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Metaphorical perceptions of academicians in administrative positions in higher education regarding the concept of sustainability*

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Abstract

The aim of this study, which was in a qualitative research design, is to reveal the perceptions of education administrators working in higher education institutions about the concept of sustainability through metaphors. The phenomenological model, which is based on the individual's describing a conscious experience of a phenomenon, and in which the researcher tries to reach the life world created by each participant's own subjective experiences, was used. After data collection, the metaphors produced by the education administrators regarding the concept of sustainability of education administrators were analyzed and categorized. As a result of the research, the meanings attributed to the concept of sustainability by education administrators working in higher education institutions were revealed.

Keywords: Higher education; sustainability; metaphor; academicians in administrative positions

1. Introduction

1.1. How to create a sustainable future?

The century we live in has established the ground for the creation of new discourses and policies that are the driving force for radical changes in higher education institutions, one of which is sustainability. The increasing interest in sustainability has become an important agenda topic of education administrators. Sustainability is an economic, social, political, and cultural requirement for universities. Indeed, higher education institutions have already started to compete in integrating various strategies into their campuses. From "green" practices to sustainability courses, there is a focus on

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sustainable development to increase environmental philosophical awareness (Uhl & Anderson, 2001; Emanuel & Adams, 2011).

The concept of sustainability is being increasingly used in a particular way by the actors and education administrators directing education, especially due to the environmental and social problems faced by societies because of the Covid-19 pandemic. At this point, education administrators' perceptions and awareness of the concept of "sustainability" constitute the vital point of this study. Because the meanings and experiences that an education administrator attributes to the concept of sustainability will naturally be reflected in their management and leadership approaches. Education administrator has to raise awareness of "sustainability" by establishing a collective bond with stakeholders in this journey. Therefore, it is among the responsibilities of education administrators to find suitable levers and vectors that will enable generations to move towards a more sustainable behavior.

1.2. What is sustainability?

Although the question "what is sustainability" has been widely used in recent years, there is still confusion about the definitions of sustainability. Therefore, understanding the concept of sustainability can be difficult at times. The term "sustainability" has been widely applied to characterize developments in areas such as the overuse of natural resources, the linear consumption of energy use and similar products, the direction of investments, the lifestyle of citizens, and consumer purchasing. In its simplest form, sustainability can be defined as maintaining the current situation, ensuring continuity, and supporting (Onions, 1964). According to Sharma (2015) "*In short sustainability refers to the sustainability of the human race, the sustainability of a civilized and prosperous humanity*" (p.82).

In the literature, it is seen that the concept of sustainability is discussed by some researchers with ecological approaches (Kahn, 1995; Starik & Rands 1995; Orr, 1992), while others explain it by using social, economic (Eagan & Keniry,1998; Kahn, 1995; Gladwin et al.,1995). or education-oriented approaches (Evans et al., 2017; Kahn, 1995; Kowasch & Lippe, 2019; Sharma, 2015; Shields, 2019; Shriberg & Harris, 2012; Tasci & Titrek, 2020; Wolff et al., 2017).

The differences in the definitions of sustainability also complicate the process of establishing the conceptual framework. The fact that concept of sustainability has many different meanings is a problem that researchers frequently encounter. The existence of various definitions poses a challenge in the correct use of the concept of sustainability, especially in the field of education. Even most of the research studies involving the term sustainability fail to offer a full definition and establish relevant connections.

1.3. Metaphor as a sustainability

The word “metaphor”, which originates from Ancient Greek, refers to using a familiar term to define, interpret and experience a particular term (Lakoff & Johhson, 2015). Metaphor is a communication tool used to clarify and embody the abstract and ambiguous thoughts and feelings in the human mind (Koçak, 2011). Metaphors play an active role in reframing the meanings of concepts. Metaphors can be an important means for interpreting individuals' experiences (Dickmeyer, 1989; Miles et al., 2014). In somuch as some argue that it is a consistent manner of conceptualizing experiences and metaphors reflect the subconscious of individuals, as well as the cultural reflections of the society they live in (Lakoff & Johnson, 2015).

Furthermore, metaphors have begun to gain validity in educational research and researchers have attempted to make sense of their work in this context (Değirmenci, 2019; Karadeniz, 2012). It is suggested that metaphor has a positive effect on learning because they are generally used in order to understand or explain a new phenomenon (Alpaslan & Kutanis, 2007). The use of metaphors in the field of education is important for the purpose of seeing the reflections of education (Jickling, 2005). The first step to establish a roadmap for providing a high-quality education would be acquiring knowledge about these very metaphors. For this reason, it is important to know how concepts create a perception in individuals. In this contex, metaphors have an important role in educators' understanding of global problems and thus raising awareness. It can make more and more effective transfers in a short time. It is known that metaphors have been used as a tool in education for many years. For this reason, the present study aims to show the perspectives of education administrators regarding the concept of sustainability through metaphors.

