

Original article

Specialization as a Solution to the Growing Challenges of Large Universities in Türkiye

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Abstract

Universities play a significant role in education, research, and the development of society. Over the last few decades, they have experienced quite a bit of change due to rapid growth and more diversity, especially in places like Türkiye. The rise in the number of universities and students in Türkiye since the '80s has led to serious challenges in management and education quality. This article looks at the issues that big universities deal with and suggests that specialized universities might be a good way to tackle these issues. Researchers gathered insights through interviews with 38 people, including university leaders, teachers, and higher education experts. The interviews revealed that larger universities often struggle with too much red tape, limiting academic freedom and slowing decision-making, ultimately impacting how well students interact with their instructors. The findings show the difficulties large universities face when it comes to keeping up with educational standards and meeting the needs of specialized programs. On the other hand, specialized universities, with their smaller and more flexible setups, could help break through some of the challenges faced by larger institutions. Those interviewed mentioned that specialized universities usually offer a more personalized approach, encourage stronger academic relationships, and are better at responding to educational and research needs. This article suggests that moving towards “specialized universities” might help boost efficiency in these institutions, enhance education quality, and keep pace with the changing education scene. In the end, it seems specialized universities could be a solid answer to the problems that large universities are experiencing, leading to more innovative and effective education systems.

Keywords: Higher Education, Transition of Universities, Curriculum, Specialized University

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INTRODUCTION

Throughout history, universities have been among the most valued establishments tasked with contributing to education, research, and societal development. However, in the last century, the quick changes in instructive demands, technological developments transforming university structures, and the growing global interest in higher education have considerably increased the size and diversity of universities (Bevis, 2019; Earnshaw, 2017). Mostly in the last 30 to 40 years, the swift advance in the number of universities and students worldwide, as well as in developing countries such as Türkiye, has deepened the governmental challenges universities face. While the growth of universities means more students, academic units, and research resources, this expansion has also brought about various challenges (Altmann & Ebersberger, 2012; Bolton & Genck, 1971). Large universities have become vast structures, hosting thousands of students and hundreds of faculties and departments. Initially, these structures supported diversity and a multidisciplinary approach (Antoine & Van Langenhove, 2019), but over time they have led to serious problems such as administrative complexity (Perkin, 2007), inefficient use of resources, and the failure to meet the individual needs of students. Many large universities face challenges such as increasing administrative burdens, slow decision-making processes, and reduced interaction between faculty members and students (Moodley, 2015; Moore & Shangraw, 2011). As a result, it has become increasingly difficult for large universities to maintain their educational quality. In this context, we see that there is not always a relationship between size and quality, and at times, size can negatively affect a university's agility and academic efficiency. (Hall et al., 2006; Schubert & Yang, 2016)

The challenges brought about by size have become particularly evident in countries like Türkiye. The increase in the number of universities in Türkiye has occurred in parallel with the rapid growth in demand for higher education (Yalcintan & Thornley, 2007). The university expansion process that began in the 1980s has not only increased the number of universities but also resulted in a massive growth in the student population. In the early 1980s, there were only 28 universities in Türkiye, but today the number exceeds 200 (Soyşekerci & Erturgut, 2010). Student numbers have increased in parallel with this growth, and today Turkish universities educate millions of students. However, this expansion has different impacts on the administrative structure of universities and the quality of education (Habibi, 2017).

As Turkish universities have become larger and more diverse, they have also become more complex from an administrative perspective, and this has severely limited their effectiveness. In particular, in a system dominated by a centralized management approach, the autonomy of universities has been gradually weakened. Centralized management limits the academic and administrative independence of universities, forcing them to send even the decisions they should make internally to higher authorities. This reduces the universities' capacity to make fast and effective decisions, leading

to an increase in bureaucratic barriers (Dogramaci, 1993). However, in order for modern universities to function efficiently, autonomy and fast decision-making processes are of great importance. Centralized structures, however, restrict this autonomy, and many universities are forced to delegate authority to make decisions internally (Ma et al., 2017). To better understand this, we can examine how universities in Türkiye have become large structures with many faculties and departments. Many universities host numerous academic units and student communities on their campuses, and the administrative challenges within this diversity increase daily. Universities are struggling to meet the academic freedom of faculty members (Gök, 2016) and the individual needs of students (Karataş Acer & Güçlü, 2017). Large academic structures are finding it difficult to provide the flexibility needed to maintain and improve teaching quality. It is becoming increasingly difficult for students to receive a more personalized education, benefit from counseling services, and engage effectively with faculty members. Furthermore, the prolongation of bureaucratic processes exacerbates the difficulties students encounter in their education (Banerjee & Shiva, 2014). At this point, universities are expected to not only increase in size but also improve the quality of education proportionally. However, in practice, these two factors do not always support each other, and sometimes size negatively impacts educational quality.

Moreover, the administrative burden that comes with size hinders universities' ability to contribute effectively to innovative research and emerging academic fields. Universities are struggling to adapt to rapidly changing educational needs and research demands, and their outdated structures and decision-making processes are unable to keep up with the requirements of modern education. This results in universities struggling to fulfill their societal responsibilities and a decline in their academic productivity and the quality of scientific research (Bolton & Genck, 1971; Docampo & Cram, 2015). All these administrative and academic challenges have made the complexity and inefficiency in large universities increasingly evident (Moore & Shangraw, 2011). This situation causes large universities to lose their agility and flexibility, negatively impacting students' academic success (Mukerjee, 2014). At this point, the importance of the *specialized university* model becomes even more significant. Specialized universities offer in-depth education and research chances in specific academic areas, allowing students to have a more focused educational experience. Such universities can overcome bureaucratic obstacles with their more responsive management structures and conduct education and research more proficiently. At the same time, they provide a conventional for improve the quality of education by strengthening the student-teacher interaction (Gudaityte et al., 2017). Figure 1 summarizes aforementioned:

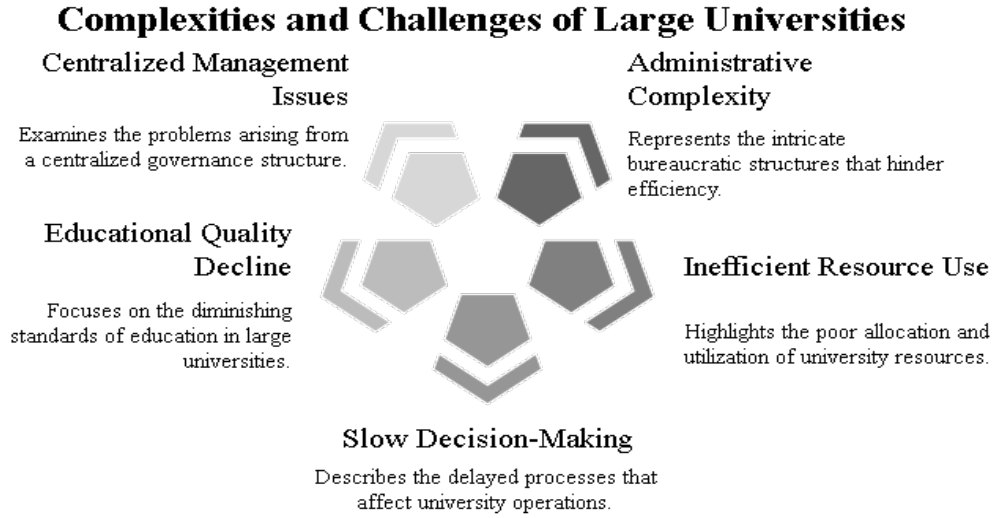


Figure 1. Challenges of a large institution

The challenges Turkish universities face, generally due to their gigantic sizes, are parallel to the issues in university systems throughout the world. However, unraveling these problems will not be achieved by simply reducing size but by changing to a more focused and efficient university model. Specialized universities present a strong solution to overcome the administrative and educational challenges faced by large universities (Gu et al., 2018). With their small, swift, and specialized appearances, specialized universities can provide more efficient, higher-quality, and more advanced education (Dainovskii, 1978; Sheregi & Ridiger 2016).

This article aims to thoroughly examine the problems faced by large universities, the advantages offered by specialized universities, and the potential solutions in future education.

Administrative Challenges and Bureaucratic Inertia in Large Universities

Large universities today operate as massive structures that not only produce and disseminate knowledge but also accommodate diverse cultures and disciplines. These large structures initially promoted diversity, versatility, and interdisciplinary collaborations, but over time, the administrative complexity resulting from size has significantly reduced the effectiveness of universities. The convergence of multiple faculties, departments, and divisions resembles a forest, with paths growing independently, making it difficult to organize and optimize the ecosystem (Maringe & Sing, 2014). Size does not always guarantee quality; in fact, it often leads to inefficiency and bureaucratic barriers. The "inertia" in the administrative structures of universities is often a direct result of the process of expansion and diversification (Zaman, 2015).

This administrative complexity triggers the challenges that large universities face when dealing with more students, faculty members, and resources. Each academic unit within the university, with its

own bureaucratic structure and processes, exists as a "microcosm," and the interaction and coordination between these microcosms have turned the university into a "bureaucratic forest" (Salter & Tapper, 2002). In this forest, as each tree (faculty or department) tries to grow, the entire ecosystem (the university structure) is becoming more inefficient.

The growth of bureaucratic barriers leads to slow decision-making processes, the inefficient allocation of resources, and challenges threatening educational quality. In some cases, even simple tasks such as "making decisions" may require a series of hierarchical approvals. This "bureaucratic congestion" hinders the efficiency of the university, much like blocked blood flow in the veins of a patient. Each new added layer and process weakens the ability to respond to rapidly increasing student demands and changing educational needs (Ntanos & Boulouta, 2012). At this point, it could be said that large universities have become like a "giant ship" that, while initially strong and solid, becomes difficult to steer and struggles to adapt to rapidly changing conditions. Instead of moving quickly, the ship requires time to navigate with great momentum.

As decision-making processes become more complex with growing structures, fundamental university values such as academic freedom and teaching quality are at risk. Many large universities, due to bureaucratic structures, hinder the quick initiation of research projects or the effective implementation of academic initiatives, posing a barrier to scientific innovation. Problems in essential services such as student applications, course registrations, and academic counseling lead to student dissatisfaction, while increasing faculty members' daily workload negatively affects their academic performance. All these factors create a "cumbersome" structure that hinders the healthy operation of large universities (Hardy et al., 2011).

The administrative complexity of large universities often exacerbates decision-making processes with a layered structure. Making an academic or administrative decision often requires passing through multiple stages, each representing a different aspect of the university's bureaucracy. This highlights how difficult it is to operate within a large structure. This, in turn, restricts the university's agility and innovation since each new decision and strategy must pass through a series of approval mechanisms. The identification of how the bureaucratic complexities of large institutions hinder institutional innovation and academic progress is highly significant (Andrews & Boyne, 2014). Expanding university structures require continuous updates to leadership and management strategies and the ability to adapt to rapidly changing educational needs. However, in this process, each new layer or "knot" created typically reduces the university's overall performance (Sporn, 2001).

The complexity and inertia of large universities are often the result of a "centralized management" approach. This creates a structure that prevents not only local management but also central management from allowing universities to make independent decisions. However, universities would gain more flexibility and speed with more autonomous structures. In this context, large universities face challenges

not only due to the administrative difficulties stemming from their size but also from the tension between size and centralized structures (Kreysing, 2002). Universities are increasingly recognizing the importance of autonomy and more specialized structures to break free from the limiting effects of centralized systems and to be managed in a more effective way (Bellavista, 2007; Bolton & Genck, 1971; Eaton, 2006; Ecker, 1979).

The Need for New Approaches: The Rise of Specialized Universities

The complexities and issues that come with large universities show there is a need for a different approach. Universities should consider moving away from the typical higher education model and start setting up more specialized institutions. These specialized universities dive deep into specific subjects, giving students the chance to not just learn broadly but also become experts in certain areas. They provide a more focused and personal educational experience, no matter their size, and can keep up with fast-changing advancements in science and technology.

Another significant gain of specialized universities is that they provide more personal interaction and supervision to students. In large universities, opportunities for academic treatment, one-on-one interaction with faculty members, and extracurricular academic support are often inadequate. However, in smaller, specialized universities, students establish closer relationships with their professors and engage more actively in their education. They have more opportunities to interact not only with faculty members but also with the industry and other research fields. These interactions can directly influence students' academic success, as they not only focus on course content but also gain valuable experiences through practical knowledge, research projects, and industry exposure (Gu et al., 2018; Melnychenko & Sorochnyńska, 2018). Smaller universities, through their active management, foster academic freedom and creativity. In specialized universities, smaller and more focused structures speed up decision-making processes, allowing faculty members more freedom and encouraging innovation (Callychurn et al., 2015; Sheregi & Ridiger, 2016).

