Evaluation of Graduate Outcomes in Architecture Accreditation Requirements from a Student Perspective

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Abstract

Architectural education encompasses a variety of methods, with the primary goal of maintaining and improving education quality. In this context, the concept of accreditation has emerged as a system that ensures the preservation of certain standards and keeping these standards up to date in higher education. In Türkiye, the Association for Accreditation of Architectural Education (MIAK-MAK) has established certain accreditation requirements for Architectural Bachelor's Programs in 2021. According to these requirements, the targeted graduate profile is defined under the title of "Education and Learning Characteristics" of the program. The subheading "Knowledge, Skills, and Competencies that Graduates Should Acquire" summarizes the knowledge and skill areas that students need to acquire through the courses included in the program's curriculum, which are categorized into five titles. This study aimed to statistically evaluate the importance of the areas created for the knowledge, skills, and competencies that the graduate should gain from the perspective of the active student. The study focuses on the students of the Department of Architecture at KTO Karatay University Faculty of Fine Arts and Design. In this context, a face-to-face survey was conducted with the students, and the survey results were evaluated using the Analytic Hierarchy Process method. By comparing each subheading with the others, a ranking system was created, and their importance levels were determined. The results of student evaluations indicated that especially issues related to life safety, structural systems, sustainability, and global architecture stood out prominently. Studies evaluating accreditation criteria from the student perspective are very limited in the literature. For this reason, as an important approach, this study points out the gap in the field for researchers working on accreditation. This research, which aims to provide a perspective from students, is expected to offer an alternative approach and provide a participatory view in educational research.

INTRODUCTION

Design process in architecture education, while being a singular act, also encompasses master-apprentice relationship. When this educational process is analysed with a general approach, periodic differences come to the fore and it can be seen that different educational policies have been established. The diversity in these educational policies has led to the emergence of different approaches in practical and theoretical education.

Within the scope of this study, the achievements of contemporary architectural education in Türkiye have been opened up for discussion. In order to better understand the subject of contemporary architectural education, which forms the main framework of the study, it is firstly necessary to be aware of its development process. Particularly, understanding the ecoles and intellectual backgrounds that influence the architecture schools in Türkiye is considered important. The research conducted for this purpose has provided an understanding of the development processes of the curriculum and programs used in architecture schools. For this reason, in the first part of the study, the historical process of architectural education and its role in shaping the architectural education in Türkiye were analyzed.

Another important concept that constitutes the basic setup of the study is accreditation. Accreditation in higher education is defined as "the evaluation and external quality assurance process that measures whether predetermined academic and field-specific standards in a particular field are met by a higher education program and higher education institution" (URL 1). Particularly when accreditation process of architecture is examined, it can be observed that the academic environment, faculty members, students, the field of architecture, other professional fields, and relationships with society are involved. In this regard, the second section of the study extensively examines the objectives and benefits of accreditation in higher education, as well as the standards developed by accreditation organizations for architectural education in both the worldwide and Türkiye.

Within the scope of the study, the assumptions of the CHEA Institute for Research and Study of Accreditation and Quality Assurance regarding student learning outcomes are considered to be important. According to CHEA student learning outcomes are of critical importance as they can contribute to the accountability of accreditation and guide future discussions and decisions. At this point, describing the student learning outcomes specifically mentioned as evidence of the success of each institution and program reveals an approach that is based on the student. In addition, with the aim of accreditation bodies to address student learning outcomes visibly and effectively, the student is again regarded as a fundamental target. Students, parents, and the public attach importance not only to the university diploma but also to the general education and quality behind it (CHEA, 2003). Therefore, the basis of the study is the correct understanding, interpretation, and evaluation of student learning outcomes.

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As a result of this research, the standards established by MIAK-MAK regarding architectural education in Türkiye have formed the main framework of the study. The standards created by MIAK-MAK include five main categories and twenty-nine sub-categories under the section of "knowledge, skills, and competencies that graduates should acquire". The study aims to determine the degrees of importance of these parameters, considering student opinions.

Analytic Hierarchy Process, which is one of the Multiple Decision-Making Methods based on pairwise comparison, was used in the study. This method is highly preferable in terms of being simple, understandable, and providing rational data. At this point, determining which criteria are perceived as more important by students is seen as a significant parameter that contributes to the improvement of the education system. In order to bring the architectural education system to a better level, it is crucial to incorporate the views of the students who receive the education in this process. Considering all these, the study sought answers to the following questions:

• How do students evaluate the criteria determined by MIAK-MAK?
• What are the reasons behind the answers given by the students?

These two questions constitute the motivation of the study. In addition, to create a general framework regarding accreditation and to benefit from examples from Türkiye and the world, the following supporting questions were sought.

• How does the accreditation process in higher education work globally and in Türkiye?
• What are the similarities and differences between the criteria used globally and in Türkiye?
• What are the benefits of the concept of accreditation in higher education?

In this context, it is expected that the conducted literature research, survey and the obtained findings provide guiding insights. The overall structure of the study is represented by the structure diagram in Figure 1.
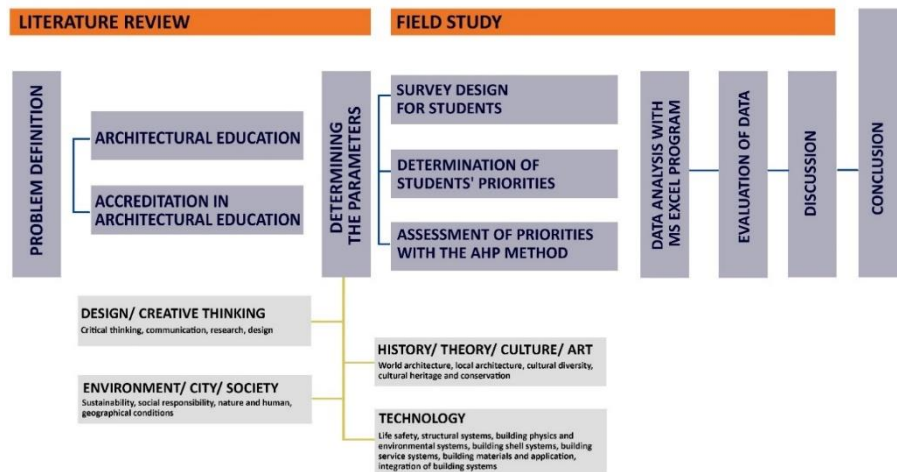

Figure 1. Structure diagram of the research

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The concept of accreditation in higher education systems worldwide and Türkiye is discussed from different perspectives. The criteria obtained from MIAK-MAK constitute the basic structure of the research. MIAK-MAK evaluates departments in many different fields. The vision and mission of the institution, the strengths, and weaknesses of the program in self-evaluation processes, the stakeholders of the program, course contents, scopes, learning outcomes, the program's approach to the contemporary architectural environment, students' preparation for their professional lives, incentives and reward systems for faculty members, publications and research projects of faculty members, Physical, information and financial resources for the learning environment are taken into consideration in the process. Institutions must make continuous improvements and take steps to increase quality to bring themselves to reach a higher standard in these areas. For this reason, it can be accepted that students, one of the main stakeholders of the process, showed a participatory approach. How students perceive and interpret the educational process is important for educational institutions. The aim here is not to create a single point of view but to discuss the reasons underlying the different interpretations that were put forward. It is assumed that evaluating the competencies that students must acquire from the student's perspective will pave the way for a participatory approach. Many studies discussed in the following sections are related to how students evaluate accreditation (Esin, 2014; Attia, 2019; Kumar et. al, 2020; Pham, 2018). This study examines the students' perception and evaluation of the existing criteria of the MIAK-MAK. In this regard, it is envisaged that this approach will be a guide for the institutions and organizations that direct the accreditation process.