Some studies investigating metaphors related to the concept of sustainability are available in the literature (Gökmen, 2021; Muşlu Kaygısız, 2020). However, most of the metaphor studies conducted on the concept of sustainability focus on university students (Carew & Mitchell, 2006), teacher candidates (Çimen & Benzer, 2019; Gökmen et al., 2019; Muşlu Kaygısız, 2020), or directly on the thematic, in other words, nature and environment (Arık & Yılmaz, 2017; Kaya, 2014) or they explain the concept on an economic basis (Elliott, 2005). Indeed, it is seen that some researchers examine the concept of sustainability from a critical perspective (Calder & Clugston, 2003; Princen, 2010).

Moreover, higher education institutions need sustainable leadership to develop sustainable education (Tasci & Titrek, 2020). When it comes to sustainability, the relatively higher education lacks of studies (Brinkhurst et al., 2011; Cortese, 1992; Savanick et al., 2008; Sezen-Gültekin & Argon, 2020; Shields, 2019; Savelyeva & McKenna, 2011; Stough et al., 2018; Viebahn, 2002; Wolff et al., 2017). For example, Cortese (1992; 1999) has focused on defining sustainability, identifying universities' authorities and responsibilities for leading change efforts, identifying constraints to

organizational change, and integrating sustainability into the curriculum. Also, Brinkhurst et al. (2011) highlights the role of stakeholders, including the administration of universities, for the development and implementation of a sustainable system that can be associated with campus management. Kahn (1995) focused on social, economic, and environmental sustainability in development theories. On the other hand, it is also argued that organizational theory has abiased approach when it comes to sustainability in terms of anthropocentrism, lack of shallowness in a systematic manner (Gladwin et al., 1995). This conjecture indicates the value of leaders or academicians in administrative positions in higher education learning how to identify coherent conceptual metaphors.

It is of ever-increasing importance that academicians in higher education take an active role as a sustainable leader and increase their awareness. In this process, academicians in administrative positions in higher education need to be integrated with new developments, principally at the stage of facilitating the development of human resources. They need to follow sustainable policies in order to ensure the satisfaction of their stakeholders and students at the university and to encourage them to achieve institutional goals and objectives. On this axis, it is seen that sustainable leadership skills in higher education institutions are parallel with the perspective of the administrator (Tasci & Titrek, 2020).

In the present study, metaphors were used to investigate the experiences of academicians in administrative positions in higher education regarding sustainability. Considering that metaphors are powerful conceptual tools that shape the comprehension of the concept of sustainability, this article aims to fill a gap in the field by analyzing the use of metaphors related to sustainability. In the present study, metaphors related to sustainability of academics who hold administrative positions in higher education were investigated and answers were sought to the following questions:

- What are the sustainability metaphors of academicians in administrative positions in higher education?
- What conceptual categories can be driven from these metaphors?

2. Method

2.1. Research design

Phenomenology research design was used in the present study. Phenomenology focuses on understanding how individuals see themselves, the world around them describing the meanings that are given by people (Annells, 2006). The phenomenological pattern is grounded on experience (Creswell, 1998). The aim is to examine the meanings in a participant's subjective experience to understand their perception of events. The

phenomenology method is chosen to determine how and how the participants perceived the concept of sustainability.

In this study, social, economic, and environmental sustainability in development theories were used (Kahn, 1995). Therefore, the present study was conducted with the aim of analyzing how education administrators perceive the concept of sustainability. The results of the study identified four usage areas related to the concept of sustainability. In this respect, showing the metaphorical perceptions of education administrators playing a key role in education systems will fill the gap in this field.

2.2. Participants

In this study, convenience sampling method was used in the selection of the study group (Christensen et al., 2014). The present study was conducted with the participation of 75 volunteers who held administrator positions at universities in Turkey in the spring semester of the 2020-2021 academic year. The data in Table 1 shows that the gender distribution of the participants in the study is 30 female and 45 males.

Table 1. Demographic information of particitipants

Demographic Information	**Tenures**
	Total
Gender	
Male	45
Female	30
Title	
Asst. Prof.	29
Associate Professors	31
Prof.	15

