




The Road to Ecological University: A Metaphor Analysis from the Perspectives of Academicians and External Stakeholders

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ABSTRACT

This study sought to explain the idea of the university from the perspectives of academicians and external stakeholders through metaphors. The study was designed as a qualitative phenomenological study. Semi-structured interviews were held with 33 key people, 11 of whom were from the university and 22 of whom were external stakeholders, notably experts on the industry, natural environment, and culture of Gaziantep province in Turkey. The findings of this study revealed that participants used metaphors such as mother, factory, scientist, and conductor, emphasizing the university's role as a center of research, teaching, and the leader in the region. The most significant finding of the study, however, is that the participants in the study produced metaphors such as octopus, forest, and brain that point out the interconnectedness of the university with its surrounding ecologies, just as indicated in the ecological university model, which tries to develop the many surrounding ecosystems with which the university is interconnected, and which works systematically with the other institutions in its eco-system.

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1. Introduction

The historical development of higher education may be divided into four major periods: first-generation universities, second-generation universities, third-generation universities, and lastly the entrepreneurial university that emerged as a result of neoliberal policies. The pre-modern university was entirely based on teaching dogmatic truths, and the primary philosophy was scholasticism; there existed a religiously oriented education system that ignored individual reasoning until the beginning of the nineteenth century. The primary goal of these universities was to educate academics, lawyers, theologians, and medical doctors. Education was founded on the disciplines of medicine, religion, and law. Students at the time were chosen from the aristocratic privileged class (Alan, 2016; Burkle & Cobo, 2018; Rip, 2008; Scott, 2006).

The modern university emerged in the nineteenth century, with a shift away from medieval philosophy and toward enlightenment and individual reasoning. Rather than transferring dogmatic truths, the "misleading truth" might thus be openly studied and discussed by students and scholars alike. As a result, the modern university realised the importance of "individual free will and values" and began to value "humanization." The modern university was also highly concerned with industrialization and modernization, therefore one of the college's duties was to conserve high culture while sustaining modern life. (Barnett & Bengsten, 2017; Donovan, 2013; Moutsios, 2012; Wissema, 2009).

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Later, names from German philosophy such as Kant, Humboldt, Schelling, and Schleiermacher influenced the idea of the university and justified its existence. With these names, the value of free thought, questioning, and scientific discoveries became important issues, and they were viewed as “university duties. Humboldt took attempts to construct a university based on his liberal ideas, which took into consideration the basic norms and laws of science, and he encouraged students to think freely and scientifically, laying the foundations of research universities. After that, students and academics at universities were expected to produce science in addition to teaching. Political, economic, and religious influences were excluded from scientific research (Akbulut Yıldırım & Seggie, 2018; Barnett, 2015; Wissema, 2009). During this period, “meritocracy” was linked to “technocracy,” and the most gifted students were schooled in scientific skills regardless of their income or social class. The main goal was to boost the national economy and train the necessary white-collar workers for the country (Batko, 2014; Donovan, 2013).

With the neoliberal policies in the twenty-first century, a new age in higher education has begun. They got connected to the markets after entering the service of technical, technocratic, and political interests. Thus, today, measures such as how much research is conducted, how many projects are developed, and how much money is raised on the market are used to determine if a university is ideal (Francisco, 2008; Ingleby, 2015). Furthermore, programs are developed to fulfill the demands of the market, and students are shaped with an emphasis on profession and career (Gumus, 2015; Saunders, 2010; Savigny, 2013). University curricula are often oriented on vocational education in order to meet the demands of the market, and courses such as art, philosophy, and literature are often neglected. In short, knowledge or education is regarded as a commodity that can be purchased and sold on the market (Burke & Cobo, 2018; Mengual-Andrés, 2013; Olssen, 2016; Olssen & Peter, 2005; Savingy, 2013).

As a result, several academics (Barblan, Ergüder, & Guruz, 2008; Barnett, 2011a; Tekeli, 2007) have argued that being a university is now a very complex phenomenon and that the university is in chaos today. To elaborate, Mengual-Andrés (2013) states that the university is in a dilemma since it must either continue its traditional teaching role or educate future generations in the desired quality in line with the demands of the market. According to Tekeli (2007), neoliberal policies and transformations in the knowledge economy resulted in the emergence of the entrepreneurial university. Thus, ethical rules are violated in order to connect the university and the market. Barblan, Ergüder, and Gürüz (2008) argue that one type of university has already lost its efficiency due to the competitive market in the rapidly changing globalized world, and they emphasize the need for post-modern universities with more complex structures that can meet the needs of the changing world. As a result, according to Barnett (2011a), it is urgently important to produce new ideas for the university as well as feasible utopias in order to bring the university back from the edge of its collapse.