A GENERAL OVERVIEW OF ARCHITECTURAL EDUCATION

Beyond the definitions of Vitrivius and the guild system that followed, the school opened by Gian Galeazzo Visconti in Milan in 1380 is the oldest school of architecture (Kuran, 1969). In 1562, the Accademia del Disegno was established with the aim of protecting the best artists and providing education to young students, under the leadership of important figures such as Cosimo de Medici and Michelangelo. In 1593, the Accademia di San Luca, founded by Zuccari, was an organization focused on teaching. The common education program in these academies during this century consisted of a series of lectures and drawing practices (Lizondo-Sevilla et al., 2019). Established in 1671, the Academie de l'Architecture became the first architectural academy. Although its main purpose was to be an "Artists' Organization that determines artistic taste," it became a school where young and talented individuals went to Italy to receive education. In 1795, the French academies were reorganized and renamed as Academie de Beaux-Arts. Other than these, the Vienna Academy was established in 1705, the Stockholm Academy in 1733, the St. Petersburg Academy in 1757, the Royal Academy in London in 1786, and the National Academy of Design in the United States in 1826. In this context, the

French academy and other academies became institutions that set aside the medieval understanding of art and embraced the Renaissance understanding of art (Kuran, 1969).

The foundation of the design studios used in architectural education today was laid by the prestigious school Ecolé des Beaux-Arts. At this point, education, which is carried out in two independent environments, the Ecole, and the workshops, continues in connection with arts other than architecture (Dikmen, 2011). In this education system which was based on the master-apprentice relationship, it is known that the workshop environment is not open to change, and accepted forms are used (Kara, 2017). In this regard, Sunar states that the architectural concept defined by Beaux-Arts as "working in isolation from society and life, staying within a narrow program proposed by others, and using limited formal expressions" (Sunar, 1975). Despite Sunar's radical critique, the organized form of Beaux-Arts in architectural education and its foundational role in today's education system hold a significant place in the development process of architectural education. The education program of Bauhaus, which follows Ecolé des Beaux-Arts, covers a process starting from scratch under the supervision of a master. At this point, the educational studios, which constitute the main fiction of architectural education, have been used actively in Bauhaus (Dikmen, 2011). According to Gombrich, "The building was built to prove that art and engineering do not necessarily have to remain alien to each other, as in the XIXth century, and these two can even benefit from each other. Students at this school were involved in the design of buildings and equipments. While never disregarding the purpose of design, they were given the opportunity to use their imagination and engage in bold experiments" (Gombrich, 1986). In particular, not only aesthetic concerns, technical features and content were considered insufficient; but also a utilitarian approach for people came to the fore. Bauhaus created a modern design style that influenced and implemented architecture, product design, and visual communication (Bingöl, 2009). The boundaries between visual arts and applied arts were removed and it became the source of new formations in many countries (Bulat, 2014).

Architectural education in Türkiye has evolved in line with the developments in the world. In this context, the establishment of Sanayi Nefise Mektebi currently Mimar Sinan Fine Arts University in 1883 is a significant milestone. In its early years, the influence of Ecole Des Beaux Arts was strongly felt. In the 1930s, with the exclusion of the Nazi regime, the Central European school played an active role in the education system. At this point, the institution is an important source in terms of training the faculty members who will take part in architectural education. Another important educational institution is Istanbul Technical University, which is the oldest institution of higher education in Türkiye. Since 1773, the institution has been educating professionals under different names and took the name ITU in 1944. Here, parallel to MSGSU (Mimar Sinan Fine Arts University), the artist-based academy

education continued for a while (Nalçakan and Polatoğlu, 2008). With the separation of the discipline of architecture from engineering, the need for a new curriculum emerged. The education staff formed by academy professors and the pioneering role of foreign architects such as Emin Onat, Clemens Holzmeister, and Paul Bonatz had an influence on shaping the curriculum. Especially the courses found in many European schools played a significant role in the formation of the curriculum at ITU (Rasimgil, 2019). The most important feature of the program, which was created with the influence of Bauhaus, was that it adopted the principle of "learn by designing, not learn first and then design". At the same time, with the developed libertarian approach, it also ensures the formation of a school with high motivation, production, and performance in the studios of the students' own choice (Şentürer, 2020). Another important architecture school is the Middle East Technical University. Established in 1956 in Ankara under the name Middle East Institute of Technology, the institution has brought innovations to the education system in Türkiye. Especially the use of the deductive method instead of the inductive method used in other institutions, and the transformation of the oral examination system into a forum-like atmosphere by eliminating the open jury system are significant changes (Nalçakan and Polatoğlu, 2008). The frequent use of wood and metal workshops and the effective use of architectural design studios in the institution are indicators of the Bauhaus effect (Akış, 2019)

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In a general evaluation, it can be seen that the Ecole Des Beaux Arts and Bauhaus schools have had significant influences on the educational staff and curricula of architecture schools in Türkiye. These important architectural schools in Türkiye have played a significant role in shaping the education staff and curriculum formation of other universities in different cities through their graduates. Along with the formation of faculty members, university programs and curricula have also been shaped in similar ways. However, when a detailed examination is conducted between universities, significant differences can be observed in terms of credits, number of courses, course hours, and the number of teaching staff. For this reason, both national and international organizations working to establish, certain quality criteria in architectural education through the frameworks and the activities they develop (Doğaner and Hoşkara, 2020). This situation reveals to need accreditation, which is a current concept in architectural education.

ACCREDITATION IN HIGHER EDUCATION

Accreditation is defined as "equivalence" in TDK (URL 2) and "a quality infrastructure established to support the reliability and validity of the studies carried out by conformity assessment bodies and conformity confirmation documents they issue (such as test and inspection reports, calibration certificates, management system certificates, product certification certificates, personnel certification certificates, etc.)" according to TÜRKAK, the Turkish Accreditation Agency (URL 3).

In general, accreditation in education is an external quality review process used to examine colleges, universities and educational programs for quality assurance and quality improvement (URL 4). In various countries, conformity assessment bodies are identified, and qualification criteria are set by these bodies.

In the field of higher education in Türkiye, the Council of Higher Education is authorized and there are different institutions from each discipline affiliated to this Presidency. It is important for higher education institutions and programs that accreditation is a system that allows for self-evaluation in terms of performance criteria, as well as external evaluation by authorized accreditation bodies. Furthermore, the prominence of concepts such as recognizability and reliability, the process of granting a reputable certificate to the institution, aiming to continuously improve quality, and trying to maintain standards consistently are among the important gains brought by accreditation. Aktan and Gencel's statement (2020) "Aiming to increase the quality of education and research, assuring the students and all stakeholders that the quality of education and training is based on certain standards, and informing students and stakeholders about institutions that provide poor quality education services" shows that the accreditation process also establishes a close bond with the students. Besides that, the goal of enabling students to make a transparent assessment of the quality of higher education gains importance in the context of improving institutional quality. Accreditation is a system that ensures the general reliability and recognition of the institution and the program, and it provides assurance due to the aim of constantly increasing the quality (Aktan and Gencel, 2010).