2.3. Data Collection

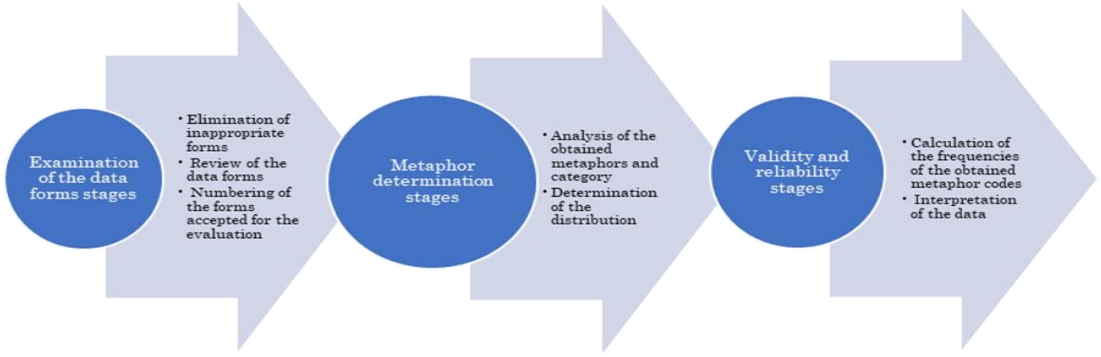
This form was used to determine metaphorical perceptions of academicians in administrative positions in higher education regarding the concept of sustainability. The form mainly involves the statement; "Sustainability is like ……. because……". It was used as a data collection tool and participants were asked to fill in the blanks and then write their opinions.

2.4. Analyzing Data

Content analysis method was selected for qualitative data analysis (Lichtman, 2010). Content analysis is based on gathering and organizing similar data within the framework of certain concepts and categories (Ekici, 2016). Before the data analysis, it was ensured that thr forms were filled by academics. Incomplete or irrelevant forms were not taken into consideration. Here, the absence of a metaphor was not evaluated in terms

of metaphors, because this criterion includes cases such as a blank section or not providing a rational explanation (Figure 1).

Figure 1. The following stages were followed to analyze and interpret the metaphors (Ekici, 2016)



The correctness of the logical basis is examined by inspecting the logical reasons that are given for the metaphors. To increase the reliability of the present study, the coding of data was performed by 2 experts on sustainability. The formula [(Agreements) / (Agreements + Disagreements)] x 100 was used for inter-coder reliability. A value of .91, which is above the critical level, shows that the consistency of coding among the two researchers (Miles & Huberman, 2002). The result of the reliability level formula of 70% and above is considered acceptable (Yıldırım & Şimşek, 2016).

Finally, the metaphors produced, the themes created by the metaphors, were interpreted by considering the data in the literature. At this stage, the metaphors used, and the themes created were made into shapes by associating them with each other so that the generated metaphors and created themes could be seen and understood better. To better understand the explanations, typical examples of metaphor and explanation sentences related to metaphor are given by quoting directly, thus contributing to validity and credibility.

3. Results

3.1. Holistic perspective

The results of the study showed that academics working as administrators in higher education expressed a total of 40 metaphors regarding sustainability (Table 2). Metaphors in 5 categories are *earth, water, future, waste reduction, ecosystem, renewable resources, planet, climate, natural world, green, awareness, human, children, values, social responsibility, population, family, garden, out of school, lifelong learning, green campus, faculty recruitment, ethical and moral responsibility, quality, SDG, stewardship, leadership, organizational change, green politics, transformational, responsibility,*

stewardship, leadership, growth, labor market investment, development plans, green economy, industry, communication technologies, production, resourcing (Table 2).

Table 2. Metaphors of education administrators regarding sustainability

Categories	**Metaphor Name**	***f***
Ecological	1. Earth	5
	2. Water	5
	3. Future	5
	4. Waste Reduction	5
	5. Ecosystem	5
	6. Renewable Resources	4
	7. Planet	2
	8. Climate	2
	9. Natural World	2
	10. Green	4
Social	11. Awareness	1
	12. Human	1
	13. Children	1
	14. Values	1
	15. Social Responsibility	1
	16. Population	1
	17. Family	1
Educational	18. Garden	1
	19. Out Of School	1
	20. Lifelong Learning	1
	21. Green Campus	1
	22. Faculty Recruitment	1
	23. Ethical and Moral Responsibility	1
	24. Quality	1
	25. SDG	1
Managerial	26. Stewardship	1
	27. Leadership	1
	28. Organizational Change	1
	29. Green Politics	1
	30. Transformational	1
	31. Responsibility	1
	32. Stewardship	1
Economicial	33. Growth,	1
	34. Labor Market	1
	35. Investment,	1
	36. Development Plans	1
	37. Green Economy	2
	38. Industry	1
	39. Communication Technologies	1
	40. Production and Resourcing	1
	Total	**70**

