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Research Article

Levels of Achieving Plasma Leadership Behaviors of Deans in Higher Education

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Abstract: The main purpose of this research is to determine the level of deans' performance of plasma leadership behaviors, based on the perspectives of academics working at state universities in Ankara. In addition, this study aims to analyze the roles of deans, in higher education within the framework of the plasma leadership concept. By identifying the similarities and differences between these roles, the study seeks to contribute to the management processes in Turkish higher education. Another goal is to advance management practices in higher education by highlighting the significance and functionality of plasma leadership within the educational management framework. Consequently, the study also aims to offer innovative perspectives on the duties of deans within the scope of plasma leadership.
A quantitative research design has been adopted to fulfill these objectives. The level of deans' performance of plasma leadership behaviors were analyzed across several variables, as perceived by faculty members. The population of the study includes 15,846 academics employed at state universities in Ankara, with a sample group of 376 participants. The research utilized the "Multi Dimensional Plasma Leadership Scale," developed by Erçetin and Çevik (2021), adapted for the higher education context to measure deans' plasma leadership behaviors. Nonparametric tests were used for data analysis. The findings suggest that while demographic factors such as gender, seniority, and faculty affiliation may not significantly impact the perceptions of deans' plasma leadership behaviors, the length of time an academician has worked with the dean plays a crucial role in shaping these perceptions.

Keywords: Plasma Leadership, Higher Education, Deans

1. Introduction

Universities are dynamic institutions that cultivate qualified professionals, conduct research to enhance the nation's productive capacity, and provide services that benefit society across various scientific disciplines. A key objective of universities is to offer academic education in students' chosen fields, preparing them to contribute meaningfully to national development and progress. Karsantık (2019) notes that advancements in science and technology, globalization, and the increasing demand for a skilled workforce directly and indirectly impact higher education, underscoring the growing importance of effective higher education management. Beyond their foundational missions such as generating and disseminating knowledge and conducting research and development universities are also charged with promoting lifelong learning and leading rapid innovations in information and technology (Çetin, 2013). For universities to successfully navigate these complex roles, effective leadership is essential.

The leadership styles embraced by university administrators are pivotal to the globalization and advancement of higher education institutions (Karsantık, 2019). Meeting the objectives critical to a country's development and future hinges on the proficient management of higher education institutions (Karaaslan & Akın, 2019). Leaders play a central role in facilitating change within these institutions (Fullan, 1998). Given that universities are inherently innovative, productive, and dynamic entities, their leaders must be adept at keeping pace with technological developments, fostering new ideas, and integrating necessary knowledge into curricula to address societal needs.

In the face of rapid and unexpected change, leaders who aim to succeed must adopt management approaches that incorporate leadership qualities such as vision, innovation, and decisiveness (Erçetin, 2000). For higher education institutions to achieve their strategic goals, produce skilled graduates, and cultivate innovative, self-improving academic staff committed to scholarly values, there is a growing

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need for plasma leadership in higher education management. Plasma leadership, one of the most innovative leadership paradigms, has its roots in the interdisciplinary convergence of physics and management science. The concept first emerged in the work of Erçetin, Açıkalın, and Bülbül (2013), titled "A Multidimensional Approach to Leadership in Chaotic Environments." The effective management of universities that aspire to meet their strategic goals and nurture forward-thinking, adaptable academic personnel necessitates the adoption of plasma leadership in higher education administration.

1.1. Leadership and management in universities

According to Bolman and Gallos (2011), universities must adapt to significant technological changes and, in this context, are responsible for imparting the skills and values expected from future employees in the twenty-first century. Sporn (1996) characterized universities as complex organizations and identified several key characteristics of higher education institutions (cited in Karsantık, 2019):

- The goals of universities exhibit a complex structure.
- Universities are institutions centered on individuals; thus, recognizing people and their needs is essential for fulfilling their mission.
- Higher education institutions adhere to mandatory standards to achieve their objectives.
- Academics in universities often advocate for autonomy and freedom, which complicates decision-making processes due to the involvement of both academic and administrative staff.
- Universities are susceptible to external environmental influences; shifts in political, economic, social, and technological conditions can significantly impact their operations and inform strategic planning in higher education.

Hanna (2003) further characterizes universities as highly complex entities, underscoring the diverse strategic demands they encounter. Central to this complexity is the imperative for unrestricted access to information, which should serve as a foundational principle of academic institutions. Universities are tasked with facilitating the multifaceted development of students by establishing interdisciplinary programs, supporting entrepreneurial initiatives, and fostering technological advancements. They must also provide student-centered support services, promote lifelong learning, create technology-enhanced faculties, and forge strategic partnerships with other higher education institutions.

Moreover, universities should encourage varied teaching and learning methodologies, assess program quality to implement necessary changes, enhance faculty resources, and ensure equitable access to these essential services. The promotion of a cohesive organizational culture is vital; thus, universities should organize events that nurture collaboration and professional development among faculty and staff. Such efforts ultimately contribute to the ongoing success of both students and faculty in their educational endeavors (Stebick, 2009).

To effectively navigate these challenges and fulfill their missions, universities require adept leadership. Deans play a pivotal role in this context, overseeing the management of all teaching and non-teaching staff across various educational levels, from special education to continuing education. Their primary responsibilities include ensuring the effective operation of diverse departments within the rectorate, aligned with local functions and regulations.

Despite the intricate organizational structure of higher education, which includes faculties, institutes, colleges, departments, major branches of science, branches of art, and research and application centers dedicated to education and scientific research, many universities tend to prioritize a narrow subset of Sustainable Development Goals (SDGs). This trend is often accompanied by a general lack of awareness

among higher education leaders regarding the interconnectedness of these goals and the university's broader mission (Fındık & Erçetin, 2023).

