THE LINK BETWEEN ORGANIZATIONAL AGILITY AND LEADERSHIP: A RESEARCH IN SCIENCE PARKS

Bulent Akkaya, Manisa Celal Bayar University
Akif Tabak, Izmir Katip Celebi University

ABSTRACT

This research aims at exploring the relationship between organizational agility and leadership. Data was collected by two surveys and interviews from randomly selected managers in science parks in the West of Turkey. The Sequential Explanatory, a kind of Mixed Method was used to analyse the data. Structural Equation Modeling-SEM and Content analysis were carried out. According to quantitative and qualitative analysis results, transactional and transformational affect organizational agility, but laissez-faire leadership has not any relation with organizational agility.

Keywords: Organizational Agility, Multiple Leadership Styles, Science Parks, Mixed Method.

INTRODUCTION & LITERATURE REVIEW

Change is a fact of human lives and happens in all every part of the world where people live. Specifically, the nonstop changes in customers' requests and needs cause it inescapable for supervisors and managers of organizations to continually to adjust to changes to keep their organizations in a high competitive environment. They have looked for new arrangements and solutions to oversee and endure their firms in powerful, dynamic and changing business condition. That is why; they concentrated on adaptation, flexibility and on organizational agility, particularly after 2000's ultimately.

The digital revolution has transformed the lives of people in the way that people communicate with technology rather than with each other. This change powers managers to comprehend these improvements in environment and try to adapt them. For achievement that, they should have some characteristics, for example, vision, knowledge, courage and trust (Kouzes & Posner, 2007). Today's changeable and competitive environment force companies need to be more agile and successful (Christopher, 2000). Successful leading technology companies may sustain their high performance only if they keep being agile in that environment. Because of competitive environment and strategies can improve company's performance (Anwar et al., 2019). Organizational agility offers companies with opportunity to be more flexible, to adapt and response rapidly to control market uncertainty and risk (Sherehiy et al., 2007). Agile companies can learn about the market alteration quickly, benefit from changes, and shape their firms' products according to those external changes converted into opportunity for them (Kumkale, 2016; Shin et al., 2015; Braunscheidel & Suresh, 2009).

Agility can also advance the quality of competitive activity inventory of an organization to environmental fluctuations and, by the way, it can increase firms' performance (Tallon & Pinsonneault, 2011). Therefore, agility is a key driver for organizations to get that competitive advantage in uncertainty market (Ganguly et al., 2009). Organizations' managers have frequently

studied how firms are staying competitive by increasing their agility, which is very important in today's changing, fast and global environment (Heckler, & Powell, 2016).

Agility in organization notion was firstly used in production department of companies in the beginning of 1990's, and then has systematically been used in different departments of companies. For instance, in manufacturing organizations (Zhang & Sharifi, 2000), in sustainable competition (Mason, 2010), in human resources (Shafer, 1997; Ahammad et al., 2020; e Cunha et al., 2020), in development of production (Lopes, 2009), in management (Uğurlu et al., 2019), in educational organizations (Doğan & Baloğlu, 2018) and in management and finance (Sağır & Gönülölmez, 2019). Much of those existing researchers examined agility at the organizational level of analysis, conceptualizing organizational agility as an organizational capability, especially the capability to swiftly recognize and seize opportunities, change direction, avoid risks, initiate and take advantage of change (Jamrog et al., 2006). Furthermore, most of them include agile growth, job satisfaction, organizational achievement, efficiency or quality of service.

However, a better understanding of the role of leadership styles in management within organizational agility is vital. Faster change in technology and the globalization have led to hyper-competitive environment (D'Aveni et al., 2010). These challenges have led companies' managers to recognize the importance of agility. For instance, the Economist Intelligence Unit survey (Glenn & Stahl, 2009) found that about 90% of top managers surveyed across the world believe that organizational agility is critical for business success. Thus, an understanding of the role of leadership styles in management within organizational agility is important for organizations operating in international competitive markets. This shows that our research is important. However, researches still have limited understanding of the role of leadership styles in management within organizational agility; even there is no study in literature that examines the link between organizational agility and multiple leadership types, particularly, in science parks. This gap in literature inspires us to study on whether *"Multiple leadership styles in techno-enterprise firms have an effect on organizational agility?"* or not. Therefore, this study aims to find the link between organizational agility and multiple leadership types through a research model including these variables.

In this context, the study is structured as: Section one is introduction. Section two presents science parks and technology. While section three presents multiple leadership styles, section four gives information about organizational agility. Section five discusses the research methodology and present hypotheses. Section six explains the research findings. Section seven handles conclusion and limitations and suggestions for future researches are taken place in last section.

Science Parks and Technology

Organizational agility is critically important for science parks because these parks have the mission to procreate new technology. Technology is a mechanism that develops a product converts it into a new product. Burgelman (1991) says *"The enterprises create new marketing tools and technologies to introduce new services and products in order to meet customers' demands".* They can do it by introducing company-wide innovation tools like fostering a corporate culture that welcomes creativity at organizational levels. Moreover, the companies perform it faster and easier within the new technology. This dynamism is very intense in science parks where technology is created. The first project started in 1990 in Turkey. Then by December 2019, Science parks have risen to 85 and development parks have led to a number of R&D companies of around 5472. (TGBD, n.d). It shows that science parks are successful and contribute to the country's economy. This statistical information means that the number of people

in science parks is really quite high. Such other firms, science parks need leaders that will direct and motivate the employees, adapt them to the changing environment.