3.2. Conceptual categories of sustainability metaphors

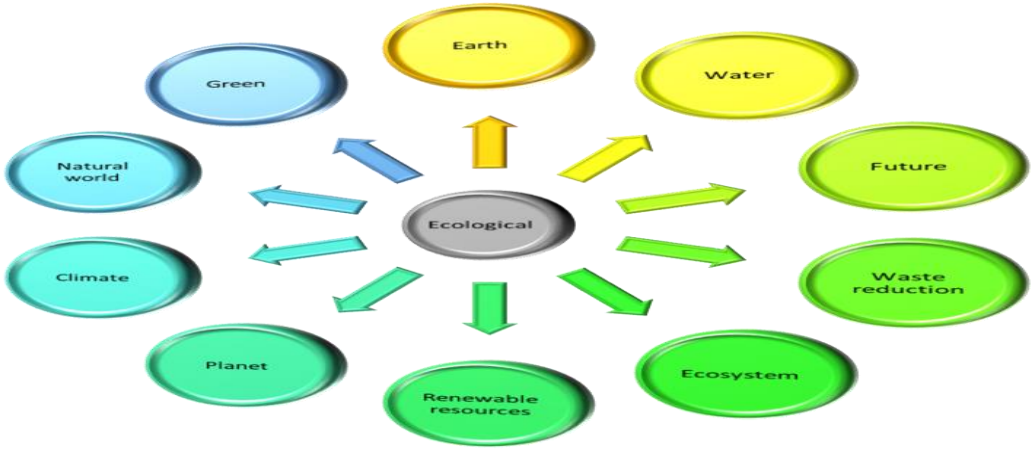
As seen in Figure 2, based on the metaphors developed by the participants for the concept of "sustantibility", the following 5 categories were created ecological, social, economical, educational, managerial.

Figure 2. Conceptual categories of sustainability metaphors

3.2.1. Category 1. Ecological

In this category, the participants put forward a total of 10 metaphors and, the participants developed metaphors by associating the concept of sustainability with ecological. Metaphors in this category are earth, water, future, waste reduction, ecosystem, renewable resources, planet, climate, natural world, green (Figure 3).

Figure 3. Conceptual of sustainability metaphors as an ecological



An example of metaphors in this category is as follows:

Sustainability is like an ecosystem because it comes to the fore in the process of keeping nature in balance and maintaining it (Assoc. Prof., Administrator, Male).

Sustainability is like green because it is breathing and protect natural systems (Asst. Prof., Administrator, Male).

Sustantibility is like natural world because it encompassed our lives from every dimension (Asst. Prof., Administrator, Female).

Sustainability is like the future because sustainability is necessary for life to continue more livable, for people (Prof., Administrator, Female).

3.2.2. Category 2. Social

In this category, the participants put forward a total of 7 metaphors. In this category, the participants developed metaphors related to the concept of sustainability with social perspective. In this category, participants developed metaphors by associating the concept of sustantibility with people or other living things around them. Metaphors used in this category are awareness, human, children, values, social responsibility, population, family (Figure 4).

Figure 4. Conceptual of sustainability metaphors as a social

An example of metaphors in this category is as follows:

Sustainability is like raising awareness, because for a healthy and green life, people's awareness needs to be increased in all areas (Assoc. Prof., Administrator, Male).

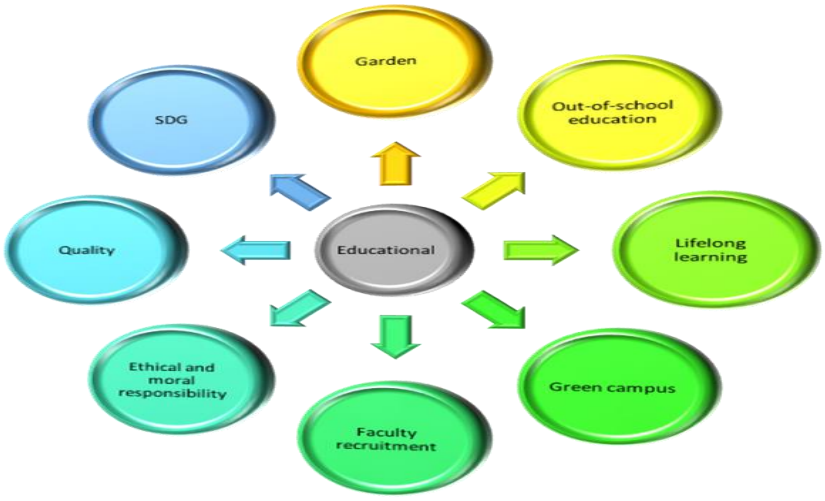
Sustainability is like a child because it is important for the transfer of values from generation to generation (Asst. Prof., Administrator, Male).

Sustainability is like social responsibility because it plays a role in the process of renewing and continuing both society and nature. In its most basic sense, 'social sustainability' reduces poverty (Assoc. Prof., Administrator, Female).

3.2.3. Category 3. Educational

In this category, the participants put forward a total of 8 metaphors and, the participants developed metaphors by associating the concept of sustainability with education. Metaphors in this category are as follows: Garden, out of school, lifelong learning, green campus, faculty recruitment, ethical and moral responsibility, quality, SDG (Figure 5).