Bureaucracy in big universities can really slow things down and put more pressure on managers, which is not great for the quality of education. Smaller, specialized universities tend to handle these issues better. They can react quickly to changes because their management structure is more agile. With their smaller teams and leadership, they can respond fast to new trends. Plus, they make better use of their resources, which helps improve what they offer in terms of teaching and research (McNay, 2002).

History of Specialized Universities: Seljuk, Ottoman Period, and the Republic

The development of the education system in Türkiye has experienced significant changes over time. From the Seljuk and Ottoman periods to the present day, educational institutions have generally evolved as specialized structures in religious and scientific fields, gradually laying the foundations of the modern university concept. Especially with the establishment of the Republic, specialized

universities have played an imperative role and contributed to Türkiye's scientific development (Gürüz, 2015). In the Seljuk period, medreses (schools) established in Anatolia formed the building blocks of the educational system, particularly creating specialized structures in fields such as medicine. Education during this period was largely based on scientific traditions developed within the Islamic world. One of the significant contributions of the Seljuks to the field of healthcare was the establishment of the Gevher Nesibe Medical School in Kayseri Province in 1206. Gevher Nesibe was one of the most famous medical schools of the period, offering not only medical teaching but also training in pharmacology, surgery, and mental health. This school is one of the earliest models of specialized medical education in the Seljuk Empire era (Doğan, 2013; Heybeli, 2009). Students who attended gained both theoretical understanding and practical skills in medicine. These specialized educational institutions not only provided education but also served as hospitals where patients could be treated. The influence of Gevher Nesibe in healthcare laid the groundwork for the advancement of medicine and the development of a medical school culture in the Seljuk Empire (Doğan, 2013).

During the Ottoman Empire, education began to specialize not only in religious studies but also in medical and technical fields. While medreses were the most common type of educational institution, new specialized schools were also established, particularly in fields such as medicine, engineering, agriculture, and veterinary sciences. The medical school functioned as both a training center and a research hub for healthcare improvement. Another important example of specialization is the Ayamama Agricultural School and Ankara Agricultural School. With the development of agriculture in the 19th century, the Ottoman Empire established specialized schools to educate experts in the field of agriculture. These schools provided academic knowledge and practical training in agricultural sciences, producing experts in fields such as agricultural engineering and agricultural science. Ayamama Agricultural School was particularly significant in the field of agricultural research and education. Similarly, Ankara Agricultural School, founded in the late 19th century, was another important institution that trained experts for the agricultural sector (Çalik & Çan, 2012; Lyalyakin, 2022). Despite being primarily a religious-based education system, the Ottoman Empire saw significant examples of specialization, especially in fields like medicine, engineering, and agriculture, influenced by Western innovations (Bilsel et al., 2010).

Following the declaration of the Republic, Türkiye implemented extensive reforms in its educational system. The goal was to establish modern educational institutions that were closer to the Western model of universities. During this period, numerous specialized universities and faculties were founded, and the educational system was solidified on a scientific foundation. Istanbul University, established in 1924, was the first modern university in Türkiye. In the early days of the Republic, there were not many universities. In the 1940s when we saw the first steps toward specialized areas of study.

Istanbul Technical University, opened in 1946, became one of the first focused on engineering. Then in the 1950s, Middle East Technical University focused on science and engineering too.

Lately, the Higher Education Council (HEC) has started a move for more specialized universities. Since the 2010s, HEC granted the title of Regional Development University to certain institutions, which these universities need to focus on particular fields that will help their regions grow. This approach turned universities into centers for education and local development. Universities that receive this designation are expected to conduct research that matters to their regions, creating programs and studies that tackle local issues. As a result, these universities are now aligning their educational and research efforts with what their regional needs. For instance, some universities are focusing on mining, agriculture, and environmental sciences to support local development. Zonguldak Bülent Ecevit University focuses on mining, while Aksaray University looks into industry, and Artvin Çoruh University targets forestry and environmental science. These universities are changing how they operate to meet their region's goals, building ties with local industries, and helping boost regional growth through innovation and technology. The model from HEC is changing university education in Türkiye forward and encouraging more specialization.

This study is crucial for developing a deeper understanding of the approach to specialized universities, the specialization in higher education, and the role of specialized institutional structures in shaping academic and regional development. The qualitative examination of this process, rather than merely repeating information, aims to shed light on the depth of expertise provided by specific universities in particular fields. Since the research focuses on more specialized university models rather than growth, the research questions are shaped to serve this purpose.

The study was conducted around one main research question and 10 related sub-questions.

Main Question: How does the university size influence the large universities and can a specialized university movement be an approach for the future of the university system in Türkiye?

Based on the main research question there are sub-questions stated:

Sub-Research Questions

1. What are the administrative and academic challenges faced during the growth and expansion processes in universities?
2. How might opting for smaller, specialized structures instead of growth impact academic success, research productivity, and administrative efficiency?
3. In which fields should universities prioritize specialization, and how can this specialization align with local development goals?

4. How is the efficiency of administrative structures in universities related to growth, and what changes can be made to create a more agile administrative structure?
5. What are the barriers to transitioning to a specialized university model, and what strategies are recommended to overcome these barriers?
6. How does adopting specialized structures instead of size affect the quality of education in universities?
7. While developing a new university model, how can cooperation between universities and regional development be made more effective?
8. In the transition from growth-oriented university models to specialized university models, which academic disciplines need to be adjusted?
9. How can specialized universities compete more effectively with digitization and global education platforms?
10. How should the transition process from size and diversity to depth and specialization in universities be managed?

METHOD

This study qualitative research aimed at examining the issues of size and specialization within Türkiye's higher education system and developing a deeper understanding of how universities can be structured more effectively in the future. Qualitative research allows for a detailed understanding of participants' personal experiences, views, and beliefs, and therefore, provides in-depth insights into the aspects of university size, quality, and administrative structures. In this research, the experiences and views of academic communities such as higher education experts, university administrators, and academics were utilized in accordance with the research question.

This qualitative study, which explores the issues of size and specialization in Türkiye's higher education system, relied on the experiences and points of views of academic communities. To ensure credibility, participants were carefully selected regarding their direct involvement with the knowledge of institutional organizations and higher education policies. The use of a qualitative approach allowed detailed accounts of participants' personal experiences, views, and beliefs. This depth strengthens validity by ensuring that data precisely reflect the complications of university size, specialty, and administrative strategy. Triangulation was also achieved by integrating several perspectives across diverse institutional roles, which helps to confirm findings through convergence of evidence. To provide transferability, concentrated descriptions of contributor contexts and official settings were included.

