Site Scoring In Architectural Education: Assessment Structures and Decision Logic In Undergraduate Final Projects

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Abstract.
Site scoring is commonly employed in architectural education to compare alternative locations, yet limited empirical evidence exists regarding how assessment structures and decision logic are documented in undergraduate design projects. This study examines site selection practices in 173 undergraduate final project reports published at Universitas Pendidikan Indonesia between 2023 and 2025. Using descriptive document analysis, quantitative mapping and thematic coding were conducted to examine site alternatives, assessment criteria, scoring scales, weighting, aggregation procedures, and decision-making functions. Of the 173 reports, 104 (60.1%) documented site comparisons, while 96 contained numerical scoring entries. Three-site comparisons predominated (73.1%), with accessibility and transportation (94.2%) and location and functional relationships (87.5%) emerging as the most frequently recorded criteria categories. Among reports with numerical entries, 91 (94.8%) employed unweighted additive scoring, while only five (5.2%) documented explicit criterion weights. Two illustrative cases revealed that eligibility-related spatial planning criteria could influence comparative rankings differently, highlighting the distinction between numerical contributions and regulatory eligibility. These findings suggest that numerical scoring structures, although useful for organizing comparisons, do not necessarily communicate the underlying decision-making functions of assessment criteria. The study identifies three interconnected areas for strengthening architectural education: criteria formulation, scoring and aggregation literacy, and decision-rule literacy. Emphasizing these dimensions can improve methodological traceability and support more transparent, context-sensitive site selection decisions.

Keywords: *architectural education, decision logic, multi-criteria assessment, site scoring and site selection.*

I. INTRODUCTION

Site selection is a fundamental stage of architectural design because it establishes the physical, environmental, social, regulatory, and infrastructural conditions within which a proposed building will be developed. Selecting an appropriate site requires consideration of its physical characteristics, accessibility, surrounding activities, environmental conditions, and conformity with the intended architectural program (LaGro, 2013; Navitas et al., 2025). Although closely related, site selection and site analysis serve different purposes: the former concerns choosing among potential locations, whereas the latter provides information about site conditions that may inform both site selection and subsequent design development (De Chiara & Koppelman, 1978).

In architectural education, site selection forms part of the design reasoning that students are expected to develop and communicate. Students translate program requirements and contextual information into criteria for comparing potential sites, including land-use regulations, accessibility, physical conditions, site dimensions, infrastructure, and relationships with surrounding activities (Muhammad & Marasabessy, 2023). The relevance of these criteria varies according to project function, scale, and context. Such variation is not inherently problematic, provided that the relationships between project requirements, assessment criteria, and selection decisions can be understood. From the perspective of reflective practice, architectural design involves developing and reconsidering judgments through engagement with specific situations (Schön, 1984). Documenting site assessments may therefore support the examination and communication of design judgments in architectural education.

Numerical site scoring organizes comparisons by assigning values to alternative locations against specified criteria. Indonesian architectural design studies have applied site selection criteria to various building types, including agritourism, vertical housing, sport facilities, science and technology parks, conservation facilities, and oceanariums (Albab et al., 2025; Andarwati et al., 2024; Aprilina et al., 2024; Febrianto et al., 2024; Gesang et al., 2025; Haryono et al., 2025). For example, Prihatmoko et al. (2025) frame terminal site selection as a multi-criteria decision-making problem, while Al Mohamed et al. (2023) combine fuzzy AHP for criteria weighting with fuzzy TOPSIS for ranking hospital sites. These applications illustrate different approaches to structuring site assessment, but individual project studies do not establish how such procedures are distributed across undergraduate architectural final projects.

Numerical site scoring is conceptually related to multi-criteria decision analysis (MCDA), which structures comparisons involving multiple, potentially competing criteria. However, the presence of a numerical matrix does not necessarily indicate the application of a particular MCDA method. Assessment procedures also depend on how criteria are operationalized, numerical values are assigned, weights are established, and scores are aggregated. Ayan et al. (2023) discuss approaches to determining criterion weights, while Singh and Pant (2021) examine weighting methods and their applications. Krishnan (2022) further demonstrates that normalization choices can influence MCDM outcomes. These considerations provide a methodological basis for examining site-scoring structures without assuming that more complex decision models are inherently preferable.