Multiple Leadership Styles

Companies have leader or leaders to maximize their profit and to reach their goals. They try to overcome uncertainty in chaotic and unpredictable circumstances. Therefore, they have been able to maintain the visibility of their organizations. Different scholars have identified different approaches and types of leadership across history. One is the multiple leadership approach that will be taken place in this research as independent variable. Avolio & Bass (2001) divided multiple leadership in three styles: transactional, transformational and laissez-faire leadership.

Transformational Leadership

Transformational leadership focuses on changing management authority and transforming new improvements to companies. The transformation leader connects the vision of an organization with its employees ' goals and personal standards. These leaders use internal resources rather than external standards to compensate their workers and depend on structures of personal value (Kuhnert & Lewis, 1987). Those traits are articulated as being audiences who see themselves as agents of change, being leaders who take risks, trust in their organization's people, benefit from their experiences, and overcome confusion brought about by change (Tichy & Devanna, 1986). It shows that transformational leaders of today's rapid-run companies play a critical role in pushing change. Avolio & Bass (2001) stated that there are five components of transformational leadership. These are:

1. *Idealize Attitude (Influence): Leaders are revered, valued, and optimistic.*
2. *Idealize Influence (Behavior): Leaders show high moral and ethical values.*
3. *Inspiring motivation: They empower and encourage their followers.*
4. *Intellectual Stimulation: They encourage their followers to be creative and innovative.*
5. *Individualized consideration: Leaders are paying special attention for achievement as coach.*

Transactional Leadership

In transactional leadership, the relationship of mutual interest between transactional leader and followers is very critical. If the leader satisfies their followers' needs and expectations, they will satisfy the leader's demands. The performance of this leader can therefore be said to depend on how much the needs of evolving followers are fulfilled. The relationship of supporters with the leader depends more than on moral principles in transformation leadership, while there are financial advantages and indirect recompenses, including wage growth and approval, for the relationship between followers and leaders (Kuhnert & Lewis, 1987; Tichy & Devanna, 1986).

Transactional leadership has three components (Avolio & Bass, 2001). These are: Contingent Reward: Leaders decide on what needs to be done and pledge incentives in return for upholding the agreement between two sides: leader and followers.

- *"Management by Exception (Active): Leaders plan to actively monitor deviations from norms, errors and mistakes in the agreement, if necessary, correct errors and mistakes".*
- *"Management by Exception (Passive): They continue to wait to correct anomalies, mistakes and failures".*

Laissez-Faire Leadership

The two leaderships styles mentioned above are contrasted with laissez faire in various leadership strategies (Bass & Stogdill, 1990). Leaders of laissez-faire are reluctant to take

positions, to act, to avoid using their forces and, where necessary, they disappear. Laissez-faire leadership has only a component (Avolio & Bass, 2001). This is: *"Laissez-Faire: Leaders are not active, are inefficient, and nothing is being done".*

Organizational Agility

There is an organizational structure and process adaptation to evolving environmental requirements. Several studies have also been carried out on the manner where organizations have managed to cope with ambiguousness and change by adaptation to new environmental conditions and on how to adapt them. Competition is global, no longer local, but worldwide. The technology is evolving. The economy is rapidly changing and manufacturing conditions are further emerging. This is why businesses need to be agile to navigate their workforce and succeed in a competitive and diverse world. Managers are trying to find new ways to overcome this problem. To adapt to change, they firstly concentrated on adaptation, and then on in production agility. This can inevitably lead to rapid improvements in the philosophy of organizational agility in response to changes in not just production, but in all departments of company as well. For being a new concept, it has not a common definition. Nevertheless, it is characterized as an entity which is able to rapidly respond to market changes by Breu et al. (2002). Organizational agility can also be defined as being able for a company to react swiftly to inevitable and unforeseen changes in its internal and external business environment.

Abilities (Dimensions) of Organizational Agility

Organizational agility has some functionality and capability. It takes certain skills to know if a business or company is organizationally agile. In addition, the organizational agility model consists of three components (Sharifi & Zhang, 2001). *"Agility Drivers"* (the operation of companies), *"Agility Capabilities"* (the abilities of a company making it agile) and *"Agility Providers"* (the ability of managers to use agility capabilities in their companies).

Even though in the literature the viewpoints in the various scientists vary, some of researches such as Sharifi & Zhang (1999); Sharifi et al. (2001); Crocitto & Youssef (2003); Shahaei, (2008); Nejatian & Zarei (2013); Mohammadi et al. (2015) and Nwanzu & Babalola 2019) suggest that organizational agility has four fundamental skills which are explained in detail below.