Figure 5. Conceptual of sustainability metaphors as an educational



An example of metaphors in this category is as follows:

Sustainability is like the SDG because it is one of the most important steps in recent years for universities to plan their ecological strategies and achieve their goals by cooperating with all disciplines (Assoc. Prof., Administrator, Male).

Sustainability is like a green campus, because the greener areas the university is equipped with, the greener awareness will be. Unfortunately, there are very few green campuses in our country (Assoc. Prof., Administrator, Female).

Sustainability is like an ethical and moral responsibility, because faculty members have such a responsibility as an exemplary institution for the society for sustainable development and for modeling a greener-focused educational awareness for future generations (Prof., Administrator, Male).

3.2.4. Category 4. Managerial

In this category, the participants put forward a total of 7 metaphors and, the participants developed metaphors by associating the concept of sustainability with environment management. Metaphors in this category are as follows: Strewardship, leadership, organizational change, environment management, green politics, transformational, responsibility (Figure 6).

Figure 6. Conceptual of sustainability metaphors as a managerial

An example of metaphors in this category is as follows:

Sustainability is leadership because sustainable leaders are needed in universities, especially in recent years. As a matter of fact, there is a need for a sustainable leader of the university in raising quality, high-aware individuals (Assoc. Prof., Administrator, Male).

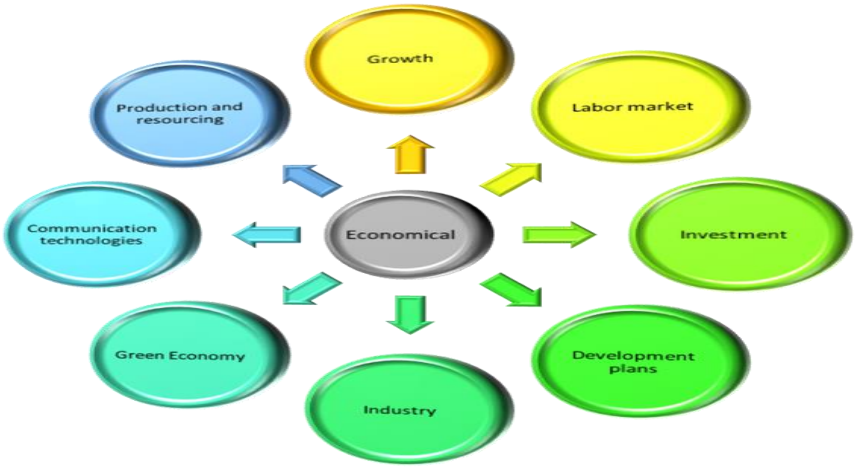
Sustainability is a green policy because it covers the implementation of many components, from physical equipment (such as recycling, waste policies) on the university campus to integrating green policies into the curriculum (Prof., Administrator, Female).

Sustainability is like organizational change because organizational change comes to the fore in the process of monitoring green policies and strategies of university organizational culture (Assoc. Prof., Administrator, Female).

3.2.5. Category 5. Economical

Finally, in this category, the participants put forward a total of 8 metaphors and the participants developed metaphors related to the concept of sustainability with economic perspective. Metaphors in this category are as follows: Growth, labor market, investment, development plans, industry, green economy, communication technologies, production, and resourcing (Figure 7).

Figure 7. Conceptual of sustainability metaphors as an economical



An example of metaphors in this category is as follows:

Sustainability is like a green economy because green cities for green economy are being established in the world. For example, people contribute to the economy and naturally protect nature by converting many materials such as plastic, paper, metal and glass, potato. Therefore, the green economy has become even more important today (Asst. Prof., Administrator, Male).

Sustainability is like a green economy because a green economy is known as resource efficient (Assoc. Prof., Administrator, Male).

Sustainability is like a growth, development, and productivity, because economic sustainability is concerned with monetary capital to consider (Prof., Administrator, Male).

4. Discussion

In the present study, metaphors related to sustainability of academics who hold administrative positions in higher education were investigated and answers were sought to the following questions: What are the sustainability metaphors of academicians in administrative positions in higher education? and What conceptual categories can be driven from these metaphors? The results of the study showed that academics working as administrators in higher education expressed a total of 40 metaphors regarding sustainability. Metaphors in 5 categories are created ecological, social, educational, managerial, economical.

Category 1. Ecological: In this category, the participants put forward a total of 10 metaphors and, the participants developed metaphors by associating the concept of sustainability with ecological. In the evaluation of the metaphors in this category and when the most repeated metaphors are examined ecologic perspective. When the reasons

for the repetition of these metaphors are examined; it is seen that they are based on ecological theory aimed at protecting, maintaining, and transforming nature. Ecological sustainability theory. The findings of this study align with previous literature indicating metaphor is a reflection tool that raises awareness to nature. It is understood that these findings are parallel to the results of previous studies (Kahn, 1995; Orr, 1992; Starik & Rands, 1995).