An important distinction concerns the decision-making functions of site selection criteria. Eligibility requirements determine whether a site satisfies conditions necessary for a proposed development, whereas comparative preferences differentiate the relative advantages of otherwise eligible alternatives. Additive scoring is compensatory: lower scores on one criterion may be offset by higher scores on others (Department for Communities and Local Government, 2009). This property requires particular attention when eligibility-related requirements, such as binding land-use provisions, are incorporated alongside comparative attributes such as accessibility, views, and environmental conditions. Nevertheless, their inclusion within a common assessment matrix does not necessarily indicate inappropriate decision-making, as eligibility screening may have preceded comparative scoring. The methodological question is therefore how the respective functions of criteria are represented and how assessment procedures connect eligibility, comparison, and final selection.

These considerations are particularly relevant to architectural education because scoring matrices communicate not only numerical results but also aspects of design judgment. Numerical transparency, represented by visible criteria, scores, and calculations, can be distinguished from methodological traceability, which concerns the ability to follow the relationships between site evidence, assessment procedures, and selection decisions. From the perspective of reflective practice (Schön, 1984), making these relationships explicit may support students in examining and communicating their design reasoning. In the present study, this distinction provides an interpretative perspective rather than a measure of students' reflective abilities or the overall validity of their decisions.

Although existing architectural studies demonstrate the application of site assessment methods to individual design projects, they do not characterize the distribution of assessment structures and aggregation practices within the undergraduate final project archive examined here. In particular, the prevalence of site comparison and numerical scoring, the organization of criteria, and the documented use of weighting and aggregation procedures have not been systematically mapped across this institutional dataset. Examining these practices can provide empirical evidence of how site-scoring procedures are represented in architectural education while identifying methodological questions concerning the relationship between assessment structures and decision-making functions.

Accordingly, this study examines 173 undergraduate final project reports from the Architecture Study Program at Universitas Pendidikan Indonesia published between 2023 and 2025. It aims to: (1) map the prevalence and characteristics of documented site comparison and numerical scoring; (2) examine variations in assessment structures, including site alternatives, criteria categories, scoring scales, weighting, and aggregation procedures; and (3) discuss their methodological and educational implications, particularly regarding the distinction between eligibility requirements and comparative preferences. Rather than evaluating

the correctness of individual site selection decisions or developing a new assessment framework, this study contributes empirical evidence to discussions of site selection methodology and identifies directions for strengthening criteria formulation, scoring and aggregation literacy, and decision-rule literacy in architectural education.

II. METHODS

Research Design and Document Population

This study employed descriptive document analysis combining quantitative mapping and thematic content coding to examine site selection assessment practices documented in undergraduate architectural final projects. The analysis focused on two interrelated dimensions: assessment structure, encompassing site alternatives, criteria, scoring scales, weighting, and aggregation procedures; and decision logic, concerning the functions of eligibility requirements and comparative preferences within site assessment.

The study population comprised 173 final project reports from the Architecture Study Program, Faculty of Engineering and Industrial Education, Universitas Pendidikan Indonesia, held in the study program library and published between 2023 and 2025. All reports within this defined population were included, constituting a document census. The population consisted of 47 reports from 2023, 45 from 2024, and 81 from 2025. Publication year referred to the year recorded in the library documentation rather than necessarily the year of the final examination or students' enrollment cohort.

The analysis was primarily descriptive. Comparisons between publication years were intended to identify variations in documented assessment practices, rather than establish changes in student competence, instructional quality, or institutional assessment standards.

Data Extraction and Classification

Data were analyzed using an existing mapping dataset compiled from the final project reports. Two operational classifications were distinguished. Site comparison referred to reports documenting two or more alternative locations, regardless of the assessment approach employed. Numerical scoring entries referred to numerical ranges or explicit value sets recorded in the scoring field of reports within the site-comparison group. The availability of numerical entries did not necessarily establish the completeness of an alternative-by-criterion scoring matrix.