In this context, one of the most fundamental facts in accreditation processes is the establishment of standards. "These standards set out the requirements of the system to be established and determine what needs to be done to develop high quality education programs. In a system designed to accredit higher education programs, standards indicate which elements must be present in a higher education program in order for it to be judged to be at an acceptable level. Although there is no complete unity among the standards set by the various accreditation bodies, evaluations generally require that an educational institution seeking accreditation to meet the fundamental standards" (Aktan and Gencel, 2010).

One of the biggest criticisms of the concept of accreditation is that it can be a comparison tool or a standardization tool. At this point, the statements of Nur Esin, who served as former president of MIAK-MAK, gain importance. Nur Esin defined the accreditation process as integrating knowledge and skills, being open to criticism and change, and searching for original, individual development and awareness. At this point, the uniqueness of the program and its efforts to seek originality become extremely important. For this reason, the accreditation process should not be interpreted as a process that ensures that education

becomes uniform, but rather as a process in which certain quality parameters are ensured and originality comes to the fore (Esin, 2014).

It is also important that the global accreditation process to be considered as a tool for the continuous development of the program and that equivalence and approval mechanisms are a necessity for professional architectural practices. At this point, the program criteria in international accreditation are the same, which prepares graduates for global professional practice rather than standardization. In addition, accreditation paves the way for competitiveness in architecture, as it includes professional practice requirements that will direct graduates to become superior. In this context, the existence of positive and negative approaches to the issue of accreditation stems from the debatable and dynamic nature of the issue (Attia, 2019).

At this point, there are many institutions involved in the implementation of accreditation processes both globally and in Türkiye. The organizations responsible for accrediting the architecture department, which is the subject of the study, their fundamental principles, and the standards they have established are examined in detail in the following section.

Architecture Department Accreditation Institutions in the World and Türkiye

One of the most important organizations aimed at improving the quality of architectural education in the world is the Union Internationale des Architects-International Union of Architects (UIA). UIA, headquartered in Paris, is the only recognized global architecture organization (URL 5). In 1996, the UIA and UNESCO published the "Charter on Architectural Education", aiming to provide young architects with an education that prepares them for the professional, social and cultural challenges of a globalizing architectural profession (URL 5). In the Charter, architecture is defined as an interdisciplinary field that includes human, physical and social sciences, technological and creative arts and is a combination of many basic elements (Ayyıldız Potur, 2007).

Another important accreditation organization is the National Architectural Accrediting Board (NAAB), which operates in the United States. It plays a significant role in setting standards and accrediting architectural programs (URL 6). As seen in Table 1, the desired outcomes are targeted at two main levels: comprehension and skills. These outcomes are further divided into sub-parameters such as health, safety and welfare in the built environment, professional practice, regulatory context, technical knowledge, design synthesis, and building integration. Many states in the United States require graduation from a program accredited by NAAB or CACB/CCCA for working in the field of architecture. CACB/CCCA is the accrediting body for architecture programs in Canada and describes the outcomes as knowledge, skills, and comprehension, as shown in Table 1 (URL 6).

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European Association for Architectural Education (EAAE) is an international non-profit organization aim to advance the quality of education of architecture programs in Europe (URL 7). EAAE has developed a specific working plan for setting standards and has identified five categories and fourteen sub-categories related to student outcomes (URL 8). In the United Kingdom, the Royal Institute of British Architects (RIBA) is responsible for setting accreditation standards. According to RIBA, the required outcomes include design, technology-environment, cultural context, communication, and management skills (Minez, 2013).

In Türkiye, the "Architectural Education Accreditation Association", abbreviated as MIAK-MAK, was established on September 10, 2019, to accredit architecture programs. Having carried out its activities in cooperation with TMMOB Chamber of Architects under the name of "Architectural Accreditation Board" between 2006-2019, has gained its independent structure under the roof of the Association as of 2019. The main purpose of MIAK-MAK is to contribute to improve the quality of architectural education through accreditation, external quality assessment and information studies for architectural education programs. Thus, it aims to improve social welfare and the quality of the natural and built environment by increasing the quality of architectural services (URL 9). MIAK-MAK is a legal and independent organization established under the regulation of the Chamber of Architects' Architectural Accreditation Board (Şahin Güçhan, 2019). It has developed its accreditation system based on the UIA/UNESCO Architectural Education Charter, which is a binding educational requirement for the whole world. MIAK-MAK expects an architecture program to develop an educational approach that meets the MIAK-MAK Accreditation Requirements and to ensure the "Knowledge, Skills and Competencies Graduates Should Acquire". As seen in Table 1, the knowledge and skill areas that students should acquire are categorized under five main categories: design/creative thinking, history/theory/culture/art, environment/city/society, technology, and professional environment. Each field encompasses the knowledge and skills that architectural education aims to provide, which are defined at two basic levels: comprehension and skills. Comprehension refers to the capacity for internalizing knowledge, while skills refer to the ability to use acquired knowledge in different representational contexts (URL 9).

Table 1. Approaches of architectural accreditation organizations towards student achievement

UNESCO-UIA	NAAB	CACB / CCCA
Cultural and Artistic Studies: Knowing and understanding the historical and cultural counterparts in local and world architecture; possessing knowledge of fine arts and recognizing its relationship with architecture.	**Health, Safety, and Welfare in the Built Environment:** Understanding the impact of the built environment on human health and safety at multiple scales	**Design:** Ability to understand and analyze design theories, precedents and methods, design skills, ability to use design tools, ability to analyze programs, ability to understand and analyze site context and design, ability to know and analyze the broad implications of urban design, knowledge of detail design, design ability to document and present documentation
Social Studies: Identifying community needs and working with users who represent those needs; understanding the social context and equity/accessibility issues of built environments; knowledge of ethics, philosophy and policy issues related to architecture	**Professional Practice:** Having knowledge of professional ethics, regulators, and fundamental processes related to practice.	**Culture, communications, and critical thinking:** Ability to use critical thinking and communication by writing-speaking-visual media effectively, to know the history and theory of architecture, to understand cultural diversity and to look from a cultural perspective, to know ecological systems
Environmental Studies: Having knowledge about natural systems and built environments; being knowledgeable about topics such as conservation, waste management, ecological sustainability; recognizing the relationship between urban design and local/global demographic resources; being aware of natural disaster risks.	**Regulatory Context:** Having knowledge of laws and regulations applicable to life safety, land use, buildings, and construction sites.	**Technical Knowledge:** Learning about regulatory systems, materials information, structural systems, envelope systems, and environmental systems.
Technical Studies: Having technical knowledge of construction and materials, understanding of construction technologies and service systems; understanding of transport, communication and security systems; knowing the role of technical documentation and specifications in design.	**Technical Knowledge:** Ability to use building systems, technologies and assemblies according to the design, economy and performance targets of the projects	**Comprehensive Design:** Ability to produce architectural design using all the data