Barnett (2011a) used the idea of the university to explain the purpose, potential, and duties of the university as an institution. According to Mengual-Andrés (2013), we must rethink the roles of universities today since universities must do much more than just teach. Universities should also adapt to change. According to Barnett (2011b), there is no single idea of the university, and he suggests four different university models: the liquid university, the therapeutic university, the authentic university, and the ecological university.

The liquid university has embraced innovation and is constantly ready to adapt to new developments in its surroundings. It has no borders and hence is open to the entire world. The liquid university assumes that knowledge and the act of knowing are ever-changing phenomena that occur throughout life. As a result, universities must be able to adapt to change (Batko, 2014; Mba, 2020). The basic philosophy of the therapeutic university is that the world cannot be entirely controlled, and hence the concept of control should not be included among the principles of the university as an institution. Among its fundamental policies are equal participation and human rights on campus (Barnett, 2011b; Hayes, 2017). The authentic university has adopted the principle that every university in the world has the power to influence and be influenced by its environment. The relationship of the university with its surroundings impacts its expectations, resources, and practices. The authentic university has likewise recognized the basic notion of continuous research and reasoning. It backs that up with cutting-edge technology and aims to reach out to the entire world via the internet (Barnett, 2011b; Barnett, 2015).

The ecological university, on the other hand, is a combination of these three utopian universities; it does not have a closed campus like a research university, nor does it build external linkages for profit like an

entrepreneurial university, but instead works for the benefit of the environment. Although it performs its traditional roles, such as teaching and research, it is also conscious of its responsibilities to the outside world. (Barnett, 2011b; Barnett, 2017).

Today, universities all around the world are subjected to the push and pull of their surroundings. These pushes and pulls are mostly caused by the expectations of the university's surrounding environments; as a result, universities frequently have to undergo structural modifications or adopt new regulations. In short, this circumstance might be interpreted as the existence of a university that is linked to several eco-systems via complicated networks. The ecological university is intertwined with all human and non-human elements around it. Therefore, it is sensitive to all the elements around it, and it's a university model that develops its environment while developing itself. It is connected both to its environment and to the whole world (Barnett, 2018).

According to Barnett (2018), several ecosystems influence the university's being and activities, but the university also has an impact on these ecosystems. Seven of these systems stand out in particular: the economy, knowledge, learning, institutions, persons, culture, and the natural environment. Each of these seven ecosystems is linked to the university on an internal level. The university is embedded in these ecologies, and in order to advance and develop them, it must engage with each ecosystem at various levels. There are also fragile bonds between these ecologies, which implies that any movement in one ecology might effect the movements of other ecologies as well as the university.

As a result, it is deemed reasonable to investigate what the university is from the perspectives of academicians and external stakeholders. The goal is to define the ideal university model that can help the university get out of its current state of chaos, the ideal university model that can lead the universities to the next level, and the one that will contribute to the growth of the universities and the surrounding world.

2. Methodology

2.1. Research Model

The phenomenological design was employed in the study as a qualitative research approach. The phenomenological pattern focuses on how individuals understand and experience the concept we are searching (McMillan, 2012; Patton, 2014) by concentrating on people's personal experiences, perceptions, and interpretations.

In the study, metaphors were used as a tool to reveal the idea of the university held by academics and external stakeholders, because metaphors are a strong mind mapping and modeling mechanism for us to comprehend or figure out our world, a tool that makes circumstances clearer and brighter to grasp.

A metaphor is a method for comparing one concept or phenomena, to another concept or phenomenon (Levine, 2005; Moser, 2000). Metaphors are frequently used techniques to get a better grasp of complex concepts, making the meaning more effective and bringing meaning to life (Ekici, 2018; Moser, 2000).

2.2. Research Sample

The research included 33 key people, 11 of whom were from the university and 22 of whom were external stakeholders who were considered experts in the industry, natural environment, and culture of Gaziantep province. Table 1, Table 2, and Table 3 show the demographic profiles of the participants. Maximum variation sampling was used in this study, and the participants were chosen on volunteer basis. It was tried to guarantee diversity in terms of expertise in various fields (Craig, Fischer, & Lorenzo-Arribas, 2018).