The mapping identified 104 reports documenting site comparison, comprising 20 reports from 2023, 29 from 2024, and 55 from 2025. Numerical scoring entries were available in 96 reports: 18, 28, and 50, respectively. The remaining eight reports were retained in analyses of alternatives and criteria but excluded from analyses specifically concerning numerical scoring formats and aggregation procedures.

The mapping covered six groups of variables: (1) basic characteristics, including publication year and number of alternatives; (2) assessment structure, including the number and thematic classification of criteria; (3) numerical scoring, including recorded scales and numerical spatial references; (4) weighting and aggregation procedures; (5) decision logic concerning eligibility-related and preference-related criteria; and (6) available information relevant to assessment justification.

The number of original criteria groups was determined from unique top-level criterion numbers and distinguished from the thematic categories generated through coding. The presence or absence of explicit criterion weights and numerical spatial measurements or thresholds was verified against the source reports. Explanations underlying individual score assignments, however, were not systematically coded and were therefore excluded from comprehensive evaluation.

Thematic Coding and Consistency Checking

Thematic content coding employed a deductive category framework operationally adapted from site selection considerations discussed by Muhammad & Marasabessy (2023). Criteria and subcriteria were classified according to their contextual meaning, considering the accompanying descriptions in the source reports rather than relying solely on terminology.

The coding framework comprised 15 substantive categories: spatial planning and regulations; land status and tenure; accessibility and transportation; location and functional relationships; users and workforce; economics and markets; site dimensions and development; physical land characteristics and hydrology; climate

and thermal comfort; ecology and environmental quality; infrastructure and utilities; risk and safety; social and cultural conditions; views and visibility; and special operational requirements. SWOT analysis was recorded as an additional category representing an analytical approach rather than an intrinsic site characteristic.

The coding unit was an individual criterion or subcriterion, while the counting unit was the report. A criterion could be assigned to more than one category when its description addressed multiple substantive attributes. However, each category was counted only once per report, regardless of repetitions or the number of associated subcriteria.

Coding was conducted by the researcher. Following the initial classification, the researcher systematically re-examined the coding assignments across all 104 site-comparison reports to verify consistency with the operational category definitions and the contextual descriptions in the source documents. This review was used to maintain consistency in the interpretation and classification of criteria. As coding and subsequent checking were performed by the same researcher, no inter-coder reliability estimate was calculated.

Analysis of Scoring, Aggregation, and Decision Logic

The analysis examined numerical scoring formats, explicit weighting, and documented aggregation procedures. Scoring formats were identified from recorded numerical ranges or value sets. Numerical spatial measurements or thresholds were identified separately when criteria specified quantitative references, such as site area, road width, distance, radius, or slope. Criterion numbering, scoring values, regulation years, and other numbers unrelated to spatial measurements or thresholds were excluded from this classification. These references were not automatically interpreted as scoring rubrics or eligibility rules.

Aggregation procedures were identified from the documented operations used to combine criterion scores. Among the 96 reports containing numerical scoring entries, five documented explicitly differentiated criterion weights, while the remaining 91 employed direct summation without differentiated weights, classified as *unweighted additive scoring*. This classification was based on the documented aggregation procedures rather than inferred solely from the absence of explicit weighting.

Decision logic was examined through the relationship between eligibility-related criteria and comparative preferences. Eligibility requirements were understood as conditions that must be satisfied for a site to qualify for a proposed development, whereas comparative preferences represented attributes used to distinguish relative advantages among alternatives. The distinction was based on the potential decision-making function of each criterion rather than its thematic category alone.

Two cases, TA74 (Sport Center) and TA91 (Health and Wellness Center), were used to illustrate different numerical contributions of spatial planning criteria within additive scoring structures. Both incorporated eligibility-related land-use considerations alongside comparative site attributes. The analysis compared their recorded criterion scores and aggregate results, including a hypothetical exclusion of the spatial planning criterion to examine its contribution to relative rankings. This calculation was undertaken for analytical illustration and did not constitute a systematic sensitivity analysis or an assessment performed in the original student reports.

The cases were selected to illustrate identified methodological arrangements rather than estimate their prevalence across the document population. Their interpretation focused on the distinction between a criterion's contribution to comparative ranking and its potential function in determining site eligibility.