Design Studies: Knowing design theory and methods; understanding of design processes; knowledge of architectural criticism.	Design Synthesis: Considering user requirements, synthesis of accessible design and the measurable environmental impacts of design decisions.	Professional Practice: Knowing the rights and responsibilities of the architectural profession, knowing ethical and legal responsibilities, understanding the trends that affect implementation, having knowledge about professional contracts and project management.
	Building Integration: Ability to measure building shell systems, structural systems, environmental control systems, life safety systems and building performance.	
RIBA	**EAAE** (international non-profit organization)	**MIAK-MAK**
Design	Basic Background Subjects: History and theory, supporting social sciences, basic sciences.	Design/ Creative Thinking: Critical thinking, communication, research, design
Technology-Environment	Building Construction and Process: Building physics, construction science, building service, construction economics, management, and law	History, Theory, Culture, Art: World architecture, local architecture, cultural diversity, cultural heritage, and conservation
Cultural Context	Understanding the Surroundings: Urban advertising, environmental studies, topography, surveying, and documentation.	Environment / City / Society: Sustainability, social responsibility, nature and human, geographical conditions
Communication	Project Preparation and Design: Presentation techniques, architectural design	Technology: Life safety, structural systems, building physics and environmental systems, building shell systems, building service systems, building materials and application, integration of building systems
Business Management and Law	Complementary studies: Conservation, interior design, research and written thesis, optional courses	Professional Environment: Program preparation and evaluation, comprehensive project development, monitoring of building costs, architect-employer relationship, teamwork and cooperation, project management, implementation management, leadership, legal rights and responsibilities, professional practice, professional ethics

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At this point, it is seen that different institutions and organizations in various countries carry out accreditation processes. There are also important studies in the literature on accreditation in higher education. These studies generally; focuses on issues such as determining the contribution of accreditation to educational processes, the impact of student experiences, and the effects of accreditation on professional practices. Attia; in his study, selected five architecture programs accredited by NAAB in the Middle East and Gulf Region and examined competition in professional practices. He sees it as a positive development that accreditation is a continuous evaluation tool that encourages competition (Attia, 2019). Pham's study in Vietnam focuses on the evaluation of accreditation by university administrators. The identification of various limitations in the process, such as time and cost burden, and the negative evaluation of the review teams' lack of sufficient competence, point to the limitations of accreditation in improving the quality of higher education (Pham, 2018). Kumar et al. tried to determine the effect of accreditation in higher education from various numerical materials; and questioned whether students and parents prioritize accredited institutions when choosing institutions in their research. Accredited programs have been preferred by students due to the influence of many factors such as quality, excellence, curriculum/academics, learning-teaching relations, and academic reputation (Kumar et al., 2020). Additionally, Rondinel et al. examined a program that was included in the accreditation process by RIBA and focused on examining the quality of accreditation on education in Peru. The number of accredited schools in Peru is extremely limited. An inquiry was made through a survey conducted to different stakeholders, including students, graduates, faculty members, and employers. At this point, it has been concluded that especially active students and graduates have extremely high perceptions that accreditation increases the quality of education. Faculty members also stated that accreditation contributes positively to students' academic performance. In addition, the active use of the student portfolio by students, which is one of the RIBA criteria valid for each course, has been seen as one of the positive effects of accreditation. Therefore most important outcome of the study is that accreditation can improve quality assurance and make a positive contribution to the education process (Rondinel et al., 2022).

The impact of accreditation in education on student experiences and learning outcomes was tested in a study conducted in Chicago by constructing a conceptual accreditation model. The study, based on the engineering discipline, provides important data regarding accreditation. The general outputs of the conceptual model include alignment of curriculum and teaching practices with learning outcomes, more effective participation of faculty staff and students in all processes, and significant changes in the quality of students' educational experiences inside and outside the classroom. In the study indicating the positive effects of the accreditation process on students, it was observed that there was an

increase in the collaborative approach and active participation levels, more interaction with instructors, more travel experience, and more participation in communities and competitions. At this point, it has been seen that accreditation makes significant contributions to the education process both on individual and faculty basis (Volkwein et al., 2007)

MATERIAL-METHOD

MIAK-MAK's self-defined vision is as follows: "to contribute to the improvement of the quality of architectural education by conducting external quality assessment and information studies; to support the improvement of social welfare and the quality of the natural and built environment by increasing the quality of architectural services; to ensure the development of the architectural profession through education; to improve architectural education through evaluation and competency studies by cooperating with official institutions related to education and developing recommendations". It is also clearly stated that architecture schools are expected to provide education in accordance with the knowledge, skills, and competencies that graduates should acquire (URL 10).

Analytic Hierarchy Process is one of the most frequently used Multi-Criteria Decision-Making Methods. In this context, in order to understand this method, it would be right to first explain the concept of decision and MCDM. Decision is defined as the choice that individuals make among different alternatives. In the decision-making process, criteria play an important role and vary depending on the situation (Dalbudak, 2022) In the decision-making process, "approaches and methods that attempt to reach the possible 'best/appropriate' solution that meets more than one criterion that conflicts with each other" are called multi-criteria decision-making methods (URL 10). In MCDM methodology, various methods are used such as Analytic Hierarchy Process (AHP), Analytic Network Process (ANP), Preference Ranking Organization Method for Enrichment Evaluations (PROMETHEE), Simple Additive Weighting (SAW), Weighted Product Method (WPM), Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), Elimination and Choice Expressing Reality (ELECTRE) (Harputlugil, 2018).

AHP is one of the most preferred methods due to its ease of use in mathematical operations and comprehensibility (Uludağ, 2016), the short duration required for evaluation, the ability to evaluate abstract and concrete criteria together, the ability to perform consistency analysis, and the clarity and understandability of the results (Prins and Topçu, 2014).

Among those, AHP allows the decision problem to be decomposed into the smallest details, ensuring that even the smallest detail can have an impact on the decision. It enables the participation of both subjective and objective opinions, as well as qualitative and quantitative information, in the decision-making process (Kuruüzüm, 2001). Therefore, it has a wide range of applications, including customer relations, strategic planning,

demand evaluation, recruitment, budgeting, resource allocation, public policies, energy projects, production projects, investment projects, and project selection (Basar, 2011).

The AHP method used in studies related to architecture, but not very frequently. Şimsek used AHP to evaluate three different buildings designed by students using passive solar systems (Şimsek, 2019), Chong et al. used it in the evaluation of green buildings for reinforcement purposes (Chong et al., 2019). AHP was used by Bozic et al. to measure the attractiveness of cultural heritage sites in Phuket by taking the opinions of local experts and to contribute to cultural tourism (Bozic et al., 2018). In addition, Yıldız Kuyrukçu and Alkan used AHP in determining the importance of place-specific architectural design criteria (Yıldız Kuyrukçu and Alkan, 2019), Akadiri et al. used AHP in their study with expert groups for the use of sustainable materials in building design and stated that the results were influential in leading building design (Akadiri et al., 2013). Hatipoğlu Şahin used AHP in her study aiming to increase the quality of life in public housing, where she obtained the opinions of public housing users based on the criteria she determined (Hatipoğlu Şahin, 2021). In Deljavan's study, AHP was used to develop an ideal design for building facades by consulting with expert teams (Deljavan, 2020). In terms of education, Harputlugil's study stands out. In this study, final-year architecture students' projects were evaluated by academics based on certain criteria. The research revealed that AHP has a high potential for increasing competency and development in evaluations to be made in design education (Harputlugil, 2018).

As seen, although AHP is not entirely new to the field of architecture, its application areas are still limited. However, due to the rational data it provides, ease of implementation, and the ability to include even the smallest details in decision-making processes, it is assumed to have a significant place in the field of architecture as well.