In this regard, Turkish universities, under the guidance of their deans, must adopt a more comprehensive approach to sustainability. By ensuring alignment with a broader range of SDGs and enhancing institutional capacity to engage with these goals effectively, universities can not only fulfill their educational missions but also contribute meaningfully to sustainable development efforts on a global scale.

Deans play a pivotal leadership role in higher education, overseeing the management of all teaching and non-teaching staff across various educational levels, from special education to continuing education. Their primary responsibilities encompass the effective operation of diverse departments within the rectorate, in accordance with local functions.

1.2. Dean's duties

The dean is the highest authority within a university faculty. The responsibilities of the dean are determined by the Higher Education Institution itself. Deans are tasked with ensuring compliance with the regulations established by the Council of Higher Education (YÖK) and overseeing the operational efficacy of their respective units.

The dean, who represents the faculty and its associated units, is selected by the Council of Higher Education for a term of three years from among three nominated professors, either from within or outside the university, as recommended by the rector. This selection process adheres to standard procedures, and a dean whose term has expired may be reappointed. The dean also selects a maximum of two faculty members as assistant deans to provide support in their responsibilities.

The duties of the dean are delineated in Higher Education Law No. 2547 as follows:

1. Presiding Over Faculty Boards: The dean is responsible for presiding over faculty boards, implementing their decisions, and ensuring effective collaboration among faculty units.
2. Reporting to the Rector: At the end of each academic year and upon request, the dean must report to the rector on the overall status and functioning of the faculty.
3. Budget and Staffing Proposals: The dean must communicate the faculty's funding and staffing requirements to the rectorate, along with justifications, and submit budget proposals to the rectorate after obtaining input from the faculty board of directors.
4. Supervision and Control: The dean is responsible for maintaining general supervision and control over all faculty units and personnel at all levels.
5. Compliance with Legal and Regulatory Duties: The dean is required to perform additional duties as assigned by law and regulations.

The dean plays a crucial role in the rational utilization and enhancement of the faculty's teaching capacity and its affiliated units. This includes implementing necessary security measures, providing essential social services to students, and ensuring the orderly conduct of educational, scientific research, and publication activities. The dean also oversees, monitors, and controls all faculty activities and is ultimately accountable to the rector for achieving the desired outcomes (Higher Education Law No. 2547).

1.3. Plasma leadership concept and characteristics of a plasma leader

Laroussi and Leipold (2004) defined plasma as a collection of negatively and positively charged particles that are electrically neutral and capable of moving in random directions. The concept of plasma emerged from the pioneering studies conducted by Sir Humphry Davy in the early 1800s and by Michael Faraday

in the field of electricity during the 1930s (cited in Çevik, 2021). These foundational studies significantly contributed to the identification of the fourth state of matter and established plasma as a recognized concept within the physics literature since the 1920s.

Plasma leadership is defined as an approach that acknowledges all factors influencing the organizational system, exhibiting various leadership styles as circumstances warrant, and considering the intricate network of relationships among systems (Erçetin et al., 2013). In the same study, Erçetin et al. (2013) identified the roles of plasma leaders in chaotic environments, which include: becoming cognizant of the organizational system, identifying the fundamental elements affecting that system, understanding the interrelationships of these factors, integrating the network of the organizational system into managerial decisions, and possessing the capacity to employ diverse leadership styles multidimensionally based on the prevailing circumstances.

In this context, plasma leadership metaphorically resembles umbrella leadership, as it encompasses a broad and multidimensional leadership model that incorporates various types of leadership. Plasma leadership is characterized by its capacity to create and reveal the leader, while simultaneously reflecting societal and regional conditions. Erçetin (2014) characterized plasma leadership as a form of leadership that transcends conventional classifications, emphasizing its significance. In the realm of educational management, plasma leaders are expected to unify all stakeholders on a common platform. Additionally, they are anticipated to embrace diversity in managerial decisions by adopting the most suitable approaches from a range of leadership styles based on the current environment (Erçetin, 2019).

Within the plasma leadership framework, the organizational needs and requirements dictate the flow of leadership functions, maintaining a focus on continuous improvement. Plasma leadership facilitates the fulfillment of these requirements to enhance efficiency and effectiveness within the organization. Consequently, it can be inferred that plasma leaders must possess the ability to think innovatively, differentiate themselves, generate unique solutions, and make prompt decisions.

Assumptions regarding plasma leadership were articulated in the study titled "Multidimensional Approach to Leadership in Chaotic Environments" by Erçetin et al. (2013), which represents the first exploration of the plasma concept within the contexts of leadership and management (Erçetin et al., 2013). According to this framework, in a system characterized by chaos and uncertainty, a leader must:

1. Recognize the system and identify its fundamental components,
2. Investigate the periodic interactions among these components,
3. Incorporate these elements and networks into management processes,
4. Most importantly, embody a robust leadership profile that transcends basic requirements, employing appropriate leadership models in suitable environments.

According to Erçetin (2014), the properties of plasma and the plasma state of substances necessitate the formulation of an ideal leadership definition. Therefore, the characteristics of plasma elucidate the context, society, and regional position that define effective leadership. Plasma leadership can thus be delineated as leadership that requires the leader to be attuned to the institutional system they oversee, cognizant of the factors influencing that system and their interrelations, and considerate of systemic relationships in decision-making. Furthermore, plasma leaders are expected to exhibit diverse leadership approaches depending on the specific context and timing (Erçetin et al., 2013).

1.4. Plasma leadership and its characteristics in educational management

Erçetin (2019) posits that various perspectives, ideas, and approaches may dominate educational organizations, emphasizing that administrators, as plasma leaders, should recognize the plasma-like characteristics inherent in these institutions. In this regard, the qualities of plasma leadership should be exemplified in the management of higher education institutions that drive national development.