Data Analysis and Limitations

Descriptive quantitative analysis was used to calculate frequencies, percentages, ranges, means, and medians. The prevalence of site comparison and numerical scoring entries was calculated relative to the complete population of 173 reports. Analyses of alternatives, criteria structures, thematic categories, weighting documentation, and numerical spatial references used the site-comparison group, comprising 20 reports in 2023, 29 in 2024, 55 in 2025, and 104 overall.

Analyses specific to numerical scoring formats and aggregation procedures used the 96 reports with numerical entries, comprising 18, 28, and 50 reports in the respective years. Thematic category frequencies were calculated at report level, allowing multiple categories per report without counting repeated occurrences of the same category. Percentages were rounded to one decimal place, while means were calculated from report-level values and rounded to two decimal places.

Qualitative interpretation examined the methodological implications of assessment structures, aggregation procedures, and the functions of eligibility-related and preference-related criteria. Methodological traceability informed the interpretation but was not operationalized as a comprehensive measurement variable.

The study was limited to documented assessment practices within a single institution. It did not systematically examine scoring explanations, reconstruct complete decision-making sequences, verify the regulatory compliance of individual sites, or evaluate ranking stability across the document population. Consequently, the findings characterize assessment structures and selected aspects of decision logic rather than establish the correctness of individual site selection decisions or represent architectural education practices more broadly.

III. ESULT AND DISCUSSION

Prevalence of Site Comparison and Numerical Scoring

Of the 173 undergraduate final project reports published between 2023 and 2025, 104 (60.1%) documented comparisons involving two or more alternative sites. The proportions were 42.6% in 2023, 64.4% in 2024, and 67.9% in 2025 (Table 1). Numerical scoring entries were available in 96 reports, representing 92.3% of the site-comparison group and 55.5% of the complete document population. The remaining eight comparison reports did not contain usable numerical entries in the mapping.

Table 1. Distribution of Site Comparison by Publication Year

Year	Total Reports	Site Comparison	Percentage (%)	Alternatives		
				2	3	≤4
2023	47	20	42.6	8	10	2
2024	45	29	64.4	4	22	3
2025	81	55	67.9	9	44	2
Total	173	104	60.1	21	76	7

Three-site comparison was the most frequently documented configuration, appearing in 76 reports (73.1% of the site-comparison group), followed by two alternatives in 21 reports (20.2%) and four or more alternatives in seven reports (6.7%).

The findings indicate that comparing alternative sites was a recurring practice in the examined final projects, with numerical assessment commonly accompanying this process. The predominance of three-site comparison suggests a frequently adopted assessment configuration within the institutional archive. However, the available data do not establish whether this pattern resulted from instructional guidelines, supervision practices, or individual student decisions.

The proportion of reports documenting site comparison increased descriptively across the three publication years. This pattern indicates a difference in documented practices rather than demonstrating improvement in methodological competence or educational quality.

Criteria Structures and Thematic Distribution

The number of original criteria groups varied from two to 15 across the 104 site-comparison reports, with a mean of 5.98 and a median of six. The annual means were 5.60 in 2023, 5.72 in 2024, and 6.25 in 2025. These differences reflect variation in the organization of assessment criteria rather than necessarily indicating differences in evaluation quality.

The thematic classification identified 15 substantive categories and an additional category representing SWOT analysis. Accessibility and transportation was the most frequently documented category, appearing in 98 reports (94.2%), followed by location and functional relationships in 91 reports (87.5%). Spatial planning and regulations appeared in 63 reports (60.6%), infrastructure and utilities in 52 (50.0%), and ecology and environmental quality in 50 (48.1%).