Table 1. Characteristics of the Participants working in Industry

Participants	Sector	Post	Working experience
P1	The Chamber of Exporters' Association	Secretary-general	31
P2	The Chamber of Industry and Commerce	Secretary-general	34
P3	Industry	The chief executive / Engineer	26
P4	Industry	Marketing manager	20
P5	Industry	Firm owner / Engineer	12
P6	University/ Faculty of Business	Assoc. Prof Dr. / Consultant	20
P7	City Development Agency	Secretary-general	17
P8	Chamber of Commerce and Trade/ Industry	Councilman/ Firm owner	32
P9	University / Technopark	General Manager	6
P10	KOSGEB (Small and Medium Industry Development Organization)	SME Expert	9
P11	University	Prof. /Rector	27
Total: 11 participants			

Table 2. Characteristics of the Participants working in Natural Environment

Participants	Sector	Post	Working experience
P12	Department of Agriculture and Stock Breeding	Agricultural Engineer	21
P13	Department of Agriculture and Forestry *	Agricultural Engineer	28
P14	Pistachio Research Institution	Agricultural Engineer	9
P15	TEMA Foundation	Manager	6
P16	University / Agriculture	Assoc. Prof Dr. / Expert	20
P17	Directorate for the Protection of Cultural Heritage	Architect	8
P18	Department of Transportation	Head of the Department	27
P19	Directorate for the Protection of Cultural Heritage	Archaeologist	25
P20	Directorate for the Protection of Cultural Heritage	Architect	7
P21	Directorate of Environment and Urbanism	City Planner	11
Total: 11 participants			

Table 3. Characteristics of the Participants working in Culture

Participants	Sector	Post	Working experience
P23	University / vocational school	Assoc. Prof. Dr. / Director	23
P24	The Chamber of Merchants and Craftsmen	The General Manager	41
P25	University / Faculty of Literature	Prof. / Rector Advisor	23
P26	University / Faculty of Conservatoire	Assoc. Prof. / Director	30
P27	Directorate of Culture and Tourism	Director Assistant	30
P28	Museum	Museum Director	20
P29	Gastronomy and Chefs Association	Chairman	15
P30	University / Gastronomy and Culinary Arts	Assoc. Prof. Dr. /Head of the Department	41
P31	Poets and Writers Association /Literary Society	Chairman	11
P32	Chamber of Coppersmiths and Sedefciler	Chairman	40
P33	University / Department of Anthropology	Research Assistant	11
Total: 11 participants			

2.3. Data Collection Tools and Procedure

Semi-structured interviews were used to obtain the data for the study. Following a thorough examination of the relevant literature, the semi-structured interview form was developed. First, the questions were reviewed by two higher education professionals. Second, The questions were given to two engineers and two academics

in order to clear up any misunderstandings concerning the questions. Finally, the following question was formed: "What metaphor would you use to describe the university? Why?"

Throughout the study, meetings with the participants were scheduled before the interviews, and the participants were informed about the purpose of the study. The interviews were conducted at the offices of the participants and were recorded with an audio recorder.

2.4. Data Analysis

The data was examined using the NVivo 12 software program for content analysis. Content analysis is a scientific method for examining data objectively and systematically according to specified categories and themes (Patton, 2014). The following stages were used to analyze the metaphors created by the participants:

(1) Transcription of interviews, (2) Examination of transcripts, (3) Sorting and numbering of transcripts (4) Metaphor analysis, (5) Developing categories and classifications, (6) Categorizing metaphors, (7) Checking for validity and reliability, and (8) Data interpretation (Ekici, 2018; Steen, 2011).

2.5. Validity and Reliability Studies

Three critical procedures have been taken to ensure the research's validity. They are as follows:

The length of the interviews was kept as long as feasible during the research in order to create a long-term relationship with the participants. As a consequence, more precise data was gathered. The interviews lasted roughly 30 minutes on average. Credibility (Lincoln & Guba, 1985) was strengthened as a result of extensive engagement. The results of the analysis were presented to a different researcher for their opinions, and therefore credibility was established through peer debriefing (Moon, Brewer, Januchowski-Hartley, Adams, & Blackman, 2016).