Research Design

This research was designed as a descriptive cross-sectional case study. A cross-sectional study is an approach aimed at collecting data on a specific topic within a defined period, and the goal here is to understand participants' current thoughts and experiences (Kesmodel, 2018; Olsen et al., 2010; Setia, 2023). In this context, in-depth interviews with higher education experts, university administrators, and academics will reveal their views on the growth and specialization processes in universities. This methodology allows for a comprehensive analysis of the current landscape in higher education, enabling insights into trends and challenges faced by institutions today. This approach will facilitate a deeper understanding of how these factors influence decision-making and strategic planning in the evolving educational environment. This study underscores the importance of employing cross-sectional research designs to capture a snapshot of the current dynamics within higher education institutions (Zuleika & Legiran, 2022; Sobol, 2014) and to inform future research directions in this field (Aydin, 2014). By leveraging the strengths of this methodology, the study aims to provide valuable insights into the ongoing transformations in higher education.

Participants

The participants of the research are higher education experts, university administrators, and academics working in various universities across Türkiye. Participant selection was done through purposive sampling, as this method is used to identify participants who are most suitable for the research purpose. In this study, purposive sampling was employed to identify and select participants who could provide rich and relevant data aligned with the research objectives. Purposive sampling is a non-probability sampling technique frequently used in qualitative research to access individuals who possess in-depth knowledge or experience related to the studied phenomenon (Patton, 2015). Specifically, participants were chosen from among higher education experts, university administrators, and academics who are actively involved in the Turkish higher education system. Given their expertise in institutional organization and policy development, this strategy can be considered a form of expert sampling, a subtype of purposive sampling that focuses on selecting individuals with specialized knowledge (Etikan, Musa, & Alkassim, 2016). This approach ensured that the data collected would reflect informed perspectives on the issues of university size and specialization, thus enhancing the credibility and depth of the findings. The number of participants was kept at a specific number until data saturation was reached; initially, 20 participants were selected from each of the three groups. However, the total number of participants interviewed was 38, which the researchers considered adequate for qualitative research (Zuleika & Legiran, 2022).

Data Collection Method

Data was collected through in-depth interviews. In-depth interviews were structured to ask open-ended questions related to the research questions in order to gain detailed insights into the participants' personal views, experiences, and suggestions. Six of the interviews were conducted in a semi-structured format. Semi-structured interviews provide a framework based on certain core questions, while allowing flexibility for participants to express their views more broadly. The questions used in the interviews were constructed in alignment with the research questions mentioned above.

Data Analysis Method

I analyzed the data using content analysis, which is a way to find important themes and patterns in written material. We started by transcribing the interview recordings. After that, we looked for the main points in what the participants said and how those points connected to each other. We went through each interview several times to spot key words and themes to categorize them. The first step in our analysis was coding. During this step, we pulled out specific themes and keywords from the transcripts, organized them, and then did a deeper analysis to find common patterns. This helped us understand how participants felt about things like university size, challenges in administration, quality, and specialization. The coding process is where we began to structure our findings. We identified certain words, phrases, or ideas from the interviews that related to our research questions. These codes represent bits of information that carry meaning. Once we had our initial codes, we carefully reviewed the data again to look for specific concepts and ideas. This stage is often referred to as open coding. Below is an example of how coding is done based on interview transcripts:

Interview Transcript Example 1.

"University growth harms both the quality of education and the administrative processes. Having a very large structure increases bureaucratic obstacles. Decision-making processes slow down, and this makes it difficult to implement innovative academic projects."

Codes: Growth and quality relationship, Bureaucratic obstacles, Administrative challenges, Decision-making processes, Innovation obstacles

Interview Transcript Example 2.

"I think small, specialized universities have a more flexible and agile structure. This supports academic freedom and increases research productivity. Additionally, there is more one-on-one interaction with students."

Codes: Small universities, Flexibility and agility, Academic freedom, Research productivity, One-on-one interaction

Categorization: After coding, relationships between similar codes were established, and they were grouped together to form themes and categories. This phase is known as axial coding. Themes create more meaningful structures focused on the research questions.

The above codes were grouped as follows:

1. Administrative and Strategic Challenges
 - Growth and quality relationship
 - Bureaucratic obstacles
 - Administrative challenges
 - Decision-making processes
2. Specialization and Advantages of Smaller Structures
 - Small universities
 - Flexibility and agility
 - Academic freedom
 - Research productivity
 - One-on-one interaction

Thematic Analysis: In the next phase, these categories were grouped under broader themes. This stage is known as selective coding, where more meaningful, higher-level themes are constructed. Below are examples of the themes that emerged:

1. Administrative Challenges and Growth:
 - The negative impact of administrative challenges and bureaucratic obstacles in large universities on educational quality.
 - The slow decision-making processes and the hindrance of innovative projects.
2. Specialization and Academic Success:
 - The agile structure of small and specialized universities provides a more conducive environment for supporting academic freedom and enhancing research productivity.
 - The contribution of one-on-one interaction and student-centered education to success.

These themes can be deeply analyzed to shed light on the research questions and help present the findings in a more meaningful way.

Table 1. Data coding example

Data Excerpt (Quote)	Codes	Themes
"University growth harms both the quality of education and the administrative processes..."	Growth and quality relationships, bureaucratic obstacles, relationships administrative challenges	Administrative Challenges and Growth
"Small, specialized universities have a more flexible and agile structure..."	Small universities, flexibility and agility, academic freedom, research productivity	Specialization and Academic Success