In accordance with the academic organizational regulations governing universities in Turkey, the duties of deans who occupy administrative roles in higher education are examined and evaluated in light of plasma leadership dimensions. The responsibilities of the dean within higher education are analyzed through the lens of plasma leadership dimensions as follows:

The most authorized person in the faculties is the dean. Deans are responsible for the operation of their unit and compliance with the regulations determined by YÖK. It is important for deans, who are important representatives of the faculty and their units, to exhibit executive leadership qualities. At this point, according to plasma leadership assumptions (dimensions), which is one of the most effective and new leadership approaches, the duties of the dean can be examined as follows;

1.4.1. Leader-member interaction dimension: The dean is tasked with presiding over faculty boards and ensuring the seamless operation of faculty units. In this context, the continuous interaction and coordination with these units is paramount. This responsibility corresponds to the "leader-member interaction" dimension of plasma leadership. The Dean's Office necessitates distinct relationships with each unit within the faculty, accompanied by close monitoring and engagement. Consequently, the concept of leader-member interaction which emphasizes the reciprocal relationships established by the leader with each organizational member (Çekmecelioğlu & Ülker, 2014; Stroh, Northcraft & Neale, 2002) is directly relevant to this critical function of the dean. Deans who facilitate regular operations among faculty units, maintain an active level of interaction across all units, and create environments conducive to stakeholder engagement with the faculty administration exemplify key plasma leadership behaviors.

1.4.2. Fair (impartial) management- talent management- human resources management dimensions: Fair management encompasses the principles of "distributive justice, procedural justice, and interactional justice." Distributive justice pertains to the equitable allocation of organizational resources, emphasizing honesty in sharing rewards and outcomes (Poole, 2007). Procedural justice highlights the perceived fairness of the processes and methods employed in decision making (Luo, 2009). Interactional justice focuses on the fairness of relationships between leaders and employees in the execution of organizational processes (Chambers, 2002; cited in Çevik, 2021). One of the dean's responsibilities, which includes reporting to the rectorate on the faculty's funding and staffing needs along with justifications and presenting the faculty budget proposal after consulting with the faculty board, aligns with the dimension of fair and impartial management within plasma leadership. As plasma leaders, deans are expected to maintain impartiality in task allocations and in determining staffing requirements for new assignments. Furthermore, deans must exhibit fairness and uphold justice in communicating the faculty's budget and appropriations, as well as in distributing incoming resources. Their responsibilities, such as identifying the faculty's staffing needs and ensuring the effective utilization of physical and human resources, directly relate to the human resources management dimension of plasma leadership. In determining staffing requirements, deans are expected to adhere to merit-based principles in their decisions and practices, advocating for an adequate and competent number of personnel.

1.4.3. Organizational intelligence dimension*:* In the realm of organizational intelligence, plasma leadership behaviors are linked to the manager's capacity to unite all staff members around a common objective to achieve organizational goals (Çevik, 2021). As plasma leaders, deans are anticipated to exert a unifying influence across all faculty units, fostering collaboration among them to achieve shared goals

and actively facilitating joint actions among all employees. Duties of deans, such as executing faculty board decisions and ensuring the rational deployment and development of the faculty's educational capacity, can be associated with the organizational intelligence dimension of plasma leadership. In this respect, the objective of deans, as plasma leaders, is to leverage their organizational intelligence to coordinate the actions of all stakeholders in the faculty in alignment with its objectives, thereby reinforcing the culture of collaboration, enhancing cooperation among employees, and ensuring order in the operations of all units.

1.4.4. Quickness in action and reaction dimension: According to Erçetin (2004), quickness in action and reaction involves the prompt formulation and implementation of decisions in organizational contexts. This dimension necessitates that leaders make accurate and rapid decisions in both routine and exceptional circumstances. The ability to translate decisions into action is predicated on the plasma leader's responsiveness to various situations and events (Çevik, 2021). Responsibilities of deans such as ensuring the regularity of educational, research, and publication activities, presiding over faculty boards, and facilitating the timely implementation of faculty board decisions are closely associated with the dimension of quickness in action and reaction. Deans not only ensure that decisions are executed swiftly but also demonstrate the ability to make prompt decisions and devise quick solutions to emerging problems. A leader who fails to exhibit effective timeliness in critical moments may inadvertently expose the organization to adverse outcomes. Therefore, as plasma leaders, deans are expected to demonstrate agility in decision-making and execution throughout the management processes of their faculties and serve as role models for other stakeholders in this regard.

1.4.5. Information management dimension: Information management is characterized by its continuous rather than instantaneous nature. The dynamic nature of information management necessitates the establishment of systematic processes, comprising four critical stages: "information acquisition, information sharing, information utilization, and information storage" (Toytok, 2019). Within the framework of information management, plasma leaders are expected to share pertinent and essential information with their subordinates without delay and to activate information management processes within the organization. Consequently, deans, as plasma leaders, are expected to transform their faculties into continuous learning organizations by emphasizing the interrelationship between knowledge management and organizational learning. Duties such as providing annual reports to the rector regarding the faculty's general status and functioning, presenting the faculty's budget and staffing needs to the rectorate following consultations with relevant units, and ensuring that faculty units are informed about these matters align with the information management sub-dimension. In executing these duties, deans are tasked with effectively communicating the information discussed in faculty boards to the rectorate, ensuring the accuracy of the information shared, and working to enhance communication processes related to information flow among faculty units while removing barriers to information dissemination.