AHP methodology has enabled the evaluation and measurement of various stages of the educational process by student stakeholders. AHP allowed the creation of a decision-making model with student evaluations. In this sense, analyzing the importance levels of the criteria determined by MIAK-MAK and making a choice was carried out with AHP. The AHP method mathematically shows the evaluation of the best alternative in terms of quantitative and qualitative criteria (Lin et al., 2008). Moreover, since it is an evaluation result based on comparison, it provides a model that can improve and resolve knowledge and curriculum problems for different universities. It can be said that AHP offers ease of use with its "simple but consistent mathematical system that can evaluate subjective/abstract/uncountable and objective/concrete/countable values together" (Harputlugil, 2012). The system established to achieve the desired goal based on the dual comparison method. These comparisons reveal the importance levels of the criteria relative to each other. As a result, a hierarchy is formed with

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the system that compares and ranks the degree of importance between the criteria (Harputlugil, 2012).

The AHP methodology consists of three stages: hierarchy formation, priority analysis and consistency determination. By using the methodology based on pairwise comparison, these three stages were applied in the scope of the study and the data were processed into AHP charts. The results and evaluations are detailed in the next section.

Within the scope of this research, a survey study approved by the ethics committee on KTO Karatay University Human Research Ethics Committee was conducted. In order to invite students to participate in the survey, announcements were made in the classrooms explaining the survey. After these announcements, the survey was conducted with the students who volunteered to participate in the study. Due to the ongoing hybrid education, a face-to-face survey was conducted with 85 students. At this point, the classes were interviewed in advance and an appointment was made, followed by a detailed explanation about the survey. In the practice carried out in class groups, a transparent environment was created enabling students to inquire about what they did not understand. The results of the survey were entered into the Microsoft Excel program and then evaluated by following the steps of the Analytic Hierarchy Process. In this context, the criteria determined by the MIAK-MAK and used for the survey are presented in Table 2. In the survey format, the criteria were explained with the expressions in MIAK-MAK's directive. Any unclear points were explained to the students by the survey's administrators.
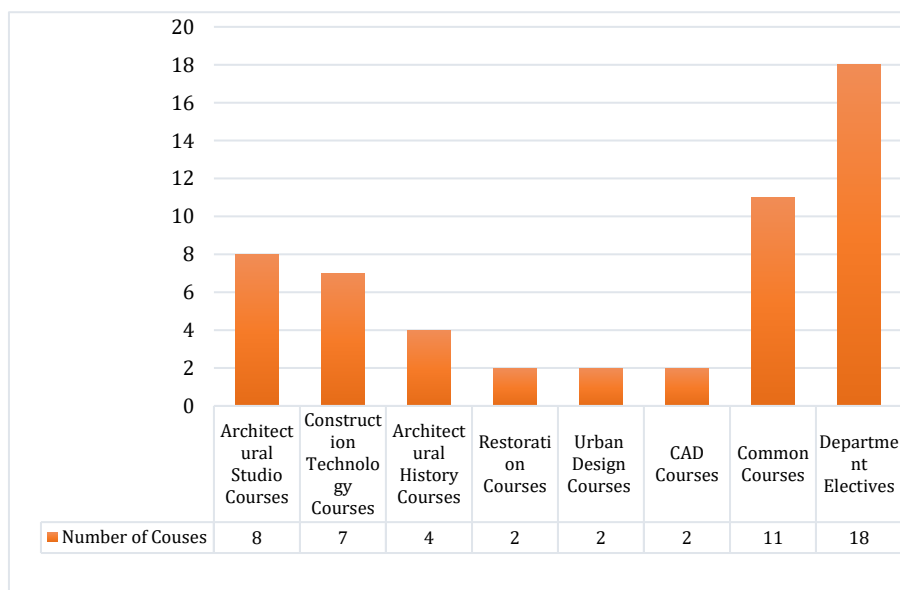
Table 2. Criteria determined by MIAK-MAK (URL 10)

Design / Creative Thinking	History / Theory / Culture / Art	Environment / City / Society	Technology
Critical Thinking	World Architecture	Sustainability	Life Safety
Communication	Local Architecture/Cultural Diversity	Social Responsibility	Structural Systems
Research	Cultural Heritage and Conservation	Nature and Human	Building Physics and Environmental Systems
Design		Geographical Conditions	Building Shell Systems
			Building Service Systems
			Building Materials and Applications
			Integration of Building Systems

FIELD STUDY- FINDINGS

The study aimed to investigate which knowledge and skills were highlighted from the perspective of students and which ones were considered more important. The data obtained from the study is expected to contribute to the direction of education. Presenting the students' perspective is considered a participatory approach. There are 64 state universities and 45 foundation universities providing architecture education in Türkiye. 21 of these universities are accredited by MIAK-MAK with different conditions.

A field study was conducted in line with these objectives, with the students of the Department of Architecture at KTO Karatay University, Faculty of Fine Arts and Design, in May 2023. The department where fieldwork is carried out is making various preparations for the accreditation process currently. The department is planning to apply to MIAK-MAK in the first application period through processes such as curriculum change, active and graduate student tracking, and event planning. In addition, the department defines its vision and mission as "aims to train architects who can create qualified living spaces by using today's technology and facilities, compete in international areas, follow current urban and architectural issues, question and make suggestions, are human-oriented, observe the benefit of society, have a sense of history and environment, and stand out with their competencies in the working environment." In this context, it would be right to provide some general information about the department and its curriculum. The department was established in 2013 and currently has 4 faculty members, 4 lecturers, 3 research assistants, and a total of 130 active students. The current curriculum comprises 8 semesters, 56 courses, and requires earning 240 ECTS credits for graduation. The distribution of these courses is presented in Table 3.

Table 3. Course distribution in the applied university

	Architectural Studio Courses	Construction Technology Courses	Architectural History Courses	Restoration Courses	Urban Design Courses	CAD Courses	Common Courses	Department Electives
■ Number of Couses	8	7	4	2	2	2	11	18

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Since the AHP hierarchy is based on pairwise comparisons, a pairwise comparison matrix was prepared for main criteria and 36 pairwise comparison matrices were prepared for the sub-criteria. As part of the survey, a sample questionnaire prepared for evaluating the criteria is shown in Table 4.

Table 4. Sample questionnaire design

Critical Thinking	9	7	5	3	1	3	5	7	9	**Communication**
Critical Thinking	9	7	5	3	1	3	5	7	9	**Research**
Critical Thinking	9	7	5	3	1	3	5	7	9	**Design**
Communication	9	7	5	3	1	3	5	7	9	**Research**
Communication	9	7	5	3	1	3	5	7	9	**Design**
Research	9	7	5	3	1	3	5	7	9	**Design**

Firstly, an evaluation was made based on the age and gender distribution of the students who participated in the survey. According to this, out of 85 students, 56 were female and 29 were male. The distribution by classes can be seen in Table 5. Additionally, the average age of the participants is 21,7. In General, a homogeneous distribution among classes was preferred.