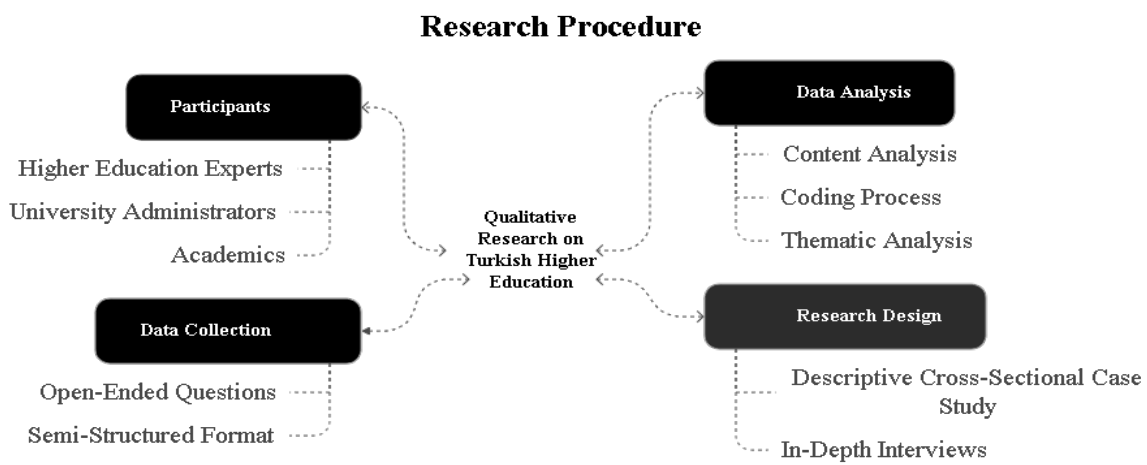


Figure 2. Research procedure

RESULTS AND DISCUSSION

In this study, the themes of administrative challenges and growth, as well as specialization and academic success, emerge. In this section, direct quotes from interviews with participants will be provided under two main themes by using each research question to illustrate the findings and results.

Theme 1. Administrative Challenges and Growth:

1. What are the managerial and academic challenges encountered in the growth and expansion processes of universities?

The participants' statements regarding this question are generally similar. For instance, one participant, who is an administrator in higher education, states:

The growth process causes the university to face significant complexity both in administrative and academic terms. The increase in student numbers, especially for administrative processes,

requires much more resources and manpower. This leads to an increase in bureaucratic barriers and the involvement of more administrators in decision-making processes. As a result, challenges arise in responding to rapidly changing educational needs. Additionally, with growth, the distribution of resources within the university becomes imbalanced, and the needs of some departments or faculties may be overlooked. (P.4)

Similarly, another participant, who is an academic, expressed the following:

With growth, the increase in the number of students negatively impacts the quality of education. The large number of students leads to instructors not being able to dedicate enough time to each student. Furthermore, the reduction in interaction between the academic staff and students negatively affects the learning process. Growth in universities generally remains limited to expanding physical infrastructure, whereas the most important thing is to sustainably increase the quality of education and academic success. This issue becomes more pronounced, especially in large universities and broad programs. (P.7)

The higher education expert expressed the impact of growth as follows:

Growth is one of the biggest problems faced by large universities in Türkiye. As universities grow, the administrative structure becomes more complex, and bureaucratic barriers increase. Many universities fail to manage their resources efficiently, resulting in slower decision-making processes. This hinders academic freedom and innovation. Along with growth, more departments and faculties are added, which prevents the university from developing with a holistic strategy. (P.12)

The participants' statements clearly highlight the managerial and academic challenges arising from the growth and expansion processes of universities. There is a shared view that growth creates a complex structure in universities. The source of the challenges faced in both administrative and academic aspects is linked to the natural result of growth, which brings the need for more students, academic staff, and administrative personnel. The first participant emphasizes that growth particularly increases the complexity of administrative processes and leads to more bureaucratic barriers. It is highlighted that the increase in the number of students creates significant pressure, not only on physical infrastructure but also on resource distribution and management processes. As a result, universities face difficulties in adapting to rapidly changing educational needs. Similarly, the academic participant pointed out the negative effects of growth on the quality of education. The increase in the number of students means that instructors cannot dedicate enough time to each student, affecting the learning process. Additionally, it was noted that growth is generally limited to expanding physical infrastructure and insufficient in terms of sustainably increasing educational success.

The higher education expert indicated that growth constitutes a threat for large universities in Türkiye, resulting in a more complex administrative structure, increased bureaucratic barriers, and inefficient resource management. This leads to slower decision-making processes and prevents

universities from developing with a holistic strategy. All participants emphasized that growth not only increases the physical size of the university but also causes significant managerial, bureaucratic, and academic issues. This suggests that in order for growth to be effectively managed, it is necessary to develop not only the infrastructure but also the administrative structures. The growth process of universities requires more resources, time, and managerial flexibility. However, the sustainability of academic success and the quality of teaching should not be overlooked in this process.

2. How might preferring smaller, specialized structures over growth affect academic success, research productivity, and management efficiency?

The participants' statements on this question, which focuses on the efficiency of resource use, are particularly noteworthy:

I think when smaller, specialized structures are preferred instead of growing, universities can operate in a much more focused manner. These types of structures can increase both academic success and research productivity. More resources can be allocated to specialize in certain fields. A small-scale university can also operate more efficiently from a management perspective because bureaucratic barriers are reduced, decision-making processes are accelerated, and more agile management is possible. Additionally, smaller structures allow for closer relationships between faculty members and students, which improves the quality of education. (P.3)

The academic participant emphasized the importance of specialization:

Specialized universities can enhance academic success because they offer the opportunity to specialize in certain fields. This especially provides the possibility to allocate more resources to research areas. In small universities, faculty members can collaborate more effectively, which enhances both research productivity and education quality. Faculty members in these universities can work much more efficiently to maintain academic focus. Furthermore, the limited number of students allows instructors to spend more time with them. (P.19)

The higher education expert participant also views specialization from the program perspective:

Many large universities focus on increasing student numbers and growing, while forgetting that education and research quality can also be improved. However, small, specialized universities can offer a more targeted education program. In these universities, students can receive more individual support, and faculty members can work in more specialized areas. Specialization can increase academic success and research productivity because all resources are concentrated in just a few areas. Additionally, small universities operate more efficiently from a management perspective, which positively impacts academic productivity. (P.5)

The participants' statements show that specialized universities offer significant advantages in terms of academic success, research productivity, and management efficiency. They associate small and

specialized structures with more efficient resource use, stronger academic focus, and more efficient management processes. The first participant emphasized that small and specialized universities allow for deeper focus on specific fields, thus enhancing academic success and research productivity. It is stressed that these structures provide advantages, especially in terms of more efficient and effective resource use. Small universities, with reduced bureaucratic barriers, can also work in a more agile and efficient manner. Closer relationships between teachers and students can make education better. One participant talked about how smaller universities can boost academic success. They pointed out that these schools can focus more on specific areas, especially in research, by providing extra resources. When faculty members can spend more time with students in a smaller environment, it tends to improve the overall education quality. The participant noted that more teamwork among faculty can also help academic achievements and research efforts. The higher education expert mentioned that large universities often get so caught up in expanding their student numbers that they might neglect the quality of education and research. In contrast, smaller and specialized universities can offer focused programs and more personal support for students. Putting resources into fewer areas can lead to better academic outcomes and research results.