1.4.6. Innovation management dimension: Educational organizations must undergo comprehensive restructuring to meet societal needs and adapt to the information society (Çelik & Eryılmaz, 2006). As plasma leaders, deans are expected to spearhead innovation and continually refresh and enhance their faculties to facilitate positive changes and advancements. They are expected to explore novel methods to elevate the faculty's success, maintain comprehensive oversight of the faculty's units and staff across all levels, implement new strategies based on findings from evaluations, and update the faculty's regulations in response to evolving conditions.

1.4.7. Adaptation to environmental conditions dimension: Given that fluctuations in environmental factors can significantly impact the overall structure and functionality of the university, it is imperative for institutions of higher education to adapt to these changing conditions. A thorough analysis of environmental factors is essential for deans to effectively manage the environmental influences on their

faculties. Within this context, deans, as faculty administrators, can adeptly address environmental expectations in alignment with their faculties' goals. Plasma leaders take preemptive measures against potential environmental hazards, shielding the organization from diverse and unpredictable threats through active engagement with all components of the organizational environment. Duties such as implementing security measures as necessary, providing essential social services to students, and planning and executing educational, research, and publication activities in accordance with the principles and objectives of the state development plan can be associated with the dimension of adaptation to environmental conditions.

Higher education encompasses all levels of education, including associate degrees, bachelor's degrees, master's degrees, and doctoral programs, across institutions such as universities, colleges, and academies. The two primary functions of higher education are to generate knowledge and cultivate a highly skilled workforce. Universities serve as the principal institutions underpinning higher education, as other higher education entities are typically established as affiliates of universities. Consequently, the leadership behaviors exhibited across all facets of higher education are critical for the sector to fulfill its objectives. Higher education institutions, characterized as open systems, frequently encounter chaotic and unpredictable situations that both influence and are influenced by external factors. Plasma Leadership is defined as an approach that is cognizant of all factors impacting the organizational system, adapts various leadership styles as necessary, and considers the intricate web of interrelationships within systems (Erçetin et al., 2013). This research seeks to assess the extent to which deans exhibit plasma leadership behaviors, as perceived by academic staff. In light of this problem, the following research questions will be addressed*:*

1. What are the levels of deans' performance of plasma leadership behaviors, both overall and across the various dimensions of the scale?
2. Based on the opinions of academics, does the level of deans' performance of plasma leadership behaviors vary significantly according to gender, professional seniority, affiliated faculty, and duration of collaboration with the dean?

2.Method

This study aims to ascertain the levels of plasma leadership behaviors exhibited by deans, as perceived by academics employed at state universities in Ankara. The research is designed as a survey study, employing a quantitative methodology.

2.1. Population and sample

The population for this research comprises 15,846 academicians working at state universities in Ankara during the spring semester of the 2023-2024 academic year (Council of Higher Education [YÖK], 2024). A random sampling method was utilized to determine a sample size that accurately represents the population. Based on calculations that accounted for a deviation of 0.5 and a confidence level of 95%, the study's sample consisted of 376 academicians. The research survey reached approximately 560 academics. A total of 410 academics responded to the survey questions. The distribution of the sampled academics based on their demographic characteristics is presented in Table 1.

Table 1

Distribution of Participants by Demographic Characteristics

Demographic Variables	Options	N	%
Gender	Female	257	62.7
	Male	153	32.3

Faculty Affiliation	Faculty of Education	145	35,4
	Faculty of Literature	92	22,4
	Faculty of Law	40	9,8
	Faculty of Medicine	50	12,2
	Faculty of Engineering	33	8,0
	Faculty of Social Sciences	28	6,8
	Other Faculties	22	5,4
Seniority	1-10 years	94	22.9
	11-20 years	172	42.0
	21 years and above	144	35.1
Years Working with the Dean	1-3 years	134	32,7
	4-6 years	149	36,3
	7 years and above	127	31,0
Total		410	%100

2.2. Data collection

In the initial phase of the data collection process, the necessary ethical approval was obtained from the Hacettepe University Institute of Educational Sciences Research Ethics Committee (Ethics Committee Approval No: E-51944218-050-00003557142). In order to determine the extent to which deans exhibit plasma leadership behaviors, the "Multidimensional Plasma Leadership Scale," developed by Erçetin and Çevik (2021), was adapted for higher education and utilized in the study. Additionally, a personal information form was used to collect demographic data from the participants. Information such as gender, professional seniority, faculty affiliation, and the length of time spent working with the dean was gathered through this form.

Since the Multidimensional Plasma Leadership Scale is a four-point Likert-type scale, the participants' level of agreement with each item is scored as follows: "1.00–1.75: Strongly Disagree; 1.76–2.51: Disagree; 2.52–3.27: Agree; 3.28–4.00: Strongly Agree." Furthermore, the mean scores of the scale items can be interpreted as follows: "1.00–2.00: Low level of agreement"; "2.01–3.00: Moderate level of agreement"; "3.01–4.00: High level of agreement."

2.3. Data analysis

In this study, SPSS 27.0 was used for data analysis. Descriptive statistics, including frequency distributions, means, and standard deviation techniques, were employed to address the research problem. Initially, it was determined whether the data exhibited a normal distribution to ensure the validity of the analyses. A normality test was conducted on the survey data (sig = .001, $p < .05$). Additionally, measures of central tendency, skewness, and kurtosis coefficients were compared, and visual representations (Box-Plot, Histogram, and Q-Q plots) of the distribution were examined. It was observed that the data did not follow a normal distribution. Therefore, non-parametric tests were chosen for the subsequent analyses. The results of the normality analysis are presented in Table 2.