Responsiveness

This is the initial capability of organizational agility (Sharifi, 1999); Lin et al. (2006); Shahaei (2008) and Mohammadi et al. (2015). Consumer preferences and needs may change by time, because of technological and environmental changes. Organizations must react at the right place and time to these changes. This shows that the enterprise is organizationally flexible and uses its ability for reaction. Organizations that respond to challenges by having a broad market/product domain and lead change in the industry may respond to challenges by watching marketing (Nwanzu & Babalola, 2019). It is the capability of understanding the changing in market and of reacting quickly to this change. Companies will achieve a competitive advantage if they adapt to these shifts.

Flexibility

The flexibility of a company means to respond to environmental changes (Sanchez, 1993), to find the best possible scope and to react constantly to unpredicted changes (Kundi & Sharma, 2015). It may be noted that agility allows companies to adjust their own framework and capital to

change, to increase market share or to develop new goods and technologies. In fact, a company needs to be able to change its internal resources (employees, equipment, construction etc.) to meet its customer's needs. The companies could increase their income if it were done. It can be achieved by having a flexible mind, which is be open to alternative resources, different opinions and ways of solving problems

Speed

Speed and responsiveness are strongly linked. Some analysts have indeed said that companies should be able to enforce decisions easily after deciding to respond to the changes (Gunasekaran & Yusuf, 2002; Jain et al., 2008). This is the ability to carry out activities so rapidly (Christopher, 2000) or to respond quickly to change in company environment (Hoyt et al., 2007; Shahaei, 2008). Speed is about decision-making process. Speed is important for a company to develop new knowledge against the changes in the field of innovation capabilities. Shortly, speed is a process including company's ability to offer the product or service efficiently and rapidly.

Competence

The competence dimension may be described as the capability to use the other three organizational agility abilities mentioned above. The capacity of an organization to hold an event depends on the ability of it to use its abilities. Competency requires the capacity to refresh current or future skills in order to adapt a company to environmental changes (Teece et al., 1997) or the capacity to meet business objectives efficiently and successfully (Sharifi & Zhang, 1999).

METHODOLOGY

Research Model

As mentioned above, many studies are carried out on literary forms of organizational agility and leadership. Such studies mainly concentrate on agile manufacturing, organizational performance, results or quality of service and, in particular, with just transformational leadership, which is only a kind of multi-leadership styles.

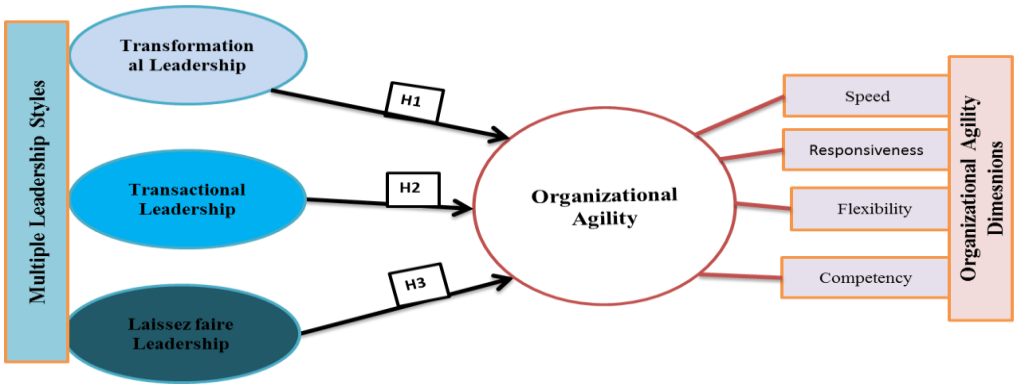

FIGURE 1
THE RESEARCH MODEL

However, there is no study seen in the literature to link the relationship between three multiple leadership styles and organizational agility and interaction between those components.

This literary gap has shaped our study's scientific research model. In this context, the model and hypotheses are designed in Figure 1.

H_1 *There is a positive relationship between transformational leadership and organizational agility.*

H_2 *There is a positive relationship between transactional leadership and organizational agility.*

H_3 *There is a positive relationship between laissez faire leadership and organizational agility.*

Research Importance

Mangers and leaders of today's companies have contemplated the rise in uncertainty facing organizations due to volatile prices, trade wars, new source and regulation of global competition and fickle consumers. This situation caused to ask how easily and quickly companies can sense, respond and configure to changes (Tallon et al., 2019). This has become increasingly concerning organizational agility and the leaders who can achieve it. Organizational agility offers a potential path to resolve this paradoxical situation (e Cunha et al., 2020). Throughout today's world, innovative companies in particular in developing countries are working hard towards becoming an organizationally agile enterprise, one of today's manufacturing techniques (Nath et al., 2008; Sukati et al., 2012). Organizational agility is now an important component in the supply chain's removal of environmental concerns, especially where the supply chain management is vital (Şahin et al., 2017). Owners and managers of today's companies know that they need agility to satisfy customer needs. Consequently, we can make important contributions to this literature by our work on organizational agility, an important subject in the literature, and multiple leadership styles. Specifically, it is very important to decide the efficient leadership style that ensures organizational agility in science parks where high-speed technology and change occurred.