3. In which areas should universities specialize, and how can these specializations align with local development goals?

The topic of local development and specialization is one of the priority working areas for universities. A university model focused on serving the development of the region it is located in is a crucial aspect emphasized worldwide. The participants' statements on this issue are as follows:

Universities' specialization should align with local development goals. For example, specializing in areas such as health, engineering, technology, and the environment can contribute to both the country's development and local development goals. These areas can lead scientific innovations and technological advancements, supporting local labor forces and economic growth. Additionally, in line with regional development goals, universities can collaborate with local industries and entrepreneurship ecosystems to tailor their educational programs and research to local needs. (P.13)

Another participant shared their views on specialization areas:

The most important areas for universities' specialization include sectors such as technology and agriculture. These sectors are significant both globally and locally. Specializing in agriculture is directly related to rural development and contributes greatly to regional development. Specializing in technology is an essential field for innovation and scientific research. Universities can contribute to local development projects by specializing in these areas and can also create local entrepreneurial opportunities in these fields. (P.22)

The specialization process can help universities align more with local development goals. Specializing in sectors such as health and environmental engineering can directly affect regional development. Universities, by specializing in these fields, can take concrete steps to grow the local economy and solve regional problems. Additionally, universities can shape their education and research in collaboration with local governments and industries to meet regional needs.

4. How does adopting specialized structures instead of size impact the quality of university education?

The relationship between education quality and specialization directly impacts employment and labor outcomes. Participants' views on this are as follows:

Specialized structures can positively affect the quality of education in universities. These structures allow for fewer students and more academic focus. A small, specialized university allows instructors to have closer relationships with students and enables faculty to delve deeper into their fields. Furthermore, decision-making processes become much faster and more flexible, making educational programs more dynamic and innovative. The quality of education improves both through student-faculty interactions and the deep knowledge of the academic staff in their respective fields. (P.18)

Two other participants' views focus more on student success:

Adopting specialized structures can improve education quality because these structures offer more focus... In large universities, there can be coordination issues between different departments and challenges in collaboration among faculty, while in small, specialized universities, these issues can be minimized. Students receive a more unique, high-quality education... and their academic development progresses more quickly. Additionally, specialization leads to a more specialized and experienced academic staff, which is another factor that enhances education quality. (P.17)

...There is no direct correlation between size and education quality. Small, specialized structures provide more interaction between faculty members and students, making the education process more efficient... Furthermore, through specialization, universities can provide more in-depth education in their fields. This directly improves students' academic success... Specialized universities offer education in more niche areas, providing students with a more specialized level of knowledge, which contributes to their academic development. (P.9)

The participants emphasize that specialized universities positively impact education quality. Specialized structures, with fewer students and more academic focus, allow instructors to have closer relationships with students and delve deeply into their fields. This is an important factor in improving education quality. Additionally, the faster and more flexible decision-making processes in small universities make educational programs more dynamic and innovative, which also contributes to education quality. Participants focused on student success state that adopting small and specialized

structures gives students the opportunity to receive unique and high-quality education. In such universities, better collaboration among faculty members accelerates students' academic development. Specialization also ensures that the academic staff is more experienced and specialized, which further improves education quality. Moreover, specialized universities provide in-depth education in their fields, offering students more specialized knowledge, which enhances their academic success.

5. What are the barriers to transitioning to the specialized university model, and what strategies are suggested to overcome these barriers?

Resistance or strong attachment to the existing system is a common theme in the participants' responses:

The biggest barrier in the transition to specialization is the resistance related to changing the current structure. Old habits and bureaucratic structures in universities show significant resistance to change. Additionally, the scarcity of resources can further complicate this process. For universities, transitioning to specialization requires not only a strategic change but also a transformation in the administrative structure and academic staff. To overcome these barriers, universities must create a strong vision, have both the academic and administrative staff embrace this vision, and collaborate with local governments and industries. Additionally, I believe that continuous education and change management are critical to the success of this process. (P.23)

Another participant noted:

The biggest barrier to specialization is the lack of resources and infrastructure. To deepen in small and niche areas, more investment needs to be made in these fields. Another obstacle is that older generations of faculty members in the academic staff may struggle to adapt to the new structure. Specialization requires new skills and different perspectives, which means a transition period for faculty members. However, overcoming these barriers is possible with good leadership and strategic planning. If universities manage this process well, they can use their resources more efficiently and increase academic productivity. (P.15)

The higher education expert specializing in bureaucracy and educational policies added:

The Administrators of higher institutions identify the biggest obstacles universities face in the transition to specialization as bureaucratic structures, cultural resistance, and lack of resources. To overcome these barriers, it is necessary to revisit education policies and strengthen communication within the university. Establishing more external collaborations and partnerships during the specialization process, as well as making strategic plans to address the needs of the local economy, is of great importance. Furthermore, I believe that universities need to adopt a flexible, agile, and dynamic structure in this process. If universities can manage this transition, a much more efficient education system could emerge in the long term. (P.6)

The participants mentioned the main challenges in the specialization process as resistance to change, and lack of resources. Most of them believed that universities need to have a clear

vision, strong leadership, and concrete planning. They also mention that working together with local administrative authorities and businesses, rethinking education policies, and improving communication can accelerate universities to make better use of their resources. They stress that being flexible and ready to adapt is important for universities to succeed in this specialization process.

6. How is the efficiency of administrative structures in Turkish universities related to growth, and what changes can be made to create a more agile administrative structure?

A key point emphasized by participants, which may also be relevant to similar countries, is the importance of speed in decision-making processes:

Administrative structures in Turkish universities become more complex as they grow, negatively impacting efficiency. In large universities, administrative processes are often slow and bureaucratic. This negatively affects academic success and student educational experiences. To create an agile administrative structure, universities need to adopt less hierarchical structures and speed up decision-making processes. Furthermore, creating a more flexible and innovative working environment in universities can enhance the efficiency of administrative staff. (P.6)

...The inefficiency of administrative structures makes it more difficult for growth. In larger universities, administrative processes become more multifarious... This often leads to an incompetence to respond to changing academic needs. To create a more quality administrative structure in universities, bureaucratic steps should be reduced, and a less centralized structure should be adopted. By doing this, managers can make more flexible and quick decisions. Additionally, digitalization can make administrative processes more efficient. Thus, universities can transition to a more efficient management model parallel to growth. (P.11)

One of the specialists in the higher education field participant emphasized the importance of transparency.