Table 2

Results of Normality Test

	Kolmogorov -Simirnov			Shapiro-Wilk		
	Statistic	Df	P	Statistic	Df	P
MPLS	.105	410	.001	.950	410	.001

Since the data did not follow a normal distribution, non-parametric tests were done for the analyses. A significance level of α = .05 was adopted for all significance tests. The following analyses were conducted on the research data: Descriptive statistics (frequency and percentage) were used to analyze the distribution of the participants' personal/demographic information. For the analysis of the difference between the two categories of gender, which is a binary categorical variable, the Mann-Whitney U test was employed. For variables with more than two categories, such as years of professional experience, faculty affiliation, and years working with the dean, the Kruskal-Wallis test, a non-parametric alternative, was used. When a significant difference was found, the Tamhane test was applied to determine the degree of significance.

3.Findings

This section presents the findings and interpretations related to the analysis of the data obtained through the data collection instrument. The first sub-research question was formulated as: "What are the levels of deans' plasma leadership behaviors in the overall scale and its dimensions?" To address this sub-question, the data were analyzed, and the arithmetic means and standard deviations of the responses to the scale items were examined both at the general and sub-dimension levels.

According to the findings, the item with the highest level of agreement among the academics was the first item: "The dean is constantly in interaction with employees." This item received a mean score of ($\bar{x}$ = 3.24), indicating a response level of "Agree." Following this, the 29th item, which focuses on negative events and preventive measures outside the faculty, ranked second with a mean score of ($\bar{x}$ = 3.12), also corresponding to the "Agree" level. The third item with the highest agreement was the 19th item, which pertains to providing quick solutions to problems, with a mean score of ($\bar{x}$ = 3.10), also at the "Agree" level.

Based on these results, it can be interpreted that deans maintain strong communication with faculty staff, provide swift solutions to problems, and remain cautious regarding negative situations that arise outside the faculty.

The three items with the lowest levels of agreement were: "supports employees in realizing their potential," "acts in accordance with the principle of merit in decisions and implementations," and "considers employees' abilities in faculty-related assignments." These findings suggest that academics are not fully satisfied with the deans' adherence to the merit principle, fairness in assignments, and consideration of employees' potential.

Overall, based on the perceptions of the academics, the level of plasma leadership behaviors exhibited by deans was found to be at the "Agree" level, with a mean score of ($\bar{x}$ = 2.89). When looking at the average score, it can be interpreted as a "moderate level of agreement." In terms of sub-dimensions, academics' perceptions were highest in the "Knowledge Management" sub-dimension, with a mean score of ($\bar{x}$ = 3.03). The lowest perception was in the "Leader-Member Interaction" sub-dimension, with a mean score of ($\bar{x}$ = 2.75).

This indicates that academics view their deans as sufficient in terms of knowledge sharing, as well as the speed and manner of communication. However, it can also be interpreted that academics have

higher expectations for more interaction with their deans beyond just information sharing. The findings related to the test are presented in Table 3.

Table 3

Statistical Values for the Overall and Sub-Dimensions of the Multidimensional Plasma Leadership Scale

Overall and Sub-Dimensions	N	$\bar{x}$	SD	Frequency of Agreement
Leader-Member Interaction	410	2.75	.70	Moderate Level of Agreement
Fair and Impartial Management	410	2.89	.88	Moderate Level of Agreement
Talent Management	410	2.86	.88	Moderate Level of Agreement
Organizational Intelligence	410	2.91	.88	Moderate Level of Agreement
Quickness in Action and Response	410	3.01	.85	High Level of Agreement
Knowledge Management	410	3.03	.93	High Level of Agreement
Innovation Management	410	2.86	.94	Moderate Level of Agreement
Human Resources Management	410	2.88	.90	Moderate Level of Agreement
Adaptation to Environmental Conditions	410	3.01	.85	High Level of Agreement
Overall Multidimensional Plasma Leadership Scale	410	2.89	.73	Moderate Level of Agreement

The data in Table 3 reveal insightful patterns regarding the levels of perceived plasma leadership behaviors exhibited by deans. The overall mean score ($\bar{x}$ = 2.89) suggests that academics generally perceive their deans as displaying a moderate level of plasma leadership, with no dimension standing out as exceptionally high or low. However, certain sub-dimensions such as "Knowledge Management" ($\bar{x}$ = 3.03) and "Quickness in Action and Response" ($\bar{x}$ = 3.01) scored at a high level of agreement, indicating that deans are viewed as proficient in swiftly addressing issues and effectively managing knowledge dissemination within the faculty.

In contrast, sub-dimensions like "Leader-Member Interaction" ($\bar{x}$ = 2.75) and "Innovation Management" ($\bar{x}$ = 2.86) received relatively lower scores, reflecting a moderate level of interaction and innovation management perceived by the academics. These scores suggest that while deans are seen as efficient in technical and administrative areas such as knowledge sharing and decision-making, there may be gaps in more interpersonal and forward-looking leadership behaviors, such as fostering innovation and engaging deeply with faculty members.

The findings align with previous research on leadership in higher education, which highlights the importance of balanced leadership that not only focuses on operational efficiency but also cultivates strong relational ties and drives innovation within the institution. This nuanced understanding of plasma leadership behaviors opens avenues for further investigation into how deans might enhance their engagement with staff and more actively promote innovative practices.

The second sub-research question of the study is: "Do the levels of plasma leadership behaviors exhibited by deans, according to the perceptions of academics, show significant differences based on gender, professional seniority, faculty affiliation, and years of working with the dean?"

To determine whether academics' perceptions of deans' plasma leadership behaviors, both overall and in sub-dimensions, differ by gender, the Mann-Whitney U test was employed. The results of this analysis are presented in Table 4.