Lokman et al. (2019) stated that organizations can improve their by leaders creating good relationships with customers. Successful leaders' attitudes and behaviors have a powerful effect on the organization's performance. That is, leadership as well as organizational agility may also play a direct role in firms' performance.

Organizational agility is directly or in directly associated with the organizational structure. The organization structure includes its layout, resources, assets, while the way of work and production methods are represented among the departments of companies. Resources are shared among the departments of companies, with team members being dispose to different leaders simultaneously. Shortly, it can be stated that this article examines an emerging concept, organizational agility, in international marketing that serves as a technology centre to cope with the changes taking place in this swift-changing global environment. And proposes a model where conceptualize organizational agility and facilitated by agile learning with modern leadership styles in science parks, to guide agile actions by being able to respond quickly with flexibility to ever-changing conditions.

Research Sample

Randomly 31 managers were interviewed for qualitative analysis and 302 for quantitative analysis in 66 entrepreneurial companies. Multiple Leadership Questionnaire developed by Bass & Avolio (1995), (acquired from the https://www.mindgarden.com/), and Organizational Agility Questionnaire developed by Sharifi & Zhang (1999) were used for gathering data from managers. Most of the managers are at the age between 25 and 34 (56.6%), 217 managers are men (71.9%), 193 have bachelor degree (63.9%), 63 are top managers (20.9) and the rest managers work as the manager of department such as R & D, marketing and production. The demographic profile of the participants of the study is presented on Table 1.

Table 1
DEMOGRAPHIC PROFILE OF THE PARTICIPANTS

Demographic Profile of the Participants	Category	n	Percentage
Age	Between 18-24 years old	55	18.2%
	Between 25-34 years old	171	56.6%
	Between 35-44 years old	63	20.9%
	45 and above	13	4.3%
Gender	Male	217	71.9%
	Woman	85	28.1%
Education Degree	Associate	51	16.9%
	Graduate	193	63.9%
	Postgraduate	58	19.2%
Position	Top managers	63	20.9%
	Marketing Manager	10	3.3%
	R&D Manager	18	6.0%
	Human resources manager	5	1.7%
	Department Manager (Production-Accounting-Finance Public Relations etc.)	208	68.2%

Research Method

Mixed method is used. Mixed method combines the researcher's quantitative and qualitative methods (Creswell, 2003; Johnson et al. (2007). Mixed method design models can be presented according to the dominance, sequential or simultaneous status of quantitative/qualitative. Mixed method has six designs, three of them are simultaneous and three of them are sequential (Creswell, 2003). These types are seen on Table 2.

Table 2
MIXED METHOD DESIGN MODELS

Design Name	Purpose of Design	Data Collection Sequence	Data Dominance
Sequential Explanatory	It is the method where the results of a quantitative analysis are clarified and presented.	1. Quantitative 2. Qualitative	QUANTITATIVE→ Qualitative
Sequential Exploratory	It is the method that helps to evaluate a hypothesis, creates a new method or evaluates instrument focused on qualitative analysis and generalize quality results.	1. Qualitative 2. Quantitative	QUALITATIVE→ Quantitative
(Sequential Transformative	It is the method that helps to develop a broad and alternative perspective and guides the participants to understand the subject of study.	1. Quantitative 2. Qualitative or 1. Qualitative 2. Quantitative	QUANTITATIVE → Qualitative QUALITATIVE → Quantitative
Concurrent Triangulation	It is the method that helps to verify and cross-validate research findings.	Together	Qualitative =Quantitative
Concurrent Nested	It is the method that helps to give a broad perspective to research and to conduct research in different groups or levels within a study.	Together	QUANTITATIVE → Qualitative QUALITATIVE → Quantitative
Concurrent Transformative	It is the method that helps to evaluate the analysis from a theoretical point of view at different levels.	Together	Equivalent

Source: Creswell (2003)