... when administrative structures in universities become complex, reduced efficiency is inevitable. To create an effective management structure, universities need to focus on digitalization to remove bureaucratic obstacles... Moreover, decision-making processes should be more transparent and participatory, which could also support academic freedom... To make administrative processes more efficient in universities, providing more flexible working conditions, empowering administrators, and encouraging a culture of collaboration are key. This way, universities can become more agile and efficient. (P10)

Participants have mentioned that as Turkish universities enlarge, their administrative systems become more complicated. In large universities, heavy administrative load can inhibit both academic success and the student experience. To fix this, there is a need for simpler structures, quicker decision-making, and removing bureaucratic red tape. Many believe that going digital could help boost efficiency, and universities need to focus on transparency and getting input from everyone involved. Supporting

admin staff, promoting teamwork, and offering flexible work options are also seen as ways to make things run smoother. All these changes could help universities develop a more efficient management style that keeps up with their growth.

Theme 2. Specialization and Academic Success

7. How can collaboration between universities and regional development be made more effective while developing new university models?

Collaboration between universities and regional development can be made much more effective. Participants mentioned this issue frequently:

Establishing strong collaborations with local industries and entrepreneurial ecosystems is particularly important. In addition to education, universities can contribute to regional development by conducting research that addresses the needs of the regions they are located in... To achieve this, universities need to develop joint projects with local governments and industrial organizations. Universities can also collaborate more closely with regional entrepreneurs by designing programs and projects that support regional development. (P.7)

A faculty member participant states:

For universities to increase their collaboration with regional development, they need to take on more social responsibility. Establishing a connection between education, research, and regional development projects is very important for universities. By conducting more research in local industries and technology fields, they can accelerate regional development... Universities need to build closer relationships with local businesses, as this allows academic knowledge to be translated into practice. These types of collaborations both support regional development and enable universities to conduct more research. (P.23)

For universities to make a more effective contribution to regional development goals, strong collaborations must be established with local governments and the private sector. Universities should focus their research on regional development strategies and identify local needs. Additionally, educational programs for students can be redesigned to serve regional development. Universities should collaborate not only with local industries but also with local communities and citizens to support regional development. This way, universities can enhance their social responsibilities while directly contributing to local development processes. (P.11)

Participants emphasize that universities should build strong partnerships with local industries, entrepreneurial ecosystems, and local governments to strengthen their collaboration with regional development. Universities should not only focus on education and research but also design projects that support regional development, working closely with local industries to apply academic knowledge. Additionally, universities should adapt their educational programs and research areas to local needs by

collaborating with local entrepreneurs. These collaborations enhance universities' social responsibility while directly contributing to regional development.

8. What academic disciplines need to undergo changes in the transition from growth-oriented university models to specialized university models?

According to a participant with extensive experience in management at a state university:

In the transition from growth-oriented university models to specialization, the most important changes need to be made in disciplines such as engineering, health sciences, technology, and social sciences. Specialization requires depth in specific areas, so more research and advanced teaching methods are needed in these fields. To increase educational efficiency in these disciplines, more specialized curricula should be created, academic staff should gain more expertise in these areas, and support for students should be more intense. Additionally, establishing close collaborations with industries and businesses for more practical training is of great importance. (P.12)

Other participants emphasized similar points:

...In the transition to specialization, the most important changes need to occur in fields such as technical and natural sciences. A strong research infrastructure should be created in these areas, and academic staff should be encouraged to conduct more research. Moreover, specialization is also needed in social sciences and humanities, as these fields are critical for social development. In this process, more emphasis should be placed on interdisciplinary studies. Educational efficiency can only be increased through depth in specific areas. (P.24)

...To enable specialization, universities need to reshape their disciplines in education and research. More specialization can be done in engineering, information technology, and health fields, as these areas are very important for Türkiye's future. On the other hand, universities should also deepen in fields such as human resources and management... However, during the specialization process, these disciplines should not only be considered in an academic context but should also align with the labor market and regional development. Specialization in each discipline can strengthen the relationship between the university and regional development. (P.3)

Turkish universities need to shift from general growth models to more focused ones, which means some big changes are on the way, especially in different academic areas. Participants stressed that engineering, health sciences, aviation, agriculture, technology, and education are very important for this shift. In these areas, it is key to increase research efforts and create special teaching methods. Encouraging studies that cross specific fields can not only enhance academic performance but also help universities stay relevant to local development. Universities need to carry out research that fits with regional goals and provide programs that meet local needs. This transition should look at both educational and economic aspects, keeping Türkiye's development plans in mind.

9. How can specialized universities compete more effectively with digitalization and global education platforms?

The issue of competitiveness and becoming a global player is emphasized as crucial. Participants shared the following insights:

Specialized universities must integrate digitalization into their education processes to compete more effectively with global education platforms. Particularly, by utilizing digital platforms in graduate and doctoral programs, universities can reach a larger student base. Additionally, digitalization enables universities to conduct more efficient research and share it worldwide. However, digitalization does not only require technical infrastructure; universities also need to build qualified teaching staff and create digital educational materials and online courses. (P.27)

Digitalization, despite generating some debate, is undeniably emphasized as a critical factor for competitiveness:

Digitalization, especially for specialized universities, presents a significant opportunity to compete on global educational platforms. Specialized universities can establish a strong digital presence in specific academic fields and secure their place in global education. The flexibility provided by digitalization allows universities to reach a broader student base. Additionally, digital tools enable universities to create an international research network... To compete on global educational platforms, universities need to increase their content production capacity and invest more in online courses. (P.28)

Specialized universities must integrate education processes into digital environments to compete more effectively with digitalization and global education platforms. This process allows universities to reach a broader student audience and share research globally. Online education opportunities in graduate and doctoral programs, in particular, can help universities stand out in global competition. However, digitalization requires not only infrastructure but also qualified teaching staff to create effective digital learning materials and online courses. Digital tools enable faster sharing of research projects on global platforms, increasing international interaction. To remain competitive, universities must increase their content production capacity, invest in online courses and certifications, and leverage digital opportunities. This way, specialized universities can gain global recognition in specific fields and secure an influential position in global education.

10. How should the transition process from universities focused on size and diversity to universities aimed at deepening and specialization be managed?