Table 2. Frequencies of Coded Site Selection Categories by Publication Year

Criteria Category	2023 n (%)	2024 n (%)	2025 n (%)	Total n (%)
Spatial planning and regulations	10 (50.0)	15 (51.7)	38 (69.1)	63 (60.6)

Land status and tenure	1 (5.0)	4 (13.8)	2 (3.6)	7 (6.7)
Accessibility and transportation	19 (95.0)	27 (93.1)	52 (94.5)	98 (94.2)
Location and functional relationships	19 (95.0)	25 (86.2)	47 (85.5)	91 (87.5)
Users and workforce	4 (20.0)	6 (20.7)	14 (25.5)	24 (23.1)
Economics and markets	3 (15.0)	5 (17.2)	9 (16.4)	17 (16.3)
Site dimensions and development	7 (35.0)	12 (41.4)	29 (52.7)	48 (46.2)
Physical land characteristics and hydrology	11 (55.0)	11 (37.9)	18 (32.7)	40 (38.5)
Climate and thermal comfort	3 (15.0)	6 (20.7)	4 (7.3)	13 (12.5)
Ecology and environmental quality	7 (35.0)	11 (37.9)	32 (58.2)	50 (48.1)
Infrastructure and utilities	11 (55.0)	11 (37.9)	30 (54.5)	52 (50.0)
Risk and safety	2 (10.0)	2 (6.9)	10 (18.2)	14 (13.5)
Social and cultural conditions	6 (30.0)	7 (24.1)	7 (12.7)	20 (19.2)
Views and visibility	6 (30.0)	12 (41.4)	11 (20.0)	29 (27.9)
Special operational requirements	1 (5.0)	1 (3.4)	1 (1.8)	3 (2.9)
SWOT analysis	0 (0.0)	3 (10.3)	2 (3.6)	5 (4.8)

Note: Percentages use denominators of 20, 29, 55, and 104 reports, respectively. Categories are not mutually exclusive. SWOT represents an analytical approach rather than a site attribute.

Accessibility and transportation, together with location and functional relationships, consistently appeared among the most frequently documented categories across all three publication years. Their recurrence indicates that connectivity and relationships with surrounding activities were commonly represented in site comparisons. Nevertheless, the frequency of a category does not establish its relative importance or influence on the final decision.

Other categories varied more substantially. Ecology and environmental quality increased from 35.0% in 2023 to 58.2% in 2025, while physical land characteristics and hydrology declined from 55.0% to 32.7%. These variations may reflect differences in project characteristics or assessment priorities, although building functions were not systematically classified.

The diversity of criteria structures is not inherently problematic because architectural projects differ in their programs, contexts, and requirements. The relevant methodological consideration is whether the selected criteria correspond to the particular design problem and whether their respective assessment functions are sufficiently distinguished.

Scoring Scales, Weighting, and Aggregation Procedures

Among the 96 reports with numerical scoring entries, recorded formats included scales of 0–1, 0–2, 0–3, 0–4, 0–5, 0–20, 0–100, 1–2, 1–3, 1–4, 1–5, and 1–10, alongside mixed ranges and explicit value sets. The 1–5 scale was the most frequently recorded single-range format, appearing in 24 reports (25.0%). The most common formats differed by publication year: 0–1 in 2023 (44.4%), 1–4 in 2024 (28.6%), and 1–5 in 2025 (38.0%).

Variation in scoring scales does not necessarily indicate an invalid assessment procedure. The interpretation of numerical values depends on their meaning, preference direction, and the rules used to combine them. Normalization concerns the comparability of numerical inputs, whereas scoring rubrics establish how observed site conditions are translated into assessment values. Krishnan (2022) demonstrates that normalization choices can influence MCDM outcomes, emphasizing the importance of documenting numerical processing where applicable.

Of the 96 reports containing numerical scoring entries, 91 (94.8%) employed direct summation without differentiated criterion weights, classified as *unweighted additive scoring*. Only five reports (5.2%)

documented explicitly differentiated weighting. The eight site-comparison reports without numerical entries were excluded from this aggregation classification.

The unweighted additive procedure can be represented as:

$$S_i = \sum_{j=1}^{m} s_{ij} \quad (1)$$

where S_i denotes the total score of site alternative i, s_{ij} represents the score assigned to alternative i for criterion j, and m is the number of criteria included in the aggregation.

Although this procedure assigns equal numerical coefficients to individual criterion scores, their effective contributions may differ when criteria use different scoring ranges or contain different numbers of subcriteria. Consequently, the absence of differentiated weights does not necessarily mean that all assessment dimensions exert equal influence on aggregate results. The interpretation of weighting and aggregation must therefore consider the structure of criteria and their scoring scales (Ayan et al., 2023; Singh & Pant, 2021).