Table 4

Analysis of Academics' Perceptions of Deans' Plasma Leadership Behaviors by Gender

Overall and Sub-Dimensions	Gender	N	Mean Rank	Total Rank	U	P
Leader-Member Interaction	Female	257	201.21	51711.50	18558.500	.338
	Male	153	212.70	32543.50		
Fair and Impartial Management	Female	257	207.39	53299.50	19174.500	.673
	Male	153	202.32	30955.50		
Talent Management	Female	257	208.29	53530.50	18943.500	.533
	Male	153	200.81	30724.50		
Organizational Intelligence	Female	257	206.04	52951.00	19523.000	.905
	Male	153	204.60	31304.00		
Quickness in Action and Response	Female	257	203.15	52210.00	19057.000	.598
	Male	153	209.44	32045.00		
Knowledge Management	Female	257	202.06	51929.00	18776.000	.424
	Male	153	211.28	32326.00		
Innovation Management	Female	257	203.06	51929.00	18796.000	.254
	Male	153	210.28	32326.00		
Human Resources Management	Female	257	205.29	53530.50	19520.000	.443
	Male	153	203.81	30724.50		
Adaptation to Environmental Conditions	Female	257	202.29	53530.50	19055.000	.234
	Male	153	208.81	30724.50		
Overall Multidimensional Plasma Leadership Scale	Female	257	205.89	52913.00	19561.000	.932
	Male	153	204.85	31342.00		

The results presented in Table 4 provide insights into how gender may influence academics' perceptions of deans' plasma leadership behaviors. The Mann-Whitney U test was used to determine whether significant differences exist between male and female academics regarding their perceptions of deans' leadership in various dimensions. The results show that there are no statistically significant differences between female and male academics' perceptions. This suggests that both male and female academics tend to have similar views on these aspects of plasma leadership.

To examine whether academics' perceptions of deans' plasma leadership behaviors, both overall and across specific subdimensions, vary according to the faculty to which they are affiliated, a Kruskal-Wallis test was conducted. The results are presented in Table 5.

Table 5

Analysis of Academics' Perceptions of Deans' Plasma Leadership Behaviors Based on the Faculty to Which They Are Affiliated

Overall and Sub-Dimensions	df	X^2	F	P
Leader-Member Interaction	6	.485	2.213	.041
Fair and Impartial Management	6	.782	1.804	.097
Talent Management	6	.770	1.702	.119
Organizational Intelligence	6	.775	1.416	.207
Quickness in Action and Response	6	.723	1.330	.243
Knowledge Management	6	.848	2.912	.009
Innovation Management	6	.878	1.271	.282
Human Resources Management	6	.814	1.085	.380
Adaptation to Environmental Conditions	6	.792	1.785	.115
Overall Multidimensional Plasma Leadership Scale	6	.534	1.922	.076

The Kruskal-Wallis test results presented in Table 5 indicate that academics' perceptions of deans' plasma leadership behaviors do indeed differ across certain faculties. Specifically, significant differences were observed in the Leader-Member Interaction subdimension ($X^2 = 2.213$, $p = 0.041$) and Information Management subdimension ($X^2 = 2.912$, $p = 0.009$), both of which exhibit p-values below the 0.05 threshold, thus indicating statistical significance.In contrast, other subdimensions did not demonstrate significant differences ($p > 0.05$), suggesting that perceptions in these areas are more consistent across faculties.

The Leader-Member Interaction subdimension, with a significant result, highlights a possible divergence in how deans' leadership behaviors are perceived in terms of their direct interactions with faculty members. This could imply that certain faculties experience more robust communication and engagement between deans and faculty members, which is a crucial aspect of plasma leadership behavior.Similarly, the Information Management subdimension's significant finding points to variations in how different faculties perceive the dean's effectiveness in disseminating information. This could reflect differing practices or resources available across faculties for information sharing, an important aspect of leadership effectiveness in academic settings.

Overall, the Plasma Leadership Scale does not show significant differences ($p = 0.076$) in its total score across faculties, suggesting that while specific subdimensions may vary, the overall level of plasma leadership behaviors is largely consistent across the university's faculties.

Table 6

Analysis of Faculty Members' Perceptions of Deans' Plasma Leadership Behaviors Based on Years of Experience

Overall and Sub-Dimensions	Seniority (Years)	N	Mean Rank	Sd	X^2	F	P
Leader-Member Interaction	1-10 years	94	220.78	2	.492	1.669	.190
	11-20 years	172	207.78				
	21 years and above	144	192.81				
Fair and Impartial Management	1-10 years	94	224.07	2	.788	1.853	.158
	11-20 years	172	201.47				
	21 years and above	144	198.18				
Talent Management	1-10 years	94	220.79	2	.777	1.190	.305
	11-20 years	172	201.73				
	21 years and above	144	200.02				
Organizational Intelligence	1-10 years	94	222.58	2	.777	.1.763	.173
	11-20 years	172	202.22				
	21 years and above	144	198.27				
Quickness in Action and Response	1-10 years	94	226.73	2	.724	1.858	.157
	11-20 years	172	199.33				
	21 years and above	144	199.00				
Knowledge Management	1-10 years	94	222.69	2	.870	1.365	.257
	11-20 years	172	199.13				
	21 years and above	144	201.88				
Innovation Management	1-10 years	94	220.65	2	.893	1.169	.317
	11-20 years	172	190.11				
	21 years and above	144	201.85				
Human Resources Management	1-10 years	94	222.69	2	.824	1.129	.442
	11-20 years	172	199.13				
	21 years and above	144	201.88				
Adaptation to Environmental Conditions	1-10 years	94	223.07	2	.735	1.048	.356
	11-20 years	172	201.47				
	21 years and above	144	196.38				
Overall Multidimensional Plasma Leadership Scale	1-10 years	94	224.37	2	.538	2.228	.109
	11-20 years	172	203.00				
	21 years and above	144	196.17				

The Kruskal-Wallis test analysis presented in Table 6 investigates the influence of seniority (years of experience) on the perceptions of faculty members regarding deans' plasma leadership behaviors. The analysis shows that there are no statistically significant differences in the overall scale and most sub-dimensions based on seniority.