The discussion on whether universities should expand in size and diversity or evolve into more specialized institutions has been an important topic among participants. Here are views on this transitional idea:

Changing a focus from size and variety to more depth and specialization in universities needs to be done professionally and carefully. First, universities should consider the resources and skills they already have. It is not just about accepting more students, but also about mining deeper into specific subject fields, providing quality education, and doing concrete research. On top of that, the way universities are run should also adjust to this change, making things more flexible. I think schools should have a clear strategy to make this shift work. (P.30)

When universities go through changes, they need to think about their culture and academic culture. They need to focus on improving what they already have instead of just trying to get more bigger. Specializing means diving deep into certain areas and modifying their programs to fit those areas. To make this work, universities should boost their teaching staff and put some money into better research facilities. (P.23)

Switching universities from being big and diverse to more focused and specialized isn't easy and takes some careful planning. Those involved suggest that schools should start by looking closely at their resources. Instead of just trying to bring in more students, they should zero in on certain subjects. To do this, they need to set up strong programs and facilities in those specific areas. It's also important for universities to make their setup more flexible so they can better adapt to this new focus on specialization. This change can help management run smoother and be more efficient. Supporting teachers and researchers in their fields and encouraging teamwork between different areas is crucial too. In short, moving from a focus on size and diversity to specialization requires a solid plan. Good leadership, adaptable structures, partnerships with outside organizations, and staff who concentrate on particular subjects are all essential for making this work. If done right, this shift can enhance the quality of education and strengthen universities' standing in a competitive environment.

CONCLUSION

The higher education system in Türkiye has undergone significant transformations throughout its historical development. This change, particularly from the Ottoman Empire to the Republic era and up to the present day, has deepened, with efforts to improve the quality of the education system taking center stage in each period (Williamson, 1987). Educational institutions, which were initially structured around religious sciences, have gradually evolved into specialized structures, deepening in specific fields. During the Republican period, this transformation accelerated further, and a more modern educational approach was adopted. The specialization process in Türkiye's education system has been crucial for both scientific and local development and has played a major role in transforming the social structure over time (Reisman & Capar, 2004).

In the Ottoman Empire, educational institutions were primarily operated through madrassas. These institutions functioned as schools providing education in religious and scientific fields. However, in certain areas, particularly in fields like medicine, institutions emerged that offered deeper education.

The Gevher Nesibe Medical School, established in Kayseri, symbolizes this specialization in the field of medicine as one of the most important medical schools of the period. The education provided here was not only limited to theoretical knowledge but was also structured to equip students with practical skills. This madrasa serves as a significant example of medical education and also had the structure to transform into a hospital for patients. These types of educational institutions during the Ottoman period took significant steps toward training individuals specialized in certain scientific fields. Similarly, in the 19th century, schools focused on specialization in agriculture were established, producing agricultural engineers and agricultural scientists (Doğan, 2013; Öztürk, 2015).

After the declaration of the Republic, fundamental reforms were implemented in Türkiye's education system. Efforts were made to create a system closer to Western modern education, and educational theories were reshaped. The newly established educational institutions during this period took steps toward specialization, especially in scientific fields, and focused on training experts in various disciplines. In the 1940s, new schools specializing in areas such as engineering were established, and these institutions provided both theoretical and practical education, contributing significantly to scientific development. This specialization not only advanced individual education but also played a major role in strengthening the scientific infrastructure of the country (Hosgörür, 2014).

Especially in the 1960s and 1970s, educational institutions established in various cities began to offer more targeted education by opening departments that deepened and specialized in specific fields. New departments in areas like medicine, engineering, and natural sciences during this period increased the country's scientific capacity and improved the quality of the education system. In the 1980s, with the increase in the number of state and foundation-based educational institutions, educational opportunities for specialization were provided in various fields. During this period, the education model based on scientific research allowed Türkiye to gain an internationally recognized position in the scientific community (Aydagül, 2013).

In recent years, the specialization of educational institutions in Türkiye has gained significance not only in scientific terms but also in the context of local development. The Regional Development University model, initiated by the Council of Higher Education, encourages educational institutions to specialize not only academically but also in ways that contribute to the economic and social structure of their respective regions (Karataş Acer & Güçlü, 2017; McGivney, 2012). This model aims for each educational institution to focus on specific fields according to the needs of its region and contribute to the development process of that region. For example, in some areas, institutions concentrating on sectors such as industry, agriculture, or health conduct research tailored to local needs, thereby supporting regional development (Epshtein & Mikhelson, 2019).

This new model creates a significant transformation in terms of education's direct contribution to local development. Educational institutions are conducting their academic work in collaboration with

local industries and agricultural sectors, and through activities such as innovation and technology transfer, they accelerate regional development. In this way, the connection between education and local development has been strengthened, with educational institutions not only providing academic knowledge but also beginning to develop projects to improve the economic structure of their regions. This situation has ensured that the education system not only trains individuals but also becomes a pioneer in regional development.

However, there are certain barriers in this process. Bureaucratic challenges and a lack of resources are factors that could negatively affect the specialization process of educational institutions. These obstacles, particularly, hinder educational institutions from acting innovatively and responding more quickly to local needs. Moreover, societal and cultural factors may sometimes create resistance in this process. Nevertheless, for the success of the regional development model, it is essential for educational institutions to adopt more flexible and innovative structures. Such a transformation would not only contribute to local development but also allow the education system to become globally competitive and sustainable.

In the future, the specialization process of educational institutions in Türkiye will deepen, and each institution will adopt a structure tailored to the needs of its own region. This will enhance the country's scientific infrastructure and accelerate regional development. Educational institutions will build stronger collaborations with local industries and agricultural sectors, creating an education model that meets the needs of all levels of society. The successful implementation of this model will render Türkiye's scientific infrastructure and education system more effective and efficient, further speeding up regional development.

In conclusion, Türkiye's educational institutions have undergone a significant evolution throughout historical processes, and this evolution has made important contributions both in the scientific field and in terms of local development. The specialization process will ensure the efficiency of educational institutions, strengthen the scientific infrastructure, and accelerate regional development. By deepening their focus not only on academic knowledge but also on local needs, educational institutions will boost Türkiye's education system and enhance its international competitiveness.

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Responsible Artificial Intelligence Statement

Figure 1 and 2 were drawn by the help of an AI software.

Conflicts of Interest

The authors declare that there are no conflicts of interest related to the publication of this study.

Ethics Approval

In all processes of this study, the principles of Pen Academic Publishing Research Ethics Policy were followed.

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