Numerical spatial measurements or thresholds were recorded in 16 of the 104 site-comparison reports (15.4%), including references to site area, road width, distance, radius, and slope. These measurements were distinguished from scoring rubrics and eligibility rules, which were not systematically classified. The limited documentation of explicit numerical spatial references does not, by itself, establish the absence of qualitative assessment explanations.

Eligibility Requirements and Comparative Preferences

The analysis also identified cases in which eligibility-related spatial planning criteria were incorporated into the same additive scoring structure as comparative attributes, including accessibility, topography, surrounding functions, and environmental conditions. This arrangement raises a methodological distinction between criteria that may determine site eligibility and those used to compare the relative advantages of alternatives.

Two illustrative cases, TA74 and TA91, demonstrate different contributions of spatial planning criteria to comparative rankings (Table 3). TA74 concerned a sport center, whereas TA91 involved a health and wellness center. Both incorporated land-use considerations associated with the Bandung spatial plan alongside other site assessment attributes.

Table 3. Comparative Analysis of Eligibility-Related Criteria in Two Site-Scoring Cases

Analytical Aspect	TA74	TA91
Proposed building function	Sport Center	Health and Wellness Center
Number of alternatives	3	3
Number of criteria	7	6
Eligibility-related criterion	Spatial planning (Bandung RTRW)	Land-use conformity (Bandung RTRW)
Land-use classification (A1; A2; A3)	High-density residential; urban park/green open space; public service facilities	Residential; residential; residential
Criterion scores (A1; A2; A3)	1; 2; 3	0; 0; 0
Aggregation method	Unweighted additive	Unweighted additive
Total scores (A1; A2; A3)	18; 18; 20	12; 10; 9
Totals excluding RTRW criterion*	17; 16; 17	12; 10; 9
Highest-ranked alternative	A3	A1
Effect of RTRW criterion on ranking*	Differentiates A3 from A1, which otherwise share the highest score	No effect; identical scores across alternatives

Note: A1–A3 denote site alternatives. Land-use classifications, criterion scores, and aggregate scores were extracted from the original site-scoring matrices in reports TA74 and TA91. Totals excluding the RTRW criterion were calculated by the researchers for illustrative comparison and were not part of the original student assessments. These cases do not independently establish regulatory compliance or noncompliance.

In TA74, three alternatives received spatial planning scores of one, two, and three, corresponding to high-density residential, urban park/green open space, and public service facility zones, respectively. Their

aggregate scores were 18, 18, and 20, making the third alternative the highest-ranked. Hypothetically excluding spatial planning would produce totals of 17, 16, and 17, indicating that this criterion differentiated the third alternative from the first, which would otherwise share the highest score.

In TA91, all three alternatives were classified as residential areas and received zero for land-use conformity. Despite these identical scores, their aggregate totals were 12, 10, and 9, with the first alternative ranked highest. Thus, spatial planning did not influence the ranking, although the recorded zero scores do not independently establish regulatory noncompliance.

Together, the cases demonstrate that the numerical contribution of an eligibility-related criterion may differ from its potential function in determining site suitability. In TA74, spatial planning scores influenced the distinction between the highest-ranked alternatives, while in TA91, identical scores had no effect on ranking. Neither outcome independently establishes whether the proposed development satisfies binding land-use requirements.

This distinction is particularly relevant to additive scoring because lower criterion scores can be offset by higher scores elsewhere (Department for Communities and Local Government, 2009). Such compensation may be appropriate among comparative preferences, but eligibility requirements may need to be assessed independently before eligible alternatives are ranked. The observed arrangements therefore highlight the importance of documenting criterion functions and assessment sequences rather than demonstrating that inappropriate sites were selected.

Methodological and Educational Implications

The findings suggest that improving site selection practices in architectural education requires attention not only to numerical scoring techniques but also to how assessment criteria are formulated, interpreted, and incorporated into decision-making procedures. The documented variations in criteria structures, scoring scales, and aggregation methods, together with the illustrative cases discussed in Section 3.4, highlight three interconnected areas of methodological learning: criteria formulation, scoring and aggregation literacy, and decision-rule literacy.