Table 5. Distribution of participants

	WOMEN	%	MEN	%	TOTAL
1st Grade	16	69,5	7	31,5	23
2nd Grade	12	60	8	40	20
3rd Grade	11	61,1	7	39,9	18
4th Grade	17	70,8	7	29,2	24
TOTAL	56	65,8	29	34,2	85

The survey results were processed into the AHP matrices using the software and the steps of the AHP were followed to obtain priority rankings. AHP assessment focuses on general perspectives of all classes. At this point, it can be accepted that there may be differences between classes. However, due to the limited sample size and to make a general judgement about student evaluations, no in-class evaluation was made.

In this context, first of all, the main categories of "Design/Creative Thinking, History/Theory, Culture/Art, Environment/City/Society, Technology" were evaluated. As seen in Table 6, the design-creative thinking main criterion, which includes sub-criteria such as critical thinking, communication, research, and design, emerged as the highest-ranking criterion compared to all other main criteria. Following that, the criteria of history-theory, culture-art, environment-city-society, and technology are ranked in order.

Table 6. AHP questionnaire main criteria evaluation results

|	Design / Creative Thinking	History / Theory / Culture / Art	Environmet / City / Society	Technology
Degree of Improtance	1,8	0,89	0,79	0,5
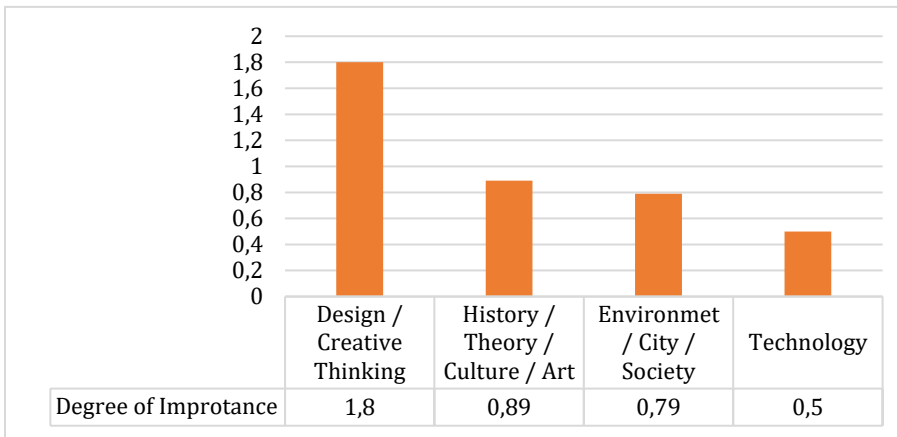
When the sub-criteria were examined, the title of design-creative thinking was examined first. The definitions provided by MIAK-MAK for the sub-criteria under this heading which is Critical Thinking, Communication, Research, and Design were shared with the students. MIAK-MAK's definitions (URL 10) are as follows:

- **Critical Thinking:** The ability to question, express abstract thoughts, evaluate opposing views, and examine the results obtained with similar criteria,
- **Communication:** The ability to read and write appropriately, express ideas, and the ability to use different representation media to convey design thinking.
- **Research:** The ability to comparatively evaluate, document and apply the information obtained about the design process,
- **Design:** The ability to reproduce design knowledge in the creative thinking process; achieving new and original results in the context of universal design principles such as sustainability and accessibility.

As seen in Table 7, the sub-criteria of critical thinking, which includes concepts such as questioning and analyzing, were evaluated as the most important skill by the students. Following that, communication, research, and design were ranked respectively. In this context, it is worth investigating why research and design, which are fundamental to architecture, are considered less important by students. In this context, it is understandable that students who consider social networks as a communication channel attach importance to critical thinking and communication factors. In architectural studio courses, inquiry-based education plays an important role in the design process. It is thought that this situation affects student preferences.

Table 7. AHP questionnaire design/creative thinking criteria evaluation results

	Critical Thinking	Communication	Research	Design
Degree of Importance	1,45	1,14	0,79	0,62
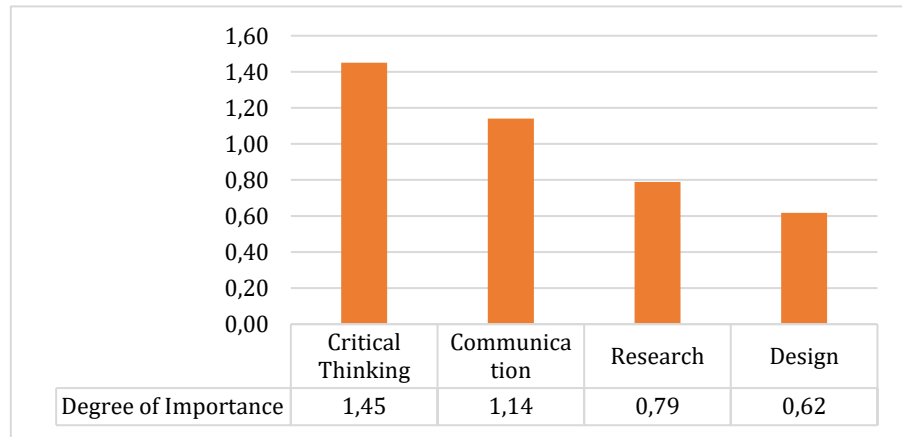
Another sub-criteria research was conducted for the categories of world architecture, local architecture/cultural diversity, and cultural heritage and preservation, which is under the criteria of history/theory /culture/art. MIAK-MAK's definitions for these sub-criteria are as follows (URL 10);

- **World Architecture:** Understanding world architecture in the context of historical, geographical, and global relations.
- **Local Architecture/Cultural Diversity:** Understanding the architectural formations and examples of the current geography in the context of historical and cultural relations. Understanding the differences in value judgments, behavioral patterns, social and spatial patterns that define different cultures.
- **Cultural Heritage and Conservation:** Understanding cultural heritage, conservation awareness, environmental sensitivity, ethical responsibility, conservation theories, and methods.

Table 8. AHP survey history/ theory/ culture /art criteria evaluation results

	World Architecture	Local Architecture/Cultural Diversity	Cultural Heritage and Conservation
Degree of Importance	1,55	0,89	0,56
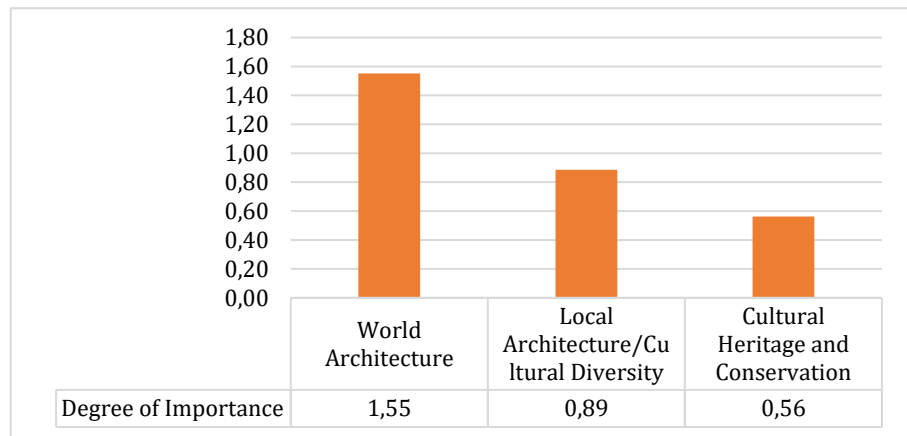
According to the results shown in Table 8, the subject of world architecture was perceived as more important than other criteria. This is followed by local architecture/cultural diversity and cultural heritage/conservation. Particularly, the interest in world architecture and local architecture/cultural diversity is interpreted positively in terms of following contemporary architecture.