Table 7

Analysis of Faculty Members' Perceptions of Deans' Plasma Leadership Behaviors Based on Years of Working with the Dean

Overall and Sub-Dimensions	Years of Working with Dean	N	Mean Rank	Sd	X^2	F	P
Leader-Member Interaction	1-3 years	134	244.69	2	.456	17.968	.001
	4-6 years	149	160.25				
	7 years and above	127	217.23				
Fair and Impartial Management	1-3 years	134	180.21	2	.756	10.506	.001
	4-6 years	149	191.07				
	7 years and above	127	249.11				
Talent Management	1-3 years	134	172.19	2	.736	12.633	.001
	4-6 years	149	196.78				
	7 years and above	127	250.88				
Organizational Intelligence	1-3 years	134	177.36	2	.750	.9.143	.001
	4-6 years	149	196.67				
	7 years and above	127	245.55				
Quickness in Action and Response	1-3 years	134	185.23	2	.706	7.037	.001
	4-6 years	149	193.37				
	7 years and above	127	241.12				
Knowledge Management	1-3 years	134	186.34	2	.870	1.365	.001
	4-6 years	149	188.85				
	7 years and above	127	245.25				
Innovation Management	1-3 years	134	240.34	2	.898	1.169	.001
	4-6 years	149	235.85				
	7 years and above	127	132.25				
Human Resources Management	1-3 years	134	141.02	2	.821	1.129	.389
	4-6 years	149	133.91				
	7 years and above	127	132.38				
Adaptation to Environmental Conditions	1-3 years	134	223.07	2	.743	1.048	.341
	4-6 years	149	201.47				
	7 years and above	127	196.38				
Overall Multidimensional Plasma Leadership Scale	1-3 years	134	186.68	2	.538	2.228	.001
	4-6 years	149	183.95				
	7 years and above	127	250.65				

The analysis in Table 7 presents the results of the Kruskal-Wallis test, which assesses whether the perceptions of academic staff regarding the plasma leadership behaviors exhibited by deans differ significantly based on the number of years they have worked with the dean.

The results suggest that faculty members with 1-3 years of experience working with their dean perceive a significantly higher level of leader-member interaction than those who have worked with their dean for longer periods. This may reflect the novelty and increased attentiveness typically observed in the

early stages of a professional relationship, where deans might be more engaged in communication to establish rapport with new faculty members.Similarly, faculty members who have worked with their dean for 7 years or more report a significantly higher level of fair and impartial management compared to those with less experience (1-3 years). This could be indicative of a more established and effective system of governance over time, where deans have developed a reputation for fairness.As with other sub-dimensions, faculty members with 7 years or more of experience rate talent management higher, which may suggest that long-term exposure allows deans to refine their practices in aligning the right individuals with the right tasks and responsibilities. For organizational ıntelligence, action and response agility, and information management, 7+ years of experience report a higher level of perception. This trend may be a result of increased familiarity with the dean's decision-making process, enabling faculty members to better evaluate the dean's ability to adapt, respond quickly to problems, and effectively manage information.

However, there are a few sub-dimensions (human resources management, adaptation to environmental conditions and ınnovation management) that did not show significant differences across years of working with the dean. This may indicate that these behaviors are relatively consistent over time, or that faculty members have a baseline expectation for these leadership aspects regardless of the duration of their relationship with the dean.

Table 8

General Analysis of Academicians' Perceptions of Deans' Plasma Leadership Behaviors Based on Demographic Variables

	Demographic Variables	N	P
Plasma Leadership	Plasma Leadership	410	.932
	Gender	410	.109
	Seniority	410	.076
	Affiliated Faculty	410	.001

Upon examining Table 8, it is observed that academic perceptions of deans' plasma leadership behaviors do not exhibit a statistically significant difference based on the demographic variables of gender ($P = 0.932$; $p > 0.05$), seniority ($P = 0.109$; $p > 0.05$), or the affiliated faculty ($P = 0.076$; $p > 0.05$). However, a statistically significant difference is observed based on the years of collaboration with the dean ($P = 0.001$; $p < 0.05$).

This indicates that while the gender, seniority, and faculty affiliation of academicians do not appear to influence their perceptions of the deans' plasma leadership behaviors, the length of time working with the dean has a significant impact. Specifically, it suggests that academicians who have worked with the dean for a longer period tend to have differing perceptions of the dean's leadership behaviors, possibly because extended collaboration allows for a deeper understanding of the dean’s leadership style and decision-making approach.

4.Discussion and Conclusion

This study aimed to assess the perceptions of academicians regarding the plasma leadership behaviors of their deans, considering several demographic variables. The findings of the study provide significant insights into the ways in which different factors, such as gender, seniority, faculty affiliation, and the duration of working with the dean, influence the perception of deans’ leadership behaviors.

The results indicate no statistically significant difference in the perceptions of plasma leadership behaviors based on gender ($P = 0.932$). Both male and female academicians appear to perceive their deans' leadership styles similarly, suggesting that gender does not influence the way deans are viewed in terms of leadership practices. This aligns with the contemporary understanding that leadership

effectiveness is not inherently tied to the gender of the leader but rather to their actions, values, and behaviors. Similarly, no statistically significant difference was observed regarding seniority (P = 0.109). This suggests that the length of an academician's tenure does not significantly influence their perception of the dean's plasma leadership behaviors. This finding could reflect a consistent level of exposure to leadership practices, regardless of an academician's career stage. It could also suggest that leadership behaviors, particularly in the context of deans, are generalized across all seniority levels, implying that leadership practices are either widely accepted or insufficiently varied to be perceived differently by individuals at various career stages. Other similar results were found for gender and seniority; faculty affiliation (P = 0.076) did not reveal a statistically significant difference in the perception of plasma leadership behaviors. This finding suggests that the faculty to which an academician belongs may not significantly alter how they perceive their dean's leadership style.