Different perspectives were acquired using the maximum variation sampling method (Hammarberg, Kirkman, & de Lacey, 2016), allowing for transferability. The analyses, interview records, and notes kept during the research were submitted to an external expert within the scope of dependability studies, and the process of encoding and analyzing processes was discussed in depth. Following that, a critical review of the research was carried out (Streubert, 2007). Within the scope of confirmability studies, the approach and methodologies employed during the research reporting process were fully and properly explained (Shenton, 2004). Finally, the opinions of the participants were highlighted in the related section using participant numbers, such as (P10).

2.6. Ethical Procedure

Several efforts have been taken to assure the study's ethical process. First, ethics committee approval was received for this study from Gaziantep University, Faculty of Education. This study has an ethical committee document from Gaziantep University's Ethical Board with the number 48601 and the date 04.06.2021. Second, participants were told about the study during the research process, and their participation was secured using informed consent forms. As a result, autonomy was achieved (Orb, Eisenhauer, & Wynaden, 2001). The transcribed data was also shared with the participants and used only after their approval. Finally, the participants were anonymized to preserve anonymity (Orb, Eisenhauer, & Wynaden, 2001). Furthermore, the researcher did not guide the participants in any way throughout the interviews, and individuals expressed their own ideas for the questions. During the interview, the researcher only asked more detailed questions on the participants' responses.

3. Findings

In this section, the metaphors created by the participants for the university, their evaluation under the relevant categories, direct excerpts from the individual transcripts, and the explanations given are presented.

Participant 25 also mentioned the ecological university, which refers to the university's integrity with its surrounding ecologies, as well as its contribution to social and governmental organizations and the community. He portrayed the university as a research center, but one that is linked to other ecologies and has the potential to advance them:

Research Center; 'The university is a research center, an institution that appeals to a wide range of actors, an institution that should be intertwined with public institutions, scientists, the community, and the local and rural; it is the most essential component of the development ecosystem.' (P25/ Rector Advisor).

Participant 15 defined the university as "a studio," however the major goal of this university should be to produce knowledge not only for the economy, but also for other fields such as the natural environment and society:

Studio; "The university is a vital and valuable studio. That is where science and practice meet. Societies in which science is not blended with practice are in significant difficulty, both socially and physically. Universities should have such a vision and goal. Through its very character, the university should help to elevate its society. It must compete with the world's top governments and itself, but on the other hand, it must be able to provide remedies, and, like a research hospital, it must aim to find answers to societal problems. Universities, in my opinion, should provide supervision to all units of society in all aspects." (P15/Manager of TEMA).

Although participants 2, 12, 16, and 30 used various metaphors to describe the university, they all defined it as an institution that is related to its surroundings. Participant 12 emphasized the university's role as a leader, as well as the significance of working cooperatively and in harmony with the other ecologies. The following are direct quotations addressing these metaphors:

The locomotive of the city; "The university is the locomotive of a city. All of the other institutions may be thought of as wagons trailing behind. The university may produce more beautiful things by assisting other institutions in the area; they work together to complete the missing pieces. They must be intertwined." (P12/Agricultural Engineer),

Forest; "I liken the university to a forest. When one side is lost, the balance is disturbed. Let's say that the links of the chain must be complete and strong; if one of the chains is broken, the consistency is significantly damaged, thus each unit must function well" (P 16/Assoc. Prof. Dr. in Agriculture),

The body; "The university, of course, is similar to the human body. It collaborates with other parts, such as the region's industry. Consider this scenario: you can use one of your legs well, but if your other leg limps, you won't be able to walk properly. As a result, all parties involved should collaborate in a manner that benefits everyone in the region" (P2/ Secretary General of Chamber of Industry),

Networked Box; "I pictured a box with various holes, both large and little, a large box. That was the first thought that sprang to me. It's a box containing numerous networks, connections to numerous places, inputs and outputs, or something like that." (P30/ Assoc. Prof. Dr. in Gastronomy).

Participants 14 and 21 both emphasized the university's role as an educator, emphasizing how it assists individuals in learning and subsequently contributes to the learning process of the larger society, thereby reaching the entire society through its resources, as the ecological university indicates. Participant 14 pointed out that the learning process affects the entire society, not just the students. He described the learning ecology outlined in ecological university, in which the university contributes to the learning processes of individuals as well as the learning processes of the entire community by sharing the knowledge it possesses. The following are direct quotes from these two participants:

Mother; "The mother, like a mother, fulfills her kid's needs in some manner, (...) she spreads her arms over the children. In my opinion, the university is like that; the university feeds the students with knowledge, but I also mean the entire public, the entire country. Through its students, the university shares its knowledge and spreads it throughout the country. The students then share their knowledge with the society." (P14/ Agricultural Engineer),

Octopus; "Like the legs of that octopus, octopus. Yes, the university has vocational schools in many districts, which function similarly to the limbs of an octopus. You may also think in terms of veins; the university reaches all the way to the province's and the country's boundaries" (P21/City Planner).