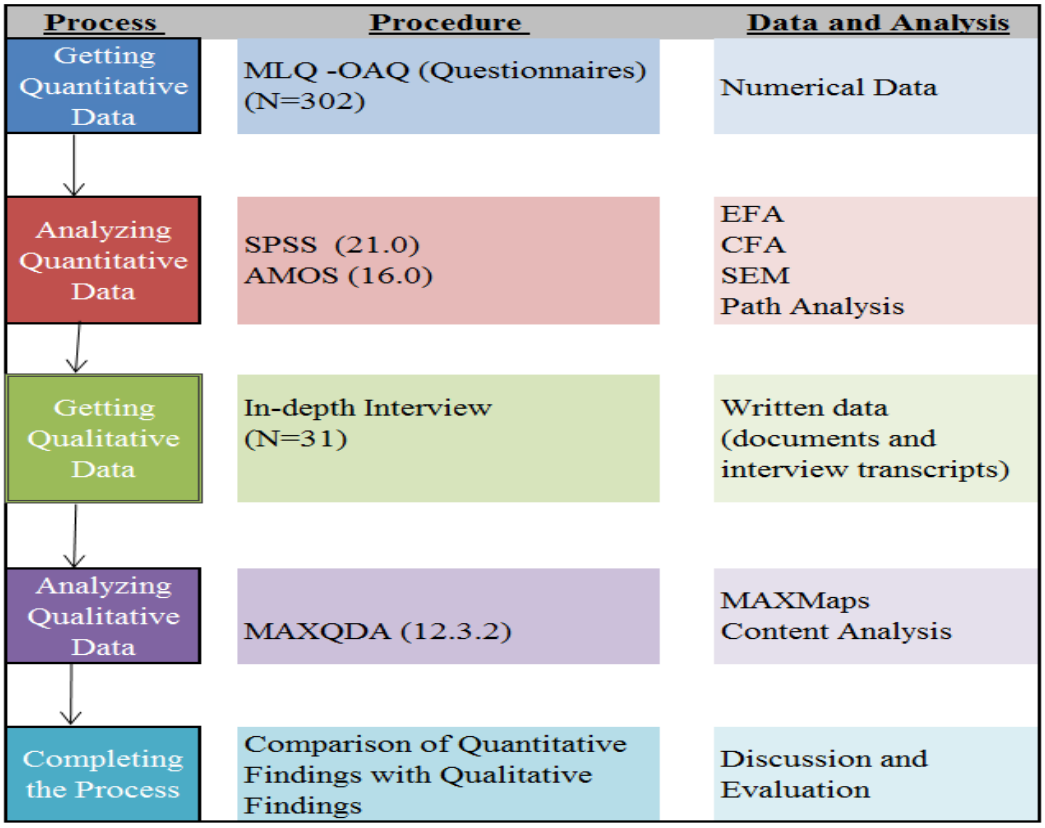

FIGURE 2
THE DESIGN OF RESEARCH

Mixed method helps to conduct an in-depth data analysis by linking the results of quantitative and qualitative (Johnson & Onwuegbuzie, 2004; Sosulski & Lawrence, 2008) and can provide simple and detailed rating answers (Yeng et al., 2018). We use sequential explanatory analysis that is a kind of mixed method. Sequential explanatory analysis leads to creating a bridge between quantitative and qualitative investigation. In that method, in first step quantitative data is collected and analysed, in second step qualitative data is collected and analysed, finally both are compared (Creswell, 2003; Ivankova et al., 2006; Ratliff, 2013). Figure 2 demonstrates the research design.

SPSS, AMOS and Maxqda programs were used for statistics. First, descriptive statistics of all variables have been calculated. Then factor analyses and Pearson Correlation were done. Structural Equation Modeling (SEM) analysis was used to find the relationship exists among variables.

FINDINGS

Quantitative Data

According to Confirmatory Factor Analysis (CFA) all values were in acceptable range

Organizational Agility : $\Delta\chi^2/df = 1.92$, **RMSEA** $= 0.05$, **CFI** $= 0.96$, **GFI** $= 0.92$ *and* **AGFI** $= 0.90$.

Transformational Leadership : $\Delta\chi^2/df = 1.43$, **RMSEA** $= 0.03$, **CFI** $= 0.93$, **GFI** $= 0.93$ *and* **AGFI** $= 0.91$.

Transactional Leadership : $\Delta\chi^2/df = 1.86$, **RMSEA** $= 0.05$, **CFI** $= 0.90$, **GFI** $= 0.95$ *and* **AGFI** $= 0.92$.

Laissez Faire Leadership : $\Delta\chi^2/df = 4.28$, **RMSEA** $= 0.08$, **CFI** $= 0.98$, **GFI** $= 0.99$ *and* **AGFI** $= 0.99$.

Autocorrelation problem occurs when the correlation value of dependent variables exceeds 0.8 (Kalaycı, 2010). Correlation analysis was carried out to determine if an independent variable is auto correlated. Correlation values are found between *"-0.123"* and *"0.544"* in this analysis, which means there is no autocorrelation among independent variables (See Table 3).

Table 3
CORRELATION AMONG VARIABLES

Variables	Transformational leadership	Transactional leadership	Laissez faire leadership	Organizational agility
Transformational leadership	1			
Transactional leadership	0.523** 0	1		
Laissez faire leadership	-0. 123* 0.033	0.150** 0.009	1	
Organizational agility	0.544** 0	0.342** 0	-0.128 0.26	1

* Significant at 0.05 level ** Significant at 0.001 level

Therefore, model was developed with independent variables (laissez faire, transactional transformational leadership) and dependent (organizational agility) variable. Path analysis was done to see the relationship among variables. The results are listed as below;

"Organizational Agility <---Laissez-Faire Leadership" statistically is not significant relation (p> 0.05),
"Organizational Agility <---Transformational Leadership" is statistically significant relation (p<0.001),
"Organizational Agility <---Transactional Leadership" is statistically significant (p<0. 05).

As being insignificant, the laissez-faire leadership was eliminated from the model to test the research model again for seeing the degree of relevant. A few letters represent the variables in the model (DL: Transformational Leader; EL: Transactional Leader; OC: Organizational Agility**).**

Qualitative Data

For qualitative data, the content analysis technique was used. Content analysis is a methodology of inquiry that offers reproducible and reliable conclusions (Koçak & Özgür, 2006). In this scope, the MAXQDA program was used for content analysis. The graphic methods of MAXQDA, called *"Code Subcode-Part Model",* were used to see the relations between variables (Transformational, Transactional Leadership, Laissez Faire Leadership and Organizational Agility).