First, criteria formulation concerns the ability to translate architectural program requirements and contextual information into relevant assessment criteria. The variation in criteria structures, alongside the recurring use of accessibility, functional relationships, and spatial planning considerations, indicates different approaches to organizing site assessments. Such variation is not inherently problematic, given the diversity of architectural projects. However, students should be encouraged to explain the relevance of selected criteria to project requirements and distinguish between overlapping assessment dimensions.

Second, scoring and aggregation literacy involves understanding how site conditions are translated into numerical values and how those values contribute to comparative results. The diversity of scoring scales and the predominance of direct additive procedures without differentiated weights highlight the importance of understanding the assumptions underlying numerical assessment. Equal numerical coefficients do not necessarily produce equal contributions when criteria employ different score ranges or numbers of subcriteria. Architectural design education should therefore emphasize the meaning of scoring scales, the rationale for aggregation procedures, and the implications of combining criterion scores rather than treating numerical totals as self-explanatory outcomes.

Third, decision-rule literacy concerns the ability to distinguish eligibility requirements from comparative preferences. The cases of TA74 and TA91 demonstrate that eligibility-related spatial planning criteria may influence comparative rankings differently. In TA74, the spatial planning criterion contributed to differentiating the highest-ranked alternative, whereas in TA91, identical land-use scores did not affect the ranking. These observations suggest that students should clarify whether a criterion represents a mandatory condition, a comparative preference, or both at different assessment stages. Where binding requirements apply, eligibility screening should be distinguished from the subsequent comparison of eligible alternatives.

Together, these three areas emphasize the importance of methodological traceability in architectural design education. While scoring matrices make criteria, numerical values, and aggregate results visible, their educational value also depends on the reasoning connecting project requirements, site evidence, assessment procedures, and selection decisions. From the perspective of reflective practice (Schön, 1984), making these

relationships explicit can support the examination and communication of design judgments. The objective is therefore not necessarily to introduce more complex scoring methods, but to encourage assessment procedures that are appropriate, transparent, and responsive to the architectural design problem.

IV. CONCLUSION

This study examined site selection assessment practices documented in 173 undergraduate architectural final project reports published between 2023 and 2025. Of these, 104 reports (60.1%) compared alternative sites, while 96 contained numerical scoring entries. Three-site comparison was the most common configuration, and accessibility, transportation, and functional relationships were consistently among the most frequently documented criteria. The findings revealed considerable variation in criteria structures and scoring scales, alongside a predominance of unweighted additive scoring. Among the 96 reports with numerical entries, 91 (94.8%) employed direct summation without differentiated criterion weights, while only five (5.2%) documented explicit weighting.

Beyond these descriptive patterns, the illustrative cases demonstrated that eligibility-related spatial planning criteria may contribute differently to comparative rankings. In TA74, the spatial planning criterion differentiated the highest-ranked alternative, whereas in TA91, identical land-use scores did not affect the ranking. Neither arrangement independently established site eligibility or demonstrated inappropriate site selection. Rather, the cases highlighted the importance of distinguishing a criterion's numerical contribution from its decision-making function.

These findings suggest three areas for strengthening site selection education: criteria formulation, scoring and aggregation literacy, and decision-rule literacy. Emphasizing these areas can help students connect architectural program requirements, site evidence, assessment procedures, and selection decisions more explicitly. The contribution of this study therefore lies not in proposing a more complex scoring method, but in identifying methodological considerations that can support clearer and more context-sensitive site assessment practices in architectural education.

