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## IDENTIFYING THE DESIGN ELEMENTS OF CONTEMPORARY UNIVERSITY CAMPUS OPEN SPACES: A LITERATURE REVIEW

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*This paper first selects 7 valuable pieces of literature on research of university campus open space design from the past five years (2019-2024). Then, 10 design elements such as Legibility and Wayfinding, Enclosure and Comfort, and Human Scale are identified through the literature analysis method. Sample pictures are used to make identified design elements more graphic. These abundant identified design elements fill the gap of research of contemporary university campus open space design. More importantly, the present study lays a foundation for the future development of contemporary university campus open space design guidelines.*

**Key words:** *contemporary university campus, open space design, design elements, literature analysis.*

### INTRODUCTION

University campus open space, as the space outside the buildings, not only serves as passageways between buildings, reflecting their role in transportation, but also provides humanized spaces that offer learning, rest, social interaction, and relaxation opportunities for university faculty and students. Research on university campus open space design has taken diverse perspectives recently, with a wide range of design elements. These abundant design elements could inspire designers to create healthier and more vibrant educational environments for university faculty and students. However, few studies have synthesized the design elements of university campus open spaces identified from various research perspectives into a collection. This study utilizes a literature analysis method to identify design elements of university campus open spaces from the literature selected from the past five years (2019-2024).

### PURPOSE

The purpose of this study is to identify design elements of contemporary university campus open space.

### RESULTS AND DISCUSSION

The literature analysis method was used in this study to collect and analyze the data. The whole process consisted of 4 phases. At first, ('university campus' AND 'open space' OR 'outdoor space' OR landscape AND design) as the keywords were searched through the Web of Science and Scopus database. We chose the



recent five years (2019-2024) literature related to university campus open space design to form a literature review matrix for investigation. Then the valuable literature was selected for extracting design elements. Next, the extracted design elements were synthesized. Duplicate items and irrelevant items were eliminated. At last, design elements were identified to form a collection.

Functionality as a campus open space design element was identified from both Peker & Ataöv and El-Darwish's study [1, 2]. The former is about informal learning, while the latter is about social interaction. Lu & Fu identified 5 elements of campus open space design which contribute to students' attention restoration [3]. McDonald-Yale & Birchall summarized 8 design elements of the campus plaza that influenced students' well-being. In addition, design elements which was conducive to students' landscape preference, sense of community and walkability were identified [4-7]. The primary design elements of university campus open space were extracted by analyzing literature (Table 1).

**Table 1.**

The primary identified design elements of university campus open space

Reference	Design elements
Peker & Ataöv (2020)	Functionality (informal learning)
El-Darwish (2022)	Functionality (Social interaction), Accessibility
Lu & Fu (2019)	Visibility, accessibility, comfort, recognition, sense of belonging
McDonald-Yale & Birchall (2021)	Legibility and Wayfinding, Safety and Accessibility, Enclosure and Comfort, Human Scale, Transparency, Connectivity, Complexity and Activity, Landscaping
Hami & Abdi (2021)	Landscaping
Ng et al. (2023)	Legibility, Functionality, Connectivity
Zhang et al. (2024)	imageability, enclosure, human scale, transparency, complexity











Then, the primary identified design elements were synthesized. Duplicate items contained two types: name and connotation. Duplication of names includes 'Accessibility', 'Enclosure and Comfort', 'Human Scale', and so on. 'Recognition', which is the same as 'Legibility', reflects on the layout of university campus open space [3]. Both 'Visibility' and 'Transparency' emphasize that the view is not obstructed [3, 4]. Meanwhile, the enclosure layout can provide a sense of belonging. So 'Sense of belonging' can be translated into 'Enclosure and Safety' [3]. As a consequence, 'Recognition', 'Visibility', and 'Sense of belonging' as the duplicate items are eliminated from the collection of design elements. At last, the final 10 design elements including 'Functionality', 'Legibility and Wayfinding', 'Safety and Accessibility', 'Enclosure and Comfort', 'Human Scale', 'Transparency',



'Connectivity', 'Complexity and Activity', 'Landscaping' and 'Imageability' were identified and we use a sample picture to express the meaning of design elements to make them graphic (Table 2).

**Table 2.**

The meaning of design elements

№	Design element	Sample picture	№	Design element	Sample picture
1	Functionality		6	Transparency	
2	Legibility and Wayfinding		7	Connectivity	
3	Safety and Accessibility		8	Complexity and Activity	
4	Enclosure and Comfort		9	Landscaping	
5	Human Scale		10	Imageability	

Design themes from the selected 7 literature sources are diverse including students' learning experiences, social interaction, attention restoration, well-being, landscape preference, sense of community, and walking activity [1-7]. However, they are all people-centered dimensions to some degree. Therefore, more design themes that belong to diverse dimensions should be incorporated in future studies to enrich design elements of contemporary university campus open space. For example, stormwater management (ecological and sustainable dimension) and local and regional culture (cultural and historical dimension) are meaningful themes in the practice of university campus open design.

### CONCLUSIONS

This paper identified 10 design elements including 'Functionality', 'Legibility and Wayfinding', 'Safety and Accessibility', 'Enclosure and Comfort', 'Human Scale', 'Transparency', 'Connectivity', 'Complexity and Activity', 'Landscaping' and 'Imageability' through literature analysis method from recent five years (2019-2024)



literature which are related to university campus open space design. In addition, sample pictures are used to make identified design elements more graphic. These identified design elements lay a foundation for the future development of contemporary university campus open space design guidelines.

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## СІ БІНГ, АЗЛІН ІРЯНІ БІНТІ МОХД НУР, ВЕН КЕСІН ВИЗНАЧЕННЯ ЕЛЕМЕНТІВ ДИЗАЙНУ ВІДКРИТОГО ПРОСТОРУ СУЧАСНОГО УНІВЕРСИТЕТСЬКОГО КАМПУСУ: ОГЛЯД ЛІТЕРАТУРИ

У цій статті проаналізовано 7 літературних джерел, присвячених дослідженню дизайну відкритих просторів університетських кампусів, за останні п'ять років (2019-2024 рр.). Визначено 10 елементів дизайну, таких як розбірливість і пошук шляхів, огороження і комфорт, людський масштаб. Зразки зображень використовуються для того, щоб зробити визначені елементи дизайну більш наочними. Робота заповнює прогалину в дослідженнях сучасного дизайну відкритого простору університетських кампусів та закладає основу для майбутнього розвитку керівних принципів дизайну відкритих просторів сучасних університетських кампусів.

**Ключові слова:** сучасний університетський кампус, дизайн відкритого простору, елементи дизайну, аналіз літератури.