Managers were asked several questions about their styles of leadership and organizational agility. For example,

"*How do you define your leadership style?*"

"Agility means to act and reorganize your firm according to changeable environment and to adapt this environment quickly. Could you range your firm from 1-5? (1 presents the least agile, 5 presents the most agile)".

Figure 3 shows the model showing significant relations. The results of good fitness are shown on Table 4.

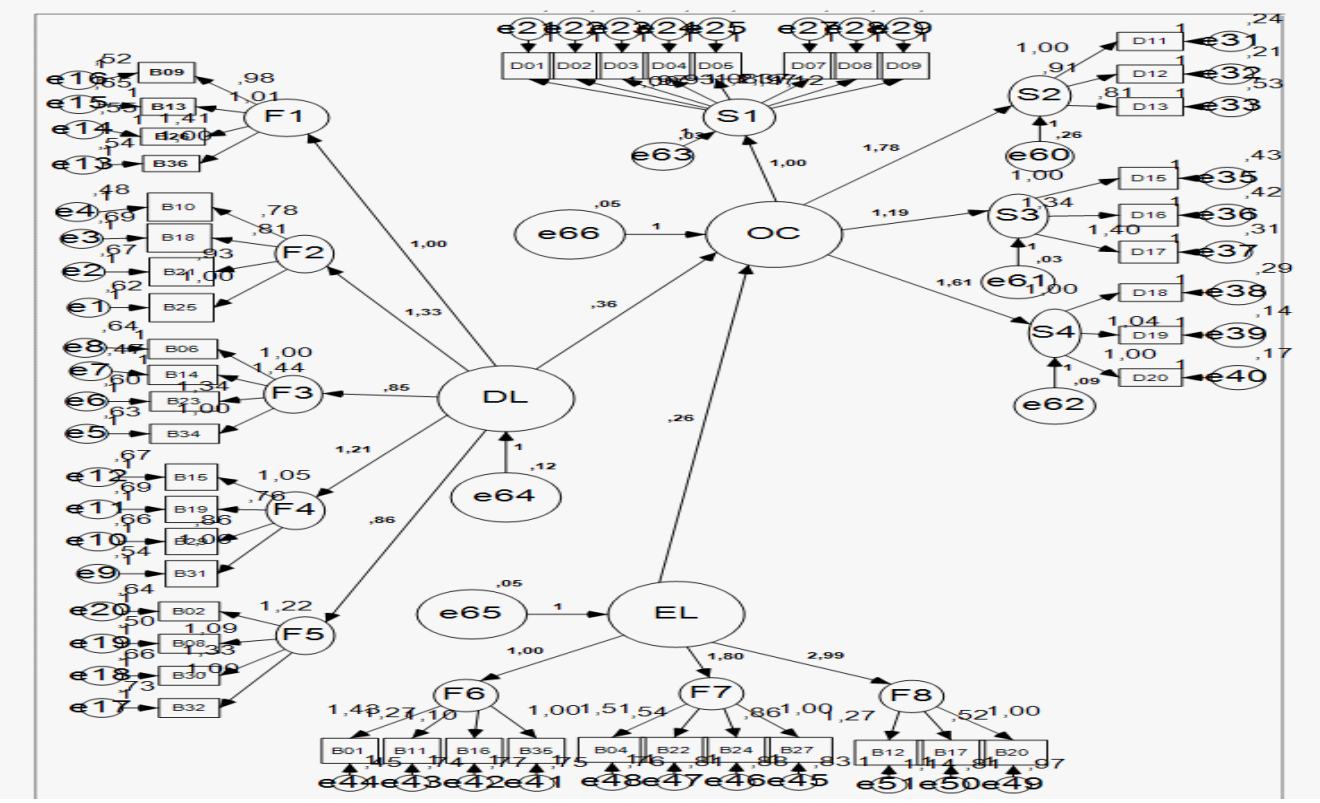

FIGURE 3
SIGNIFICANT RELATIONSHIPS IN NEW MODEL

Table 4
GOODNESS OF FIT OF MODEL

Model	$\Delta\chi^2$	df	$\Delta\chi^2$/df	RMSEA	NFI	GFI	AGFI
Model	205.660	113	1.82	0.05	0.94	0.92	0.90

Note: df= Degrees of Freedom, NFI= Normed Fit Index
RMSEA= Root Mean Square Error of Approximation;
GFI= Goodness of Fit Index; AGFI= Adjusted of Goodness Fit Index

One of the managers responded those questions as below:

"Our firm's managers pay more attention to customers' needs. For that, they usually use technology more and more. We follow environmental and technological changes to meet customer requirements. We, also, pay attention to workers by motivating, inspiring, paying their salaries on time, being fair to them. I range our firm as 5, because to have a quality service, it is quite important to act fast and to respond demands and needs of customers. This can make our customer happier."