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Another main category, referred to as environment/city/society, includes the criteria of sustainability, social responsibility, nature and human, and geographic conditions. According to MIAK-MAK's definition (URL 10):

- **Sustainability:** The ability to design sustainably using a variety of tools to minimize undesirable environmental impacts on future generations using knowledge of the natural and built environment.
- **Social Responsibility:** Understanding the architect's responsibility to prioritize public welfare, show respect for historical/cultural and natural resources, and improve quality of life.
- **Nature and Human:** Understanding all aspects of human interaction with natural systems and the design of the built environment.
- **Geographical Conditions:** Understanding the relationships between site selection, settlement and building design considering cultural, economic and social characteristics as well as natural features such as soil conditions, topography, vegetation, natural disaster risk, etc.

As shown in Table 9, the subject of sustainability has ranked higher than other criteria. It is also the second highest-ranking criterion in the overall table. Sustainability is one of the most discussed and discursive topics in today's world. It is of primary importance to architecture students as it connects environmental, social, and economic indicators and provides a multi-layered approach (Rosen and Kishawy, 2012).

This is followed by the criteria of social responsibility, nature and human, and geographic conditions.

Table 9. AHP questionnaire environment/ city/ society criteria evaluation results

|	Sustainability	Social Responsibility	Nature and Human	Geographical Conditions
Degree of Importance	1,67	1,14	0,72	0,47
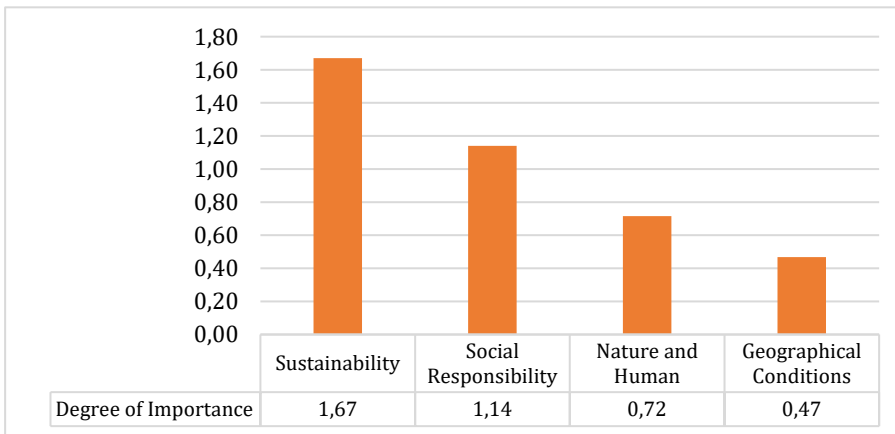
The final assessment under the main category is technology, which includes the criteria of life safety, structural systems, building physics and environmental systems, building shell systems, building service systems, building materials and applications, and integration of building systems. According to MIAK-MAK's definitions for these criteria (URL 10):

- **Life Safety:** Understanding the fundamental principles of safety and emergency systems at the building and environmental scale in conditions such as natural disasters, fire, etc.

- **Structural Systems:** Understanding the behavior principles, development, and applications of static and dynamic structural systems that withstand vertical and lateral forces.
- **Building Physics and Environmental Systems:** Understanding the fundamental principles of building physics and energy use, such as lighting, acoustics, and climate control, in the design of physical environmental systems and the importance of using appropriate performance evaluation tools.
- **Building Shell Systems:** Understanding the fundamental principles and application methods of building envelope materials and systems design.
- **Building Service Systems:** Understanding the fundamental principles of design for service systems such as water and electrical installations, circulation, communication, security, and fire protection.
- **Building Materials and Applications**: Understanding the production, use, and applications of building materials in the context of technological advancements, their environmental impacts, and principles and standards related to reusability.
- **Integration of Building Systems:** The ability to evaluate, select, and integrate structural, environmental, safety, building shell, and building service systems in design.

As seen in Table 10, it can be seen that life safety holds the highest level of importance among all the criteria. This is followed by structural systems, again with a high rate. It is thought that especially the devastating Kahramanmaraş earthquake in February 2023 has had a significant impact on these results. It is interpreted that the negative physical and psychological effects of the earthquake also affected the opinions of active students who are still studying. In relation to the curriculum, it is seen that the subject of structural systems occupies a large place in both building science courses and architectural design studios. This is an important parameter affecting student preferences. When other criteria are evaluated, it is seen that building physics and environmental systems, building shell systems, building service systems, building materials and applications, and integration of building systems are listed in similar proportions with respect to each other.

Table 10. AHP survey technology criteria evaluation results

	Life Safety	Structural Systems	Building Physics and Environmental Systems	Building Shell Systems	Building Service Systems	Building Materials and Applications	Integration of Building Systems
Degree of Importance	2,31	1,68	0,85	0,63	0,54	0,52	0,47
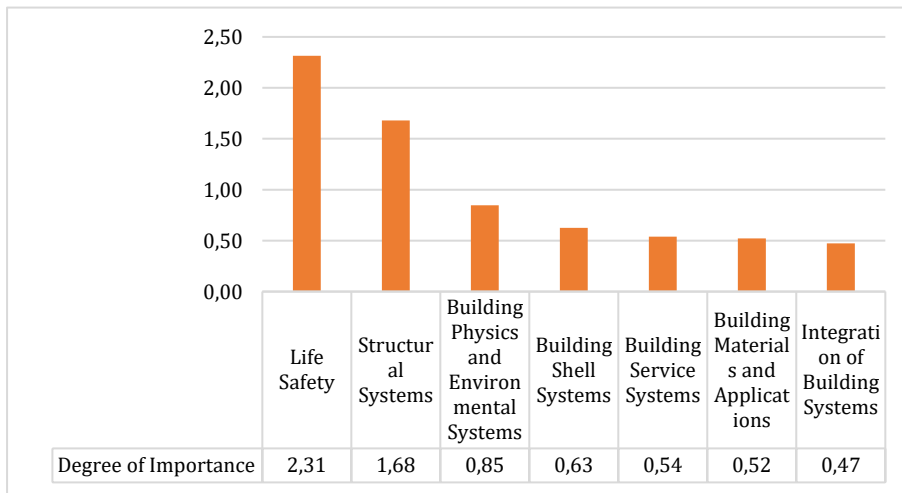
In general, Table 11 has been prepared to ensure that all sub-criteria are presented in a common table. According to this table, especially life safety, structural systems, sustainability, and critical thinking stand out in terms of their importance degree compared to all other factors. Considering the course equivalents of these factors, it is seen that there are studio courses, construction technology courses, architectural history courses. This situation actually highlights the mixed structure of architecture discipline. Although some factors are superior to each other, it is seen that they are generally related to each other. From the student's perspective, the least important factors are geographical conditions, integration of building systems, building materials and applications, and building service systems.