1.3.2 The University as a Place of Growth and Change (teaching)

The metaphors produced in this category include "door, mother, kitchen, factory, and airport." The university was defined by the participants as an institution where individuals acquire the necessary knowledge and qualifications to obtain a career, which highlights the university's teaching role. The following are direct quotes from the two participants in this category:

Mother; "I believe the university is a mother since, of course, a high school graduate has little knowledge of the professional training they will receive in the following years. (...) To achieve this goal, universities provide both theoretical and practical knowledge, (...). If we consider the process from the birth of her kid until the moment the child marries, we can see that a mother raises, grows the child" (P3/ Chief Executive Engineer),

Kitchen; "Yes. I suppose we can say that the university is both the beginning and the end of the kitchen since it is the place where a child begins his career pathway, where he is trained for his job and then graduates, it is the place where he learns his profession for the rest of his life." (P29/ Chairman of Gastronomy & Chefs Association).

Participant 10 used the metaphor of a "door" to describe the university, defining it as an essential stage in an individual's self-development:

Door; "When I think of the university, the first thing that comes to mind is a door. Yes, I believe the university is a door. When you step through this door, you change in many ways: culturally, professionally, academically, and in every other manner, and you emerge as someone new. It's a place where you can further your profession, where you can lead a new life, where you can grow and change" (P10/SME Expert).

Participant 27 used the metaphor of a "factory" to describe the university as a place where knowledge is both created and transmitted. As shown in the following excerpt, he expressed his thoughts:

Factory; " The university may be compared to a factory. Assume that, like the items that come out of a factory, mankind, future generations grow at university, and science is created here as well" (P27/Director Assistant of Culture & Tourism).

Participant 7 made a different point about the teaching role of the university; he compared it to a chaotic but also organized institution; an airport, where there is a continuous, reciprocal learning system; as can be seen in the following account:

Airport; " The world's largest airport. It is a live airport that operates 24 hours a day, seven days a week, where everyone buys and sells something and everyone learns from one another" (P7/ Secretary-General of Development Agency).

1.3.3 University as the center of science/research

In this category, participants described the university as a place of research and science using metaphors such as scholar/scientist, laboratory, and cell. They highlighted the importance of the university's role in conducting research, creating knowledge, and producing science. The excerpts below show how two individuals compared the institution to a center of science and research:

Scholar; "I compare the university to a scholar or scientist who is well-versed in numerous fields. Because universities research the truth. Scientists are the ones who look into the truth. Universities are then more like a researcher or a scholar. (...) Universities, in my opinion, should be places for producing scientifically valuable knowledge." (P33/ Research Assistant in Anthropology).

Laboratory; "The university is a science lab, namely a sociological research lab. It's an institution that broadens people's horizons and encourages them to think freely. (...) It is a unique place where science is created. (...) You must create science; for example, the engineering faculty can construct an automobile prototype. The archaeology department can do excavations and make new discoveries. Dentistry may become a surgical authority " (P22/ Faculty Dean of Geography).

Participant 9 described the university using the metaphor "the cell." In his explanation, he referred to the two categories; research center and teaching:

A cell; "It's a research center, therefore I imagine it looks like a cell, where there's continuous learning; constant improvements; continuous inputs and outputs, a cell with continuous DNA, a cell with continuous outputs." (P9/ General Manager of Technopark).

1.3.4 University as a figure of authority /leader

For this category, four metaphors were created: head of the family, conductor, high building, and endpoint. The university is regarded as the region's or city's locomotive. It is described as an authority with the knowledge and expertise required to advance the region.

Participant 13 identified the university as a science-producing institution that must first preserve its internal integrity in order to direct the scientific process with the expertise of a conductor, which is considered vital for strengthening the economy. It is noteworthy that the participant also mentioned the university's teaching and research roles. He stated:

Conductor; "You should be concerned with creating science and products, (...) That's entirely the point. To put it in other words, you must first go through the production process. By putting science on top of it. We have no other choice. Finally, what is the conductor's duty in the orchestra as a whole? He detects a cracking sound coming from the orchestra and directs it there. Otherwise, the final products would be wrecked. Here, the university is the chef" (P13/Agricultural Engineer).