Category 2. Social: In this category, the participants put forward a total of 7 metaphors and, the participants developed metaphors by associating the concept of sustainability with social perspective. The reasons for the use of these metaphors show that the importance of the factor of children and families in increasing social awareness, continuation of values and the continuation of generations has been expressed as underlined points. Again, social responsibilities towards reducing inequalities of opportunity were underlined. The results of these findings are in parallel with the social sustainability theory which Kahn (1995) emphasized.

Category 3. Educational: In this category, the participants put forward a total of 8 metaphors and, the participants developed metaphors by associating the concept of sustainability with educational perspective. The results of this study indicate that green campuses have an important role in making education more quality and sustainable, especially the importance of learning for gardens and outdoor environments (Paige et al., 2008). Metaphors in this category are as follows: Garden, out of school, lifelong learning, green campus, faculty recruitment, ethical and moral responsibility, quality, SDG. In particular, the results of this study point out that the ethical and moral (Kowasch & Lippe, 2019; Sharma, 2015) responsibility of academics in the sustainability of education. The results of these findings are in parallel with the social sustainability theory which Kahn (2008) emphasized.

Category 4. Managerial: In this category, the participants put forward a total of 7 metaphors and, the participants developed metaphors by associating the concept of sustainability with management perspective. Similarly, as Ayşe has previously stated, sustainability has been considered in connection with management and this concept has been defined as making, implementing, and evaluating sustainability-related decisions (Starik & Kanashiro, 2013). Clearly, the most repetitive reasons for these metaphors are sustainable leaders are needed in universities, as a matter of fact, there is a need for a sustainable leader of the university in raising quality, high-aware individuals. It is understood that these findings are parallel to the results of previous studies (Tasci & Titrek, 2020). Also, participants believe that green policies should be implemented in universities and especially it covers the implementation of many components, from physical equipment on the university campus to integrating green policies into the curriculum. It is understood that these findings are parallel to the results of previous

studies (Brinkhurst et al.,2011; Calder & Clugston, 2003; Cortese, 1992,1999; Kahn, 1995; Savanick et al., 2008; Shriberg & Harris, 2012).

Category 5. Economical: Participants expressed a total of 8 metaphors related to the concept of "sustantibility", categorized under the category "economical". In this category, participants developed metaphors by associating the concept of sustantibility with economic perspective. The reasons for choosing these metaphors were explained by the green economy policies and especially the protection of nature. At this point, it is seen that they are opened by emphasizing the economic sustainable theory to be followed through the efficient use of resources. The results of these findings are in parallel with the economical sustainability theory which Eagan and Keniry (1998), Kahn (1995), Gladwin et al. (1995) emphasized.

5. Conclusions

In the present study, metaphors were used to investigate the experiences of academicians in administrative positions in higher education regarding sustainability. It is very important how the concept of "sustainability" is perceived in order for the policies on sustainability in higher education to become widespread. In this context, considering that metaphors are powerful conceptual tools that shape the comprehension of the concept of sustainability, this article highlighted to fill a gap in the field by analyzing the use of metaphors related to sustainability.

Finally, this article demonstrates existence of a coherent metaphorical system for sustainibility development so as to improve the field of sustaintibility for education. Also, it is vital to the educational community and sustaintible leader. Metaphors of 'sustainability' provide an opportunity to examine the social structure of sustainable development (Väliverronen, 1998). However, this study is limited by its relatively small sample size. This limitation is important because the small sample size the question of whether the data and subsequent results are transferable to other contexts. For this reason, it is recommended that this research be carried out by future researchers by reaching more participants.

References

Alpaslan, S., & Kutanis, R. O. (2007). Bilimsel bilgi uretiminde metaforlarin rolü: Destek mi? engel mi? [The role of metaphors on producing scientific knowledge: Supporter or barrier?]. *Bilgi Journal of Social Sciences/ Bilgi Sosyal Bilimler Dergisi, 15*(2), 1-17.

Annells, M. (2006). Triangulation of qualitative approaches: Hermeneutical phenomenology and grounded theory. *Journal of Advanced Nursing, 56*(1), 55-61.

Arık, S., & Yılmaz, M. (2017). Fen bilimleri öğretmen adaylarının çevre sorunlarına yönelik tutumları ve çevre kirliliğine yönelik metaforik algıları [Prospective science teachers' attitude toward the environmental problems and their metaphorical perceptions about "environmental

pollution]. *Kastomonu Journal of Education Sciences/ Kastamonu Eğitim Dergisi, 25*(3), 1147-1164. https://dergipark.org.tr/en/pub/kefdergi/issue/29417/320760

Brinkhurst, M., Rose, P., Maurice, G., & Ackerman, J.D. (2011). Achieving campus sustainability: top-down, bottom-up, or neither? *International Journal of Sustainability in Higher Education, 12*(4), 338-354. https://doi.org/10.1108/14676371111168269

Calder, W. & Clugston, R. M. (2003). Progress toward sustainability in higher education. *Environmental Law Reporter, 33*(1), 10003-23.

