	,975	,04762	1,51585	-3,04816	3,14340
	E.v.not a.			,033	29,984	,487	,974	,04762	1,46287	-2,94003	3,03526
A6	E.v.a.	1,693	,203	-1,36	30	,091	,182	-2,25397	1,65039	-5,62451	1,11657
	E.v.not a.			-1,43	29,602	,081	,163	-2,25397	1,57505	-5,47247	,96453
A7	E.v.a.	,366	,550	,132	30	,448	,896	,26190	1,98931	-3,80082	4,32463
	E.v.not a.			,133	29,097	,448	,895	,26190	1,96782	-3,76215	4,28596
A10	E.v.a.	,067	,798	,046	30	,482	,963	,06349	1,37393	-2,74246	2,86944
	E.v.not a.			,046	28,358	,482	,963	,06349	1,37037	-2,74198	2,86897
A13	E.v.a.	,101	,752	-,546	30	,295	,589	-,76984	1,41017	-3,64979	2,11011
	E.v.not a.			-,545	27,895	,295	,590	-,76984	1,41275	-3,66423	2,12455

E.v.a.: Equal variances assumed E.v. not. a: Equal variances not assumed

An independent samples t-test was employed to analyze the differences in attitudes between male and female hobby garden users concerning the Social Compatibility scale for five

selected hut designs. The results of the analysis indicated that there were no statistically significant differences observed between the groups. Specifically, the scores for female participants were as follows: A1 = 9.21 (SD = 3.55), A6 = 4.85 (SD = 4.71), A7 = 7.92 (SD = 5.31), A10 = 11.28 (SD = 3.81), and A13 = 8.28 (SD = 3.98). In comparison, the scores for male participants were A1 = 9.16 (SD = 4.71), A6 = 7.11 (SD = 5.27), A7 = 7.66 (SD = 5.78), A10 = 11.22 (SD = 3.88), and A13 = 9.05 (SD = 3.93). Although male respondents exhibited a more favorable attitude toward the social compatibility scale than their female counterparts, this difference did not reach statistical significance. Furthermore, alternative 10 (A10) was evaluated more positively on the social compatibility scale when compared to the other hut designs.

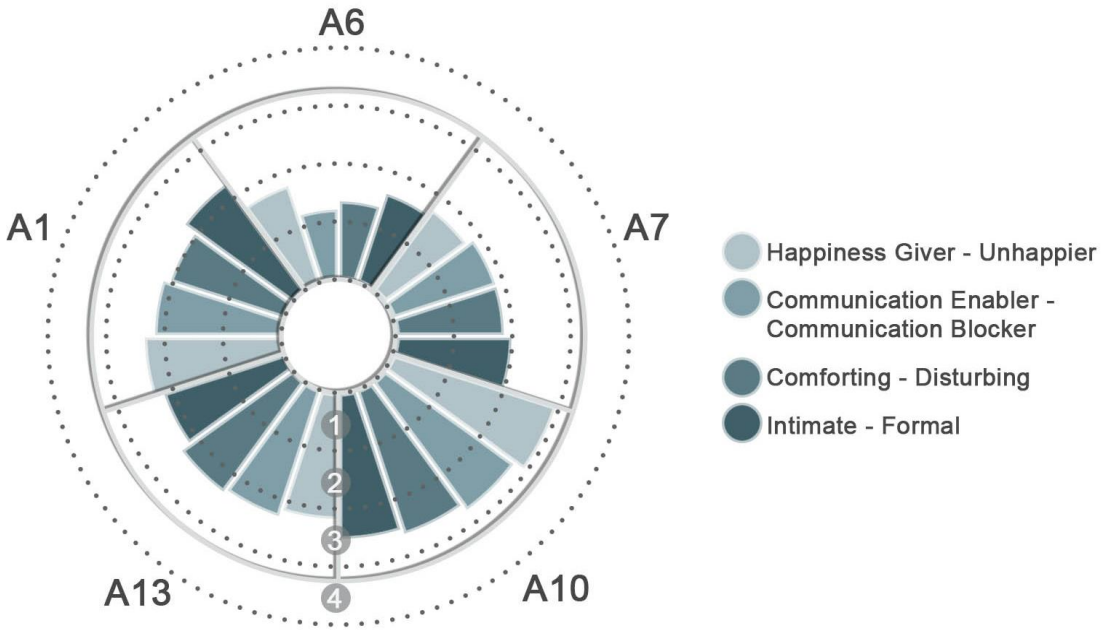

Fig. 7: Social compatibility scale frequency distribution graph

4. Conclusions

This study examines the hobby garden area located on the Alaeddin Keykubat Campus of Selçuk University. Observations, along with on-site photography and preliminary drone footage, indicate that the existing structures within the hobby garden exhibit significant variation in color, shape, and texture. This disparity adversely affects the institution's corporate identity and environmental perception. Consequently, the objective of this research is to develop design criteria for hut structures that encompass both enclosed and semi-open spaces. The study was conducted within designated areas for hut construction within the current hobby gardens.

The analysis of responses to statements 13, 14, and 15, directed at hobby garden users within the study's findings, leads to several conclusions. First, users of the garden express dissatisfaction with the current layout. Additionally, there is a consensus that hut is a vital component of the hobby garden, and respondents generally favor a uniform design for huts. These findings align with previous research on corporate identity conducted by Kaya (2016) [32], Un Yong (2006) [33]. Furthermore, statement 19 pertains to the assessment of hut windows concerning their façade orientations, which is instrumental in developing criteria

for hut design. Users demonstrate a negative response to window facades that face the road and adjacent parcels while exhibiting a more favorable disposition towards windows that overlook their own garden plot. This trend underscores the importance that communities sharing common religious, historical, and cultural backgrounds place on individual privacy. Consequently, hobby gardeners seek to establish privacy boundaries beyond their own plots. The observations regarding privacy are consistent with the findings of studies conducted by Büyükçam & Zorlu (2018) [34], Ergün & Özyılmaz (2022) [35] and Ardıçoğlu (2017) [36].

The alternatives for hut models comprised five distinct visuals, developed in a virtual environment by professional designers. These models were assessed by hobby garden users using the spatial quality and social compatibility scales. Users rated alternative 13 as more practical, inviting, appealing, and spacious compared to the other options, as indicated by the adjective pairs applied to the spatial quality assessment. This finding demonstrates that users viewed hut alternative 13 more favorably in terms of spatial quality relative to the other hut designs.

The same hut designs were evaluated by hobby garden users utilizing the social compatibility scale. Participants perceived the alternative 10 visuals as more pleasing, communicative, relaxing, and friendly, based on the adjective pairs associated with social compatibility. This finding indicates that users rated alternative hut 10 more favorably than the other hut designs regarding their social compatibility.

The objective of this study is to establish the design criteria for huts within hobby gardens, with a particular emphasis on the hobby garden situated at Selçuk University's Alaeddin Keykubat Campus. This research incorporates findings from an examination of hobby garden users alongside insights derived from design education. The results obtained from the social compatibility and spatial quality scales will significantly contribute to the design framework for huts in hobby gardens. Furthermore, this methodological approach is anticipated to provide valuable guidance for the development of hobby gardens in diverse locations. It is also recommended that the study be expanded to encompass related topics such as lighting and landscaping, thereby fostering interdisciplinary collaboration.

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