The university, according to participant 24, is the most significant component of a city's or region's growth. Without a university, a city is like an orphan kid. This participant's direct quote for this metaphor is as follows:

Head of the family; " The university is the family's leader. When a father dies in a family, for example, something is missing, and without a university, it is impossible for a city to grow or develop. " (P24/ General Manager of Chamber of Craftsmen).

Both participant 4 and 32 described the university as a tough location to get to; the university is a prominent and high-quality institution with the expertise and power to solve the challenges of other institutions. Here are the direct quotes from these participants:

The endpoint; " We see university as the ultimate endpoint, i.e., the summit. Problems that we can't solve at the bottom should be solved at the top, at the university " (P32/ Chairman of the chamber of Coppersmiths),

High building; "The university might be likened to a high building with more than 15 stories. It's a tall, difficult-to-reach structure. I imagine it as something that only a few people can do, and that reaching its peak is difficult" (P4/ A marketing Manager of a Holding).

4. Conclusion and Discussion

The goal of this study was to find out what the university was from the perspectives of key people in the economy, culture, and natural environment. The findings of the study revealed that the participants had an idea of a university that was similar to the ecological university model, which could develop all ecologies by using its sources; knowledge, research, students, and academics.

The most striking finding of the study is that the participants created metaphors such as; *octopus, brain, studio, forest, body, mother, research center, the locomotive of the city, and networked Box*, all of which highlight the university's interconnectedness with the outside world, as proposed by Barnett (2018) in his ecological university model. The findings also support that the ideal university is not a traditional university, a research university or the entrepreneur university. The ideal university is one that is concerned with its surroundings, including culture, natural environment, social institutions, learning, individuals, and the entire world (Barnett, 2011b; Barnett, 2018). Likewise, Jones (2013) claims that the university, like humans, has a biological bond with its surroundings.

The metaphors *door, mother, kitchen, factory, airport*, on the other hand, all refer to the university's teaching role. The results, however, indicate that this is not the traditional understanding of the teaching. The participants emphasized personal growth and change in all aspects, including cultural and social development, which could indicate change in the educational philosophy involving teachers, students, and other stakeholders (Chou, Shen, Hsiao, & Shen, 2018; Conrad, 2007; Harrop, Casey & Shelton, 2018; Laurillard, 2005) and a more

innovative educational environment (Batko, 2014; Kaku, 2012; Laurillard, 2002). The learning environment should be more student-centred, productive, creative, and innovative. These results indicate that the university should pursue more innovative and productive teaching approaches.

Participants also used metaphors like *scholar/scientist*, *laboratory*, *cell* to describe the university suggesting that the university should be more productive and research-oriented. Research (Altbach & Salmi, 2011; Donovan, 2013; Hood & Peters, 2004; Loaiza & Andrade Abarca, & Cisne Salazar, 2017) has long been seen as an essential component of a country's economic growth and stability. Universities are expected to create new technologies through creating knowledge today, and hence contribute to their country's economic growth.

The findings of the study also revealed that participants used metaphors such as *head of the family*, *conductor*, *high building*, *the endpoint*, which highlight the university's role as a regional and national leader. It is evident that the university is expected to contribute to the development of its region, raise the welfare level of its society, and do that by working with its stakeholders, and also to be a pioneer and locomotive of social and cultural developments in the city and the region (Covelli, Morrissette, Lindee, & Mercier, 2020; Dimitrova, 2016; Etzkowitz, H. Webster A. Gebhardt & Terra, 2000; Popescu, 2011; Sánchez-Barrioluengo, & Benneworth, 2019). The location of a university may influence its characteristics, while the university can determine the future of that region (Aybarç, 2018; Brennan, Cochrane, Lebeau, & Williams, 2018; Newlands, 2003; Wolfe, 2016; Yusifzada, 2021). Therefore, universities are now expected to contribute to economic and regional growth by local governments, business, and the wider public. Universities have the potential to transform their region by using the sources they have for the benefit of their environment.

To summarize, the modern university, in addition to its traditional roles of teaching and research, must also take on additional missions such as advancing culture, region, and society. Therefore, it needs to reach out to the society and accelerate the society's learning in each of the ecologies with which the university is interconnected. As a result, the ecological university, which collaborates with other institutions in its ecosystem, may be an ideal model for developing the many surrounding ecosystems with which the university is interconnected.

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