Carew, A. L. & Mitchell, C. A. (2006). Metaphors used by some engineering academics in Australia for understanding and explaining sustainability. *Environmental Education Research, 12*(2), 217-231. http://dx.doi.org/10.1080/13504620600690795

Christensen, L. B., Johnson, B., & Turner, L. A. (2014). *Research methods, design, and analysis, global edition*. Pearson Education Limited.

Cortese, A. (1992) Education for an environmentally sustainable future. *Environmental Science and Technology, 26,* 1108-1114.

Cortese, A. (1999) *Education for sustainability- The Need for a new human perspective*. Second Nature.

Creswell, J. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Sage.

Çimen, H., & Benzer, S. (2019) Fen bilgisi ve sınıf öğretmen adaylarının sürdürülebilir çevreye yönelik tutumlarının incelenmesi [The investigation of science and classroom teacher candidates attitudes to sustainable environment]. *İnsan & İnsan, 6*(21), 525-542. https://doi.org/10.29224/insanveinsan.475471

Değirmenci, Y. (2019). Examination of prospective teachers' perceptions of homeland: A phenomenological study. *Review of International Geographical Education Online, 9*(2), 346-360. https://doi.org/10.33403/rigeo.514318

Dickmeyer, N. (1989). Metaphor, model, and theory in education research. *Teachers College Record, 91*(2), 151- 160. https://doi.org/10.1007/s10668-016-9801-z

Eagan, D. J., & Keniry, J. (1998). *Green investment, green return: How practical conservation projects save millions on America's campuses*. National Wildlife Federation.

Ekici, G. (2016). Metaphorical perceptions of teacher candidates regarding the concept of "computer". *University of Gaziantep Journal of Social Sciences, 15(*3), 755-781.

Elliott, A. R. (2005). Sustainability: An economic perspective. *Resources, Conservation and Recycling, 44*, 263–277.

Emanuel, R., & Adams, J.N. (2011). College students' perceptions of campus sustainability. *International Journal of Sustainability in Higher Education, 12,* 79-92.

Evans, N., Stevenson, R. B., Lasen, M., Ferreira, J. A., & Davis, J. (2017). Approaches to embedding sustainability in teacher education: A synthesis of the literature. *Teacher and teacher education, 63*, 405–417. https://doi.org/10.1016/j.tate.2017.01.013

Gladwin, T. N., Kennelly, J. J., & Krause, T. S. (1995). Shifting paradigms for sustainable development: implications for management theory and research. *Academy of Management Review, 20*(4), 874-907.

Gökmen, A., Solak, K., & Ekici, G. (2019). Eğitim ve sürdürülebilirlik [Education and sustainability]. In Özgen N.; Kahyaoğlu, M. *Sürdürülebilir Kalkınma* [*Sustainable Development]* (pp. 71-91). Pegem.

Gökmen A. (2021). An investigation of future educational leaders' metaphoric perceptions regarding sustainability according to their knowledge levels. *Online Journal of Education and Teaching (IOJET), 8*(2), 1151-1171.

Jickling, B. (2005). Sustainable development in a globalizing world: A few cautions. *Policy Futures in Education, 3*(3), 251–259. https://doi.org/10.2304/pfie.2005.3.3.3

Kahn, M. (1995). *Concepts, definitions, and key issues in sustainable development: The outlook for the future*. Proceedings of the 1995 International Sustainable Development Research Conference, Manchester, England, Mar. 27-28, 1995, Keynote Paper, 2-13.

Kahn, R. (2008). From education for sustainable development to ecopedagogy: Sustaining capitalism or sustaining life? *Green Theory & Praxis: The Journal of Ecopedagogy, 4*(1), 1-14.

Karadeniz, S. (2012). School administrators, ICT coordinators and teachers' metaphorical conceptualizations of technology. *Education, 2*(5), 101-111. https://doi.org/10.5923/j.edu.20120205.01

Kaya, M. F. (2014). Sosyal bilgiler öğretmen adaylarının çevre sorunlarına ilişkin algıları: metafor analizi örneği [Social studies teachers' perceptions related to environmental problems: A sample analysis of metaphors]. *Turkish Studies: International Periodical for the Languages Literature and History of Turkish or Turkic, 9* (2), 917-931.

Koçak, O. (2011). *Okul müdürlerinin; öğrencilik, öğretmenlik ve müdürlük dönemlerindeki okul yöneticiliğine ilişkin metaforik algıları* [School principals' metaphorical perceptions about school management in studentship, teaching and principalship] (Unpublished Master's Thesis). Gaziosmanpaşa University.