According to this response, it is clear that this manager has transformational leadership behaviors such as motivation, inspiring and paying attention to employees' needs beside customers'. Moreover, this firm try to be more agile in today's marketing environment. Because of this firm aims to service to their customers in a quality way. Another manager from another firm responded those questions as below:

"*Our managers have some certain rules for workers to manage our firm. I mean, If they work better and more, they get more prize such as premium or allowance and permission for a while. On the contrary, if they work less, they are warned even punished sometimes by deducing their salaries etc. This directs them to show better performance. I range our firm as 5. Our managers are careful about environment. So, if there is a new method or a new product in marketing, we learn it quickly and adapt to our firms."*

These expressions of this manager show that the leaders of their firm have transactional leadership behaviors such as prize, punishment etc. The firm is agile because the managers of it are aware of environment and customers' need. To meet these needs, they learn new methods and adapt their firms to these methods by which producing new products. One of managers from another firm responds these questions as below:

"Our managers, even me, do not interfere employers and their working styles. I mean they are free how to work. Frankly speaking, it causes a mess and unplanned work. As I see, it sometimes causes stress and conflict among employees but we do not interfere. We let them solve these problems by themselves. I range our firm agility as 3. Because of being laissez-faire, every manager and worker has no common work style that is a barrier to adapt changes easily."

This explanation shows that these leaders are laissez-faire leaders. Because, they do not interfere to workers. It is understood that the firm is less agile.

Table 5
FREQUENCY OF CODES

Codes	N (Frequency)	Percentage %
Laissez Faire Leadership	4	1.79
Transactional Leadership	19	8.48
Transformational Leadership	123	54.92
Organizational Agility	78	34.81
Total	224	100

Such expressions of managers were analysed by content analysis and transformed to quantitative to see the frequency. Table 5 shows the frequency distributions for coding these variables. Table 5 demonstrates that participants choose more transformational leadership (54.92 %) and more organizational agility in the category of management (34.81 %). On the contrary, it can be seen that participants gave attention to transactional leadership (8.48%) and less attention to laissez faire leadership (1.79%). Figure 4 numerically illustrates the association among these codes. The higher the number, the thicker the line shows the power of relationship.

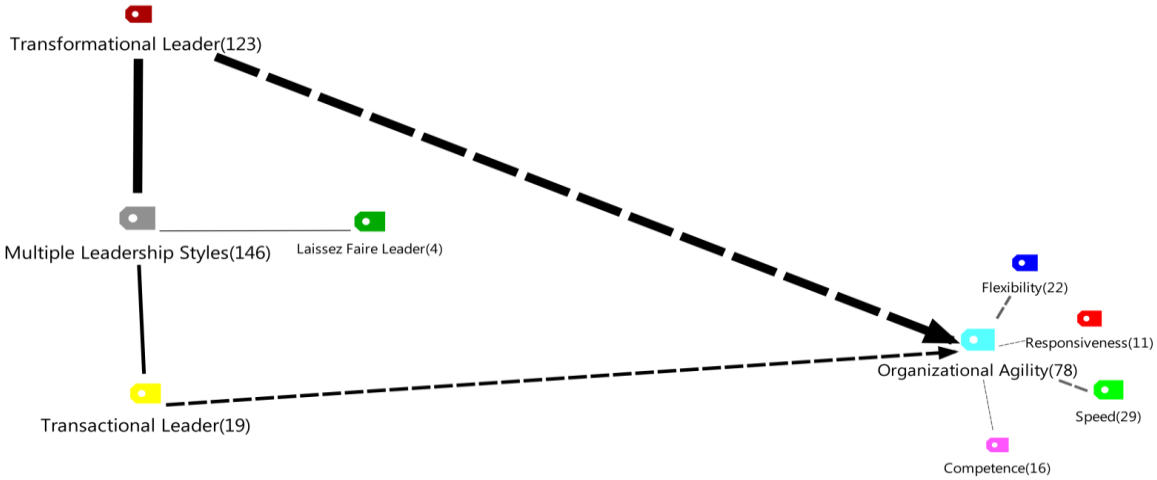

FIGURE 4
THE RELATIONSHIP MAP OF LEADERSHIP STYLES AND ORGANIZATIONAL AGILITY

Figure 4 demonstrates that transformational, transactional and organizational agility are associated, but not relevant to laissez faire leadership.

DISCUSSION & CONCLUSION

In the world of today, significant change and globalization require new types of leadership that help organizations achieve their goals and improve their ability. Such leaders who cultivate development, create new ideas, empower and encourage their employees are more responsible for them. They take advantage of the sustainability and success drivers of their companies. They can be ready and willing to respond when challenged, especially in a dynamic and challenging environment, with sensing, seizing and configuring opportunities. Leaders who plan the atmosphere for their followers to join handle, to take responsibility and be a part of organizational agility by using their imaginations and suggestions. Such leaders are referred to as modern leadership, which encompasses many forms of management and change. Transformational leadership is one of them in the contemporary world (Avolio & Bass, 2001). Transformational leadership style has many attributes including organizational agility. Because these leaders motivate their followers by encouraging them to learn new methods and systems, firms critically need in this changeable environment. Transformational leaders have strategic decisions and innovative capability through which they can adapt their firms to rapidly changing market. This is closely related organizational agility.