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REFERENCES

[1] Al Mohamed, A. A., Al Mohamed, S., & Zino, M. (2023). Application of fuzzy multicriteria decision-making model in selecting pandemic hospital site. ***Future Business Journal***, 9(1), 1–22. https://doi.org/10.1186/S43093-023-00185-5

[2] Albab, M. U., Istijanto, S., & Masruchin, F. R. (2025). Kriteria Pemilihan Tapak pada Perancangan Science Techno Park Atsiri Dilem Wilis di Kabupaten Trenggalek. ***Jurnal Arsitektur Kolaborasi***, 5(1), 30–41. https://doi.org/10.54325/kolaborasi.v5i1.86

[3] Andarwati, R. A., Rolalisasi, A., & Murti, F. (2024). Kriteria Pemilihan Tapak pada Perancangan Rumah Susun Sederhana Milik di Medokan Ayu Surabaya. ***Jurnal Arsitektur DASENG***, 13(3), 34–45. https://doi.org/10.35793/daseng.v13i3.57266

[4] Aprilina, S., Panjaitan, T. W. S., & Rolalisasi, A. (2024). Kriteria Pemilihan Tapak pada Perancangan Fasilitas Kebugaran Fisik dan Mental Remaja di Kota Surabaya. ***Jurnal Arsitektur Kolaborasi***, 4(1), 17–28. https://doi.org/10.54325/kolaborasi.v4i1.60

[5] Ayan, B., Abacıoğlu, S., & Basilio, M. P. (2023). A Comprehensive Review of the Novel Weighting Methods for Multi-Criteria Decision-Making. Information, 14(5), 285. https://doi.org/10.3390/INFO14050285

[6] De Chiara, J., & Koppelman, L. E. (1978). Site planning standards. McGraw-Hill.

[7] Department for Communities and Local Government. (2009). Multi-criteria analysis: A manual. Communities and Local Government Publications. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7612/1132618.pdf

[8] Febrianto, A. T., Prakasa, D. T., & Panjaitan, T. W. S. (2024). Kriteria Pemilihan Tapak pada Perancangan Agrowisata Kelapa di Kabupaten Trenggalek. ***Jurnal Arsitektur Kolaborasi***, 4(2), 110–118. https://doi.org/10.54325/kolaborasi.v4i2.68

[9] Gesang, W., Hastijanti, R. A. R., & Masruchin, F. R. (2025). Kriteria Pemilihan Tapak Pada Perancangan Fasilitas Konservasi Terumbu Karang di Pulau Bawean. ***Jurnal Lingkungan Karya Arsitektur***, 4(1), 21–29. https://doi.org/10.37477/lkr.v4i1.718

[10] Haryono, J. A., Murti, F., & Istijanto, S. (2025). Kriteria Pemilihan Tapak pada Perancangan Oceanarium Biota Laut di Pulau Jawa – Studi Kasus di Kota Surabaya. ***Jurnal Arsitektur Kolaborasi***, 5(1), 1–17. https://doi.org/10.54325/kolaborasi.v5i1.80

[11] Krishnan, A. R. (2022). Past efforts in determining suitable normalization methods for multi-criteria decision-making: A short survey. Frontiers in Big Data, 5, 990699. https://doi.org/10.3389/FDATA.2022.990699/TEXT

[12] LaGro, J. A. (2013). Site analysis : informing context-sensitive and sustainable site planning and design (3rd ed.). Wiley.

[13] Muhammad, A. A., & Marasabessy, F. (2023). Perancangan Tapak. Deepublish.

[14] Navitas, P., Navastara, A. M., Yusuf, M., Setiawan, R. P., Harun, I., Septanaya, I. D. M. F., Rahmawati, D., & Larasati, K. D. (2025). Perencanaan Tapak Berkelanjutan: Teori dan Aplikasi. Penerbit ANDI.

[15] Prihatmoko, D. B., Prakasa, D. T., & Darmansjah, B. B. D. H. (2025). Analisis Pemilihan Tapak Terminal Tipe A di Kabupaten Sragen. Undagi : ***Jurnal Ilmiah Jurusan Arsitektur Universitas Warmadewa***, 13(1), 34–42. https://doi.org/10.22225/UNDAGI.13.1.12293.34-42

[16] Schön, D. A. (1984). The Reflective Practitioner: How Professionals Think in Action. Basic Books.

[17] Singh, M., & Pant, M. (2021). A review of selected weighing methods in MCDM with a case study. International ***Journal of System Assurance Engineering and Management***, 12(1), 126–144. https://doi.org/10.1007/S13198-020-01033-3