Kowasch, M. & Lippe, D. F. (2019). Moral impasses in sustainability education? Empirical results from school geography in Austria and Germany. *Environmental Education Research, 25* (7), 1066-1082, https://doi.org/10.1080/13504622.2018.1557112

Lakoff, G., & Johnson, M. (2015). *Metaforlar: Hayat, anlam ve dil* [Metaphors: Life, meaning and language] (Translator: Demir, G. Y.). İthaki.

Lichtman, M. (2010). *Qualitative research in education*. Sage.

Miles, M. B., & Huberman, A. M. (2002). *The qualitative researcher's companion*. Sage.

Miles, M. B., Huberman, A. M., & Saldana, J. (2014). Q*ualitative data analysis a methods sourcebook*. Sage.

Muşlu Kaygısız, G. (2020). Sınıf öğretmen adaylarının sürdürülebilir kalkınma kavramına ilişkin metaforik algıları [Prospective primary school teachers' metaphoric perceptions about the concept of sustainable development]. *Research and Experience Journal/ Araştırma ve Deneyim Dergisi, 5* (1), 37-46. https://dergipark.org.tr/en/pub/adeder/issue/55076/735402

Onions, C. T. (1964). *The shorter oxfort english dictonary*. Clarendan Press.

Orr, D. (1992). *Ecological literacy: Education and transition to a postmodern world*. State University of New York Press.

Paige, K., Lloyd, D., & Chartres, M. (2008). Moving towards transdisciplinarity: An ecological sustainable focus for science and mathematics pre-service education in the primary/middle years. *Asia-Pacific Journal of Teacher Education, 36* (1), 19-33. https://doi.org/10.1080/13598660701793350

Princen, T. (2010). Speaking of sustainability: The potential of metaphor. *Sustainability: Science, Practice and Policy, 6*(2), 60-65. https://doi.org/10.1080/15487733.2010.11908050

Savanick, S., Strong, R., & Manning, C. (2008). Explicitly linking pedagogy and facilities to campus sustainability: Lessons from Carleton College and the University of Minnesota. *Environmental Education Research, 14*(6), 667-79.

Savelyeva, T., & McKenna, J. R. (2011). Campus sustainability: Emerging curricula models in higher education. *International Journal of Sustainability in Higher Education, 12*(1), 55-66.

Sezen-Gültekin, G., & Argon, T. (2020). Development of organizational sustainability scale. *Sakarya University Journal of Education, 10* (3), 507-531. https://doi.org/10.19126/suje.757529

Sharma, M. (2015). A Value approach to Sustainable Development. In S. Gihar & M. K. Saxena (Eds.), *Environmental Protection and Sustainable Development* (pp-181-196). Anamika Publishers.

Shields, R. (2019). The sustainability of international higher education: Student mobility and global climate change. *Journal of Cleaner Production, 217*, 594-602.

Shriberg, M., & Harris, K. (2012). Building sustainability change management and leadership skills in students: Lessons learned from sustainability and the campus at the University of Michigan. *Journal of Environmental Studies and Sciences, 2*(2), 154-164.

Starik, M., & Rands, G. P. (1995). Weaving an integrated web: multilevel and multisystem perspectives of ecologically sustainable organizations. *The Academy of Management Review, 20*(4), 908–935. https://doi.org/10.2307/258960

Starik, M., & Kanashiro, P. (2013). Toward a theory of sustainability management: Uncovering and integrating the nearly obvious. *Organization & Environment, 26*(1) 7–30. https://doi.org/10.1177/1086026612474958

Stough, T., Ceulemans, K., Lambrechts, W., & Cappuyns, V. (2018). Assessing sustainability in higher education curricula: A critical reflection on validity issues. *Journal of Cleaner Production, 172*, 4456-4466.

Tasci, G., & Titrek, O. (2020). Evaluation of lifelong learning centers in higher education: A sustainable leadership perspective. *Sustainability, 12*(1), 22. MDPI. http://dx.doi.org/10.3390/su12010022

Uhl, C., & Anderson, A. (2001). Green destiny: Universities leading the way to a sustainable future. *BioScience, 51*, 36–42.

Väliverronen, E. (1998). Biodiversity and the power of metaphor in environmental discourse. *Science & Technology Studies, 11*(1), 19–34. https://doi.org/10.23987/sts.55111

Viebahn, P. (2002). An environmental management model for universities: from environmental guidelines to staff involvement. *Journal of Cleaner Production, 10*(1), 3-12.

Wolff, L.-A., Sjöblom, P., Hofman-Bergholm, M., & Palmberg, I. (2017). High performance education fails in sustainability? A reflection on Finnish primary teacher education. *Education Sciences, 7*(1), 32. MDPI AG. http://dx.doi.org/10.3390/educsci7010032

Yıldırım, A., & Şimşek, H. (2016). *Sosyal bilimlerde nitel arastirma yöntemleri* [Qualitative research methods in the social sciences]. Seckin.