Organizational agility can strengthen the positive effects of technological capability on explorative innovation in the firms (Zhou & Wu, 2010). The challenge of organizational agility lies in matching and adapting managers' leadership style to the changing business environment, and organizational preparedness to reverse ineffective strategic decisions (Nadkarni & Herrmann, 2010). Changing market forces companies to have adaptable plans need to develop a new strategy, owing to the growing and competitive changes to the business environment. The leaders may overcome of them by meeting the expectations and needs of consumers. Because, the demands of consumers are getting faster and faster (Carlson & Yao 2008). In a dynamic and unpredictable environment, companies need a contemporary style of leadership to encourage employees to make use of their potential and turn them towards innovation. Therefore, one of the main factors in achieving is to be organizationally agility that certainly should be supported by the managers and leaders of businesses. There are some latest studies done on organizational agility. For example, Latham (2014) studied on organizational agility in assessing the work performance of employees and employers and analyses organizational agility in management by assessing knowledge management and organizational inertia, Uğurlu et al. (2019) organizational agility in assessing technology ability and firm performance, Sağır & Gönülölmez (2019) studied on the intermediary role of organizational agility between human capital and structural capital have and operational performance of business. Many studies on multiple leadership styles were also met in literature. Xu & Wang (2008) tested the relationship between organizational performance and transformational leadership, Judkrue (2012) researched on the relationship of organizational success and transformational leadership.

Hereby, in this article, we embrace multiple styles of leadership and concentrate on how the multiple styles of leadership of science parks affect organizational agility. For that, three hypotheses were tested within both qualitative and quantitative analyses. The results show that transformational leadership has a highly positive and important effect on organizational agility and are correlated in a strong way($r=0.544$, $p<0.001$). Therefore, H_1 is accepted. The transactional leadership has also a good and important influence on the agility of organization ($r=0.342$, $p<0.001$). Therefore, H_2 is accepted, too. However, there is a negative correlation and

insignificant relation occurred between laissez-faire leadership and organizational agility (r=-1.128, p>0.005). Therefore, H_3 is rejected. In addition, the suggested model has acceptable value of goodness-of-fit index (RMSEA is <0.008; NFI, GFI and AGFI are >0.90). The results of qualitative analysis support these quantitative results. Some studies, using at least one of the variables in our study, support these results: The results of the study done by Khoshsima (2006) show that there is a significant positive relationship between agility and competitive advantage and (2006) between agility components and organizational performance, too. Joiner (2019) found that leadership agility plays in creating agile organizations. Pulakos (2019) reached the results that organizational agility is important for *"better practices"* to enhance organizational performance. Ulrich & Yeung (2019) researched on the high-tech organizations to discover how they respond to changing market conditions and they concluded that organizational agility is sustained through four Human Resource (HR) tools (people, performance, information and work) for better practises by leaders. Tetik et al. (2019) found out that transformational leadership has significant impact on innovation. Kılıç & Günsel (2019) resulted that leadership has a strong effect on organizational structure. And some other studies (Erturgut, 2007; Geçmez, 2009; Ery Yeşil & İraz, 2017; Sandıkcı et al., 2015; Daskin, 2016; Ahmet et al., 2016; Huysamen et al., 2003; Gillespie & Mann, 2004; Shibru & Darshan, 2011).

Companies must adapt and upgrade their manufacturing and management system to maintain their productivity and innovation capacities for today's economical purposes. They can achieve it by organizational agility. Thus, the link between organizational agility and organizational creativity is becoming more relevant. Knowledge management is also another important variable in both agility and leadership. Nevertheless, a company may not have essential knowledge management practices, even in contemporary leadership styles, without sufficient capacity for knowledge management and organizational learning. Knowledge management and business development are important ingredients as a loop framework while organizational agility and management are main processes. Therefore, we can infer that managers can improve organizational agility through motivation encouragement and a clear award-winning performance. Therefore, companies' leaders need to evaluate innovative competencies and skills to establish adequate competence to develop business strategies. The critical extent of organizational agility, however, concentrated on the right kind of leaders in the right time and the right position to reach innovative opportunities and technological growth. It is therefore important for business leaders to continually assess their creative capabilities and knowledge and decide whether or not appropriate skills is needed in order to implement business strategies within the organization.

Finally, it can be stated that the novelty of this research lies in highlighting the importance of organizational agility in connecting with leadership styles in management practices. It contributes to the literature by determination of the impact of leadership styles on organizational agility that is an important gap in the existing prior research and consolidating existing theoretical concepts. Moreover, it offers novel insights in terms of the relationship of organizational agility with leadership styles and suggests new studies for future research.

LIMITATIONS & SUGGESTIONS

This investigation has some limitations. Initially, there was no relationship formed between the different variables of organizational agility, knowledge management, innovation and organizational learning. The second limitation of this research is the measurement of the variables of leadership and organizational agility, which might involve subjectivity, in science

parks operating in West of Turkey. Therefore, in next study the sample can be enlarged because there are some other science parks in Turkey. Third, cross-sectional analysis of variables evolution in this study is obstructing the study data. Finally, the model mainly analