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The Assessment of Nıgde Omer Halısdemır Campus wıth Regards to Landscape Qualıty

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Abstract: In this study, it is aimed to determine the factors causing visual pollution in Niğde Ömer Halisdemir University campus, to remove the visual pollution and to take measures to prevent it. A survey was conducted to determine the perceptions of the academic and administrative staff and students of the Niğde Ömer Halisdemir University about the visual pollution of the campus. As the survey study was planned to represent the whole campus, it was aimed to include 2 academicians, 2 administrative staff and 2 students in each department in equal proportion to all faculties within the campus. The questionnaire was conducted by face-to-face interview with 100 people at random selection. The survey results were evaluated in the SPSS package program. As a result of the study, the opinions of the students, academic and administrative staff of Niğde Ömer Halisdemir University about the visual pollution of the structural and plant equipments in the campus have been determined. Preventive measures have been developed to eliminate visual pollution in designated areas.
Keywords: Visual Quality, Niğde, Structural Equipment, Landscape, Campus.

INTRODUCTION

Visual pollution in general can be expressed as all of the images that disturb the human being in the natural and cultural environment.

Visual quality comes from the word "qualitas" which means "quality" in Latin. It is used in the detection, description and identification of assets and events [1, 2,3].

Visual quality is synonymous with beauty in terms of objective values, its Landscape value, however, is a product of subjective and personal evaluation of the aesthetic satisfaction arising from a landscape and the interaction of man and landscape [4,5]. Form, line, color, vitality, harmony, unity etc. are the visual criteria that are important in the concept of visual quality. The organization, positioning, ratios, especially physical structures and associations of these visual criteria are the main constituents of visual quality [3].

As Kane [6] noted, today visual quality assessment is more important than material collection in planning studies. The purpose of the visual quality assessment is to decide whether the landscape is aesthetically appropriate, to list, determine and identify protection areas for physical landscape components and factors in the framework of the conserving the cultural historical structures.

In addition, visual quality assessment, environmental planning and design solutions are closely related to the objective and subjective evaluation of the field [7]. Therefore, the concept of visual quality is one of the many tools to use and measure aesthetic values. According to Temelli [8], the projects created as a result of visual impact assessment, landscape planning and design studies, determining the changes that these projects bring to the current landscape depending on the developments in technology and occupational disciplines used over time, have emerged as a need of people working in the fields of planning and design.

Visual landscape quality assessment is an area of study that has been investigated and methodologically studied nowadays [10-17]. The evaluation of the visual aesthetic quality of the landscape has shown significant improvements in recent years. Objective, reliable and accurate numerical measurements and models are essential. [18,19].

In this study we will take into consideration the criterias of planning and design stages by drawing the elements that are visually influential especially on young people who are our future and making contributions to evaluating the campus as an area where students not only see as a place where they come to receive education also being an green area they enjoy to be in.

MATERIAL AND METHOD

Material

Ömer Halisdemir University, located in the center of Niğde province, has 308.173 m^2 indoor space and 150.000 m^2 open green space (Figure-1). A total of 17,315 students, including undergraduate and graduate students, are studying in the campus. The study was conducted to assess the visual quality of the open green space and equipment in the campus for the current students during the 2016-2017 academic year.

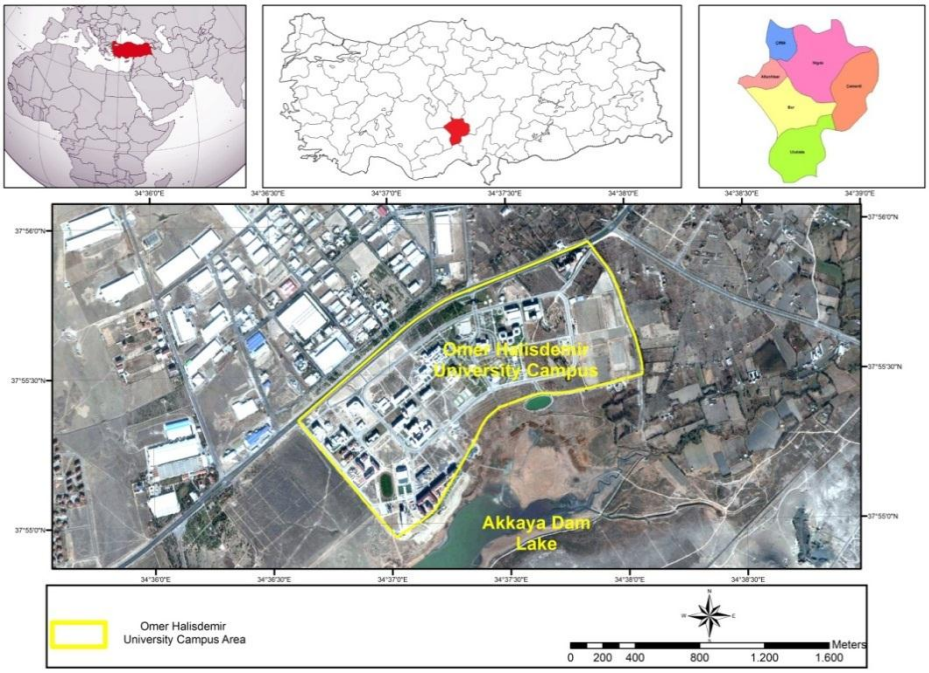

Fig-1: Maps of the Study Area

Based on the literature reviewed, surveys were conducted to three groups to evaluate the physical environment in terms of visual quality within the campus area as academicians, administrative staff and students. As the survey was based on volunteerism, there were differences in the number of people from different faculties. Selected survey questions applied to a total of 240 people which consist of: Faculty of Education (14), Faculty of Science and Arts (15), Faculty of Communication (13), Faculty of Economics and Administrative Sciences (15), Faculty of Architecture (13), Faculty of Engineering (15) Faculty of Agricultural Sciences and Technologies (15), Faculty of Islamic Sciences (10), School of Foreign Languages (10).

Metot

A survey was conducted in order to determine the perception of visual pollution and visual pollution of the campus by the academic and administrative staff and the students of the Niğde Ömer Halisdemir University.
The study is divided into tree sections. In the first phase, photographs of the sections covering the most important landscapes that carries different units were taken. In the second stage, landscape assessment have been made through questionnaires. In the third stage, the influence of the structural and plant equipments on the human being in the campus area was researched according to the sensory analysis method (well-maintained, safe, attractive, understandable, unique and green). The data obtained are interpreted in various ways with photographs for evaluation of visual landscape quality.

The photographs selected for the observations were selected from the landscape architecture discipline that shapes human desires and requirements with ecological and aesthetic concerns. The purpose of the selected photographs for the evaluation of visual quality is to bring together all the photographs representing the study area. Among the 200 photographs, randomly selected photographs were grouped according to landscape applications, natural, cultural features, structural and plant equipment use.

The photographs taken on the campus grounds which has been evaluated in the study, determined according to the points, totals and rankings of the experts. The photographs with the most points according to the expert opinions were

included in the survey (Table-1). The points, totals and rankings given by experts to the areas shot from the campus are stated.

Table 1. Points and ranking by experts on photos

Expert / Photo	X1	X2	X3	X4	X5	TOTAL	RANKING
A		2				2	5
B	4	5	5	3	5	22	1
C			1			1	
D						0	
E	5	4	2	5	4	20	2
F						0	
G		1				1	
H	3		3	2	2	10	4
I						0	
J	2	3	4	4	3	16	3
K	1					1	
L				1		1	
M					1	1	

The photographs selected by the experts were used to determine the type of landscape desired and the photos for each type were evaluated. These landscape types are,

- Views about plant equipments
- Views of participants in the area about plant equipments
- Sensory analysis

Questionnaires were prepared according to the specified landscape characteristics in the selected photographs. Likert type questions were used in the preparation of questionnaires.

Participants' were asked to evulate (well-maintained-neglected, safe-unsafe, attactive-repulsive, comprehensible-complex, original-ordinary, green-without green) structural and plant equipment elements by giving points to them as "0" if not appropriate, "1" if less appropriate, "2" if appropriate and "3" if they were most appropriate.

In the study based on evaluation of visual quality, the results were evaluated by analysis of landscape characteristics.For the equipments in the selected photographs, individual tabs were created for each photograph as structural and plant equipments.

Survey Preliminary Test and Error Correction

The prepared survey forms have passed through a three-step test. As a first step, the experts in the selection of photographs and the second step, the appropriateness of the questions to the statistical analysis methods, were examined by experts in terms of content, form, meaning and evaluation. Finally, the survey itself was tested by applying the survey to the persons who will carry out the surveys. The survey has been shaped in line with the opinions obtained from these individuals and has been upgraded to the level of practice.

Application of Survey

Since the survey was planned to represent the entire campus, all faculties within the campus were equally distributed with random interviews taking into consideration the number of academicians, administrative staff and students.

Each participant was asked to score each image using the definitions provided by Lee ve Kozar [20], Abkar *et al.* [21], Arriaza *et al.* [22]. Each participant made evaluations of the most important environmental problems of the settlement according to their level of importance (visual, noise, air, solid waste, water), ranking according to importance

level, evaluation of structural equipment (atm units, lighting equipment, thrash cans, bus stops, shading elements, grids and covers, guidance signs, seating units, floor covers, building facade, enclosure elements) from the viewpoint of visual pollution (color, scale, form,texture, material suitability, area selection, neglection, inadequacy), opinions about structural, vegetation and sensory analysis in campus area. In addition to these, the study was evaluated with the additional questions provided in previous studies [23- 27, 21,22].

Statistical Analysis

The resulting data were evaluated using Microsoft Office Excel and SPSS 20.0 (Statistical Packages for the Social Sciences) correlation tests [22,28, 29].

FINDINGS

Each participant was asked to score each image using the definitions provided by Lee and Kozar [20-22]. Each participant made evaluations of the most important environmental problems of the settlement according to their level of importance (visual, noise, air, solid waste, water), ranking according to importance level, evaluation of structural equipment (atm units, lighting equipment, thrash cans, bus stops, shading elements, grids and covers, guidance signs, seating units, floor covers, building facade, enclosure elements) from the viewpoint of visual pollution (color, scale, form, texture, material suitability, area selection, neglection, inadequacy), opinions about structural, vegetation and sensory analysis in campus area. In addition to these, the study was evaluated with the additional questions provided in previous studies [23-27,21,22].

İstatistik Analiz

The resulting data were evaluated using Microsoft Office Excel and SPSS 20.0 (Statistical Packages for the Social Sciences) correlation tests [22,28, 29].

BULGULAR

Assessment of Study Area Visual Analysis

The photographs chosen by experts to represent the campus for evaluation in the study are given in Figure-2.

A

B

C

D

Fig-2: Photographs chosen by experts

The views of the participants on the effect of structural equipments on image pollution in Ömer Halisdemir University Campus are given in Table-2.

Table-2: Opinions on visual pollution causes of structural equipments

Structural Equipments	Color	Scale	Form	Texture	Material suitability	Area selection	Neglection	Inadequacy
Atm Units	6,7	2,1	5,8	1,7	4,2	20,8	13,8	**51,2**
Lighting elements	12,5	5,4	8,3	2,1	8,3	14,2	11,7	38,8
Thrash cans	8,3	4,2	11,5	3,5	4,5	17,3	14,7	32,3
Bus stops	8,3	5,8	12,5	3,8	11,3	27,9	20,0	25,0
Shading elements	5,4	5,4	9,2	4,2	8,8	16,3	12,1	42,9
Grids and covers	5,4	5,9	9,2	7,5	8,8	10,5	20,1	22,5
Guidance signs	8,8	5,0	10,8	3,8	7,1	16,7	10,4	36,7
Seating units	9,6	5,8	8,3	4,6	12,1	18,3	19,6	48,3
Floor covers	15,8	3,3	12,9	12,5	23,8	4,2	26,3	12,5
Building facade	35,4	7,9	17,9	15,0	19,6	12,1	32,1	9,6
Enclosure elements	7,1	6,7	12,1	8,3	8,3	7,9	18,3	35,4

When the visual pollution created by the structural equipments is evaluated according to the answers given by the participants, most of the answers are about the inadequancy of the equipments. Secondly it has been determined that the location selection of ATM units, lighting elements, trash cans, stops, shading elements, guidance signs are not correct. It was found that the grids and covers, seating units, floor covers, enclosure elements were neglected, and the colors of the building facades were creating visual pollution.

In view of the participants' opinions, it was evaluated whether plant equipment in the campus caused image pollution in Table-3.

Table-3: Opinions of participants in the study related to plant equipment

Plant Equipment	Area Selection	Sufficiency	Maintenance	Functionality	Appropriate Species Selection
Tree	2	2	2	2	2
Bush	1	1	1	1	1
Grass/Ground cover	0	2	2	2	2

Participants' views on plant equipments indicated that the area selection for grass and ground covers were inappropriate and that the appropriateness of area selection, sufficiency, maintenance, functionality and species selection was low.

Grass surfaces on the campus are generally used in under trees and ground cover. However, as is often the case in many foreign countries, grass surfaces that do not have use on them are used as places where various recreational activities, especially for young people, are carried out. The campus has suitable areas for such suggestions. In the study, image pollution was investigated in four areas that represent the campus. Table 4 contains the opinions of the participants using the scampus on these four areas.

Table-4: Opinions of participants about the visual ımpact of areas representing campus

Area	Well Maintained/ Neglected	Safe/ Not Safe	Attractive/ Repulsive	Apparent/ Complicated	Original/ Ordinary	Green/ Not Green
A	Well Maintained	Safe	Repulsive	Complicated	Ordinary	Green
B	Neglected	Safe	Less Attractive	Complicated	Ordinary	Moderate Green
C	Well Maintained	Safe	Less Attractive	Complicated	Ordinary	Moderate Green
D	Well Maintained	Low Safety	Less Attractive	Complicated	Ordinary	Not Green

As seen on the charts, according to the selected photographs, the areas are generally not attractive, seen as complex and the areas are not regarded as green. The view that the campus area is an ordinary place, not an original one, has been achieved.

RESULTS

Niğde Ömer Halisdemir University Campus, where the research was carried out, has advantageous position due to its location. Niğde Ömer Halisdemir University campus area is close to the city center, transportation can be provided by public transport from the city center or by private vehicles.

Participants were asked to examine the visual quality of the equipment and the green spaces in the campus area and considered the objects as appealing to the eye. Visual quality is defined as both objective criteria and subjective criteria to specify natural beauty, aesthetic qualities and visual preferences [30-32].

According to Lothian [31], Beauty changes in the "spectator's eye" according to age group, occupation, culture and social category of people [33-36, 32].

As stated in their work of Uzun *et al.* [37], Eroğlu *et al.* [38], Gültürk and Şişman [39], Düzgüneş Demirel [40], Arriaza *et al.* [22], a survey was applied for visual quality evaluation in the campus area. The same method can be applied to describe and rank the visual quality assessment. In order to increase the visual quality, better visual spaces can be created by taking into consideration the mentioned criteria.

The results were assessed within the framework of the participants' criteria for structural equipment in the campus area (Table-7). Green areas has been evaluated from the photographs, the obtained results are given in Table 5. According to these results, no criteria were observed to be “very good” compared to the data of the campus visual analysis. Participants' preferences were generally "good".

Table-5: Participants' views on structural equipments

Criteria	Building Facade	Lighting elements	Guidance signs	Floor covers	Enclosure elements	Shading elements	Trash cans	Roadside car park
Area selection		2	2	2	2	1	1	2
Sufficiency		2	1	2	1	2	1	0
Material	2	2	2	2	2	2	2	2
Form	2	2	2	2	1	1	2	2
Scale		2	2	2	1	2	1	2
Color	2	2	2	2	2	2	1	2
Texture	2	2	2	2	2	1	1	2

Participants assessed the study area in terms of 8 different structural equipments. These; building facade, lighting elements, guidance signs, floor covers, enclosure elements, shading elements, trash cans, roadside car parks have been examined in terms of area selection, sufficiency, material, form, scale, color, texture.

According to the statistical evaluations of the participants' survey results

It has been found that the area selections of lighting elements, guidance signs, floor covers, enclosure elements, roadside car parks are appropriate, and the location of the shading elements and trash cans are less suitable. When Table 7 is evaluated in general, "1 less suitable" and "2 suitable" results were obtained according to the statistical results of the participants' criteria.

Studies on improving campuses have been carried out in order to improve the living conditions. According to Ertekin *et al.* [41] it has been reported that the open and green spaces in the campus area that is planned in the form of a park in the Karabük University campus are important in terms of quality and safety of life of the students and lecturers. It is stated that this situation is generally reflected positively to the quality of education. They have prepared a landscape project and made suggestions in order to transform the users' academic, social, artistic, cultural and sportive needs into an area where they can comfortably meet each need every period.

Beyond providing expertise training in specific areas, universities are also obliged to provide their employees, users, people in close proximity and their city with contemporary lifestyle models and environments. Establishing suitable environments and facilities for artistic, cultural, social and sports activities in the universities which are the educational institutions where the knowledge and skills related to the study fields are gained, are the most important factors that accelerate the process of self development and social existence [41] .

Another feature that is important both in terms of functionality and visibility is the elements of plant equipments. Plant equipments in the campus are mostly trees, bushes and grass surfaces, no ground cover and climbing-creeping plants are used.

In Table-6, where the views of the participants are also indicated by the dark background, it is assessed whether the plant equipments in the campus cause visual pollution. The plant equipment that causes visual pollution is also indicated by (+).

Table-6: Effect of plant equipment on visual pollution in Niğde Ömer Halisdemir University campus

Plant Equipment	Appropriate Species Selection	Functionality	Maintenance	Area Selection	Inadequancy	Excessive
Tree	+	+	+		+	
Bushes	+	+	+		+	
Ground Cover	+		+		+	

As shown in the chart, the participants stated that the trees used in the settlement as plant equipment were inadequate, did not provide functionality and that their maintenance was not done in sufficiently. Participants also stated that the functionality and area selection of the bushes were not appropriate and that they were inadequate in the campus. Another plant equipment that is heavily used in the area is grass surfaces. However, participants reported that grass areas are not qualified enough to meet the campus requirements, and that the appropriate species selection and maintenance are not enough therefore causing visual pollution.

Because of the climatic properties, the variety of ornamental plant species that are outside of natural plant species is very low. The most important factors that cause negative visual effects in the campus include roadside parking lots, lack of care in structural and herbal equipments, and plans and projects that have not been done considering the design principles in the context of holistic planning approach.

The factors that cause all these adverse effects can be avoided by projects of maintenance and rehabilitation to be carried out and by taking into account the visual impact of the projects and the subsequent spatial decisions to be taken.

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