One of the most compelling findings of this study is the significant difference in perceptions based on the years of collaboration with the dean (P = 0.001). Academicians who have worked with the dean for longer periods tend to have different perceptions of their deans' plasma leadership behaviors compared to those with shorter tenure. This suggests that long-term collaboration with a dean allows for a deeper understanding of leadership behaviors and may foster a more accurate or nuanced perception of leadership. Longer exposure to the dean's actions could lead to a more holistic view of their leadership style, highlighting the importance of sustained interaction in shaping leadership perceptions. Moreover, the results imply that relationship-building and trust developed over time could enhance positive perceptions of leadership effectiveness. This aligns with research in leadership theory, which suggests that leaders who establish long-term relationships with followers tend to be perceived more favorably, as mutual trust and respect are developed (Dirks & Ferrin,2002).

Shortly, this study is expected to make significant contributions to the understanding of leadership behaviors in higher education. The findings suggest that while demographic factors such as gender, seniority, and faculty affiliation may not significantly impact the perceptions of deans' plasma leadership behaviors, the length of time an academician has worked with the dean plays a crucial role in shaping these perceptions. The implications for leadership in higher education are profound. Deans who engage in long-term, sustained interactions with their faculty members may foster a more positive and well-rounded perception of their leadership behaviors. Thus, deans may benefit from investing in relationship-building activities and fostering a collaborative environment that supports ongoing dialogue and feedback. This, in turn, can lead to more effective leadership practices and higher levels of satisfaction and performance among academic staff.

References

Bolman, L. G., & Gallos, J. V. (2011). *Reframing academic leadership*. Jossey-Bass.

Çelik, S., & Eryılmaz, F. (2006). The levels of transformational leadership of industrial vocational high school principals according to teachers' perceptions: A case study in Ankara. *Politeknik Journal, 9*(4), 211–224.

Çekmecelioğlu, H. G., & Ülker, F. (2014). The effect of leader-member interaction on employee attitudes: A study in the education sector. *Kocaeli University Journal of Social Sciences, 28*, 35–58.

Çetin, M. (2013). *Higher education management and leadership*. Nobel Academic Publishing.

Çevik, M. S. (2021). *An analysis of school principals' plasma leadership behaviors and students' perceptions of citizenship using spatial analysis methods* [Doctoral Thesis. Hacettepe University]. Ankara.

Dirks, K. T., & Ferrin, D. L. (2002). Trust in leadership: Meta-analytic findings and implications for research and practice. *Journal of Applied Psychology, 87*(4), 611-628. https://doi.org/10.1037/0021-9010.87.4.611

Erçetin, Ş. Ş. (2000). *Vision in the leadership spiral*. Nobel Publishing Distribution.

Erçetin, Ş. Ş. (2004a). *Organizational intelligence and organizational stupidity*. Asil Publishing Distribution.

Erçetin, Ş. Ş. (2004b). The abilities related to organizational intelligence and their action dimensions at schools. *Research in Educational Reform, 9*(3), 3–18.

Erçetin, Ş. Ş., Açıkalın, Ş. N., & Bülbül, M. Ş. (2013). A multi-dimensional approach to leadership in chaotic environments. In S. Banerjee (Ed.), *Chaos and complexity theory for management: Nonlinear dynamics* (pp. 89–104). IGI Global.

Erçetin, Ş. Ş. (2014). Understanding Recep Tayyip Erdoğan and Turkey with plasma as a metaphor of the fourth state of matter. In Ş. Ş. Erçetin (Ed.), *Chaos, complexity and leadership 2014* (pp. 1–13). Springer.

Erçetin, Ş. Ş. (2019). *New paradigms in educational administration.* Nobel Publishing.

Fullan, M. (1998). Leadership for the 21st century: Breaking the bonds of dependency. *Educational Leadership, 55*(7), 6–10.

Hanna, D. E. (2003). Building a leadership vision: Eleven strategic challenges for higher education. *Educase Review, 38*(4), 28–34.

Karaaslan, A., & Akın, U. (2019). Instructional leadership in higher education: Department heads' views. *Journal of Theoretical Educational Science, 12*(3), 992–1012. https://doi.org/10.30831/akukeg.425597

Karsantık, İ. (2019). An investigation of the relationships between academic leadership, university culture, and academic identity in higher education. [Doctoral Thesis. Marmara University]. Istanbul.

Laroussi M, Leipold F. (2004). Evaluation of the roles of reactive species, heat, and UV radiation in the inactivation of bacterial cells by air plasmas at 267 atmospheric pressure. International Journal of Mass Spectrometry, 233, 81- 86.

Luo, Y. (2009). Are we on the same page? Justice aggreement in ınternational joint ventures. Journal of Business Research, 44(9), 383-396.

Poole, W. L. (2007). Organizational justice as a framework for understanding union management relations in education. Canadian Journal of Education, 30(3), 725-748.

Sporn, B. (1996). Managing university culture: An analysis of the relationship between institutional culture and management approaches. *Higher Education, 32*(1), 41–61.

Stebick, D. M. (2009). A case study investigating the implications of change as instructional leaders implement IDEA's response to intervention policy [Doctoral Thesis. University of Cincinnati]. Ohio, USA.

Stroh, L. K., Northcraft, G. B., & Neale, M. A. (2002). Organizational behavior: a management challenge. London: Lawrence Erlbaum Associates

Toytok, E. H. (2019). *Knowledge management*. In N. Cemaloğlu & M. Özdemir (Eds.), *Educational management* (pp. 529–550). Pegem Academy.

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