Table 11. AHP survey evaluation results for all sub-criteria
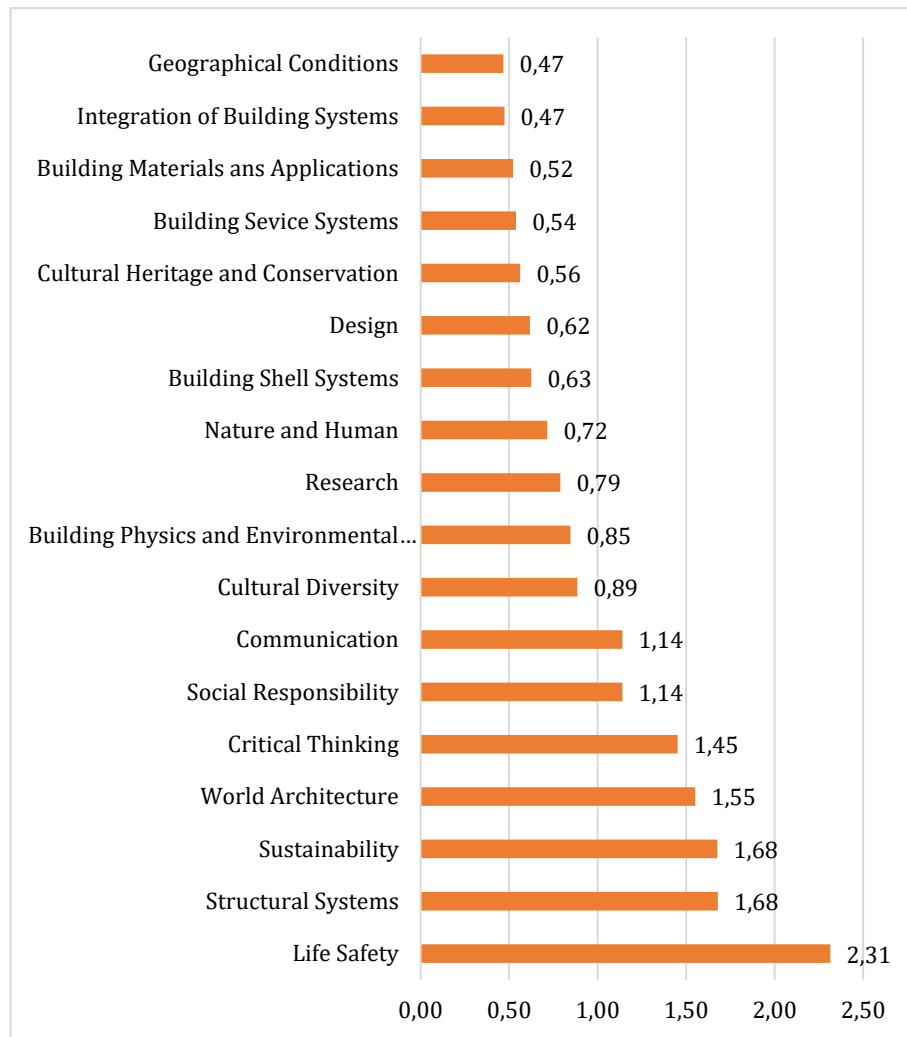
RESULTS

The discipline of architecture is a complex field that draws on engineering and social sciences. The courses in the current education system cover these concepts to a certain extent. In this study, which aims to provide a participatory process for improving the level of architectural education, the student is positioned at the center and the knowledge, skills and competence criteria used in the accreditation process are used as tools. The concept of accreditation in higher education aims to make academic competence transparent for students, to create a compliance infrastructure for students and to increase their acceptability in international institutions. In this context, MIAK-MAK is the only authority in Türkiye to accredit architecture programs. The knowledge, skills and competence system that this organization has established for the accreditation is similar to the systems of other accreditation organizations around the world. In particular, titles such as design, critical thinking, professional approach, culture and art, technology, environment, social, etc. constitute common discourses, while history and theory titles are seen only in MIAK-MAK.

Students' approaches to accreditation criteria determined by MIAK-MAK were considered important in this study. It is assumed that issues in the country and the world affect the students' perspective and approach as well as increase their interest. For example, in the survey conducted a few months after the February 2023 Kahramanmaraş earthquake, students ranked life safety and structural systems as the top priorities considering the effects of the earthquake, since it is important for students to know the construction of structural systems in a way that will ensure human life safety and the related theories and practices correctly. Türkiye is located in a region having significant earthquake and has faced many challenges due to eartquakes. For this reason, the place of earthquake-resistant building design and current approaches in the education curriculum should be reopened for discussion. Sustainability, another top choice, is an important issue not only in Türkiye but also in the world. Inequalities in social, economic and environmental issues and the increase in these problems explains students' predisposition towards sustainability. Therefore, it can be concluded that the situations experienced locally and, in the world, affect the students' answers. Another reason is that the program in which the surveyed students receive education aims to raise students who "question and make suggestions" and the curriculum is prepared to achive this perspective. The curriculum includes theoretical and practical courses as well as architectural project courses, encourages students to become questioning and discussing designers. Thus, critical thinking is one of the preferences expected to be at the top of student choices. In the same way, the scarcity of courses in the curriculum that include Geographical Conditions, Integration of Building Systems, Building Materials and Applications, Building Sevice Systems, and other available courses that are included in the elective pool have affected student choices. Therefore, it is thought that students with little knowledge on the subject hesitate to put the topic in the first place in the order of importance.

This study was applied to a specific sample area in the architecture department of KTO Karatay University, which is a foundation university. The AHP method used in the study has the feature of being adaptable to every process due to its flexible and changeable structure (Harputlugil, 2012). Therefore, this system can be adapted to other universities and curricula. In the future, studies are planned which will enable a comparison of the preferences of both public and foundation university students. This is important in terms of examining the question of whether there are any differences in the preferences of public and foundation university students. It is assumed that determining the reasons for the similarities or differences in the preferences and understanding the effects of these factors on education will have positive contributions from various perspectives.

Accreditation aims to create a systematic process that improves quality and makes it permanent for higher education institutions. Although it has a longer history in the world, it is a new and current issue

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for Türkiye. When the studies are examined in general perspective, the relationship of accreditation with institutions, its positive and negative aspects are emphasized. It is thought that this study, which focuses especially on active students and asks them to interpret the process, will make an important contribution to the literature. In addition, following this study, conducting a similar study with graduates will provide an opportunity to compare the findings.

In addition, it is thought that the students participating in the survey belong to Generation Z may have an impact on the survey results. When the characteristics of Generation Z are examined; they are defined as individuals with a high tendency to use technology and internet, creative, having strong motor skills, being able to cooperate and having high communication skills (Ziyagil, 2021). In addition, according to Ziyagil (2021), Generation Z is characterized as individuals who are "aware of the global world, can think flexibly and can understand different cultures". In this case, it can be concluded that students who exhibit the characteristics of this generation are interested in following current architectural trends. Therefore, in another study, the approaches of different generations of students can be investigated in similar studies and a comparison can be made over generations.

Finally, this study focuses on the general perspective of all classes. At this point, it is known that there may be different viewpoints between the classes. However, since the sample was limited to only one university, classes were not evaluated among each other in order to make a general judgment about student evaluations. Therefore, a comparison between classes can be made for the next studies. In order to maintain and improve the quality and standards of education in the increasingly growing number of architecture schools in our country, studies are needed from both the perspective of the educators and the students. In this respect, this study is considered important in terms of putting the student in the main focus and highlighting the student views. The results of this study will provide ideas for the arrangements to be made in architectural education in the new century. We anticipate that this study will be an important reference and offer valuable insight for future studies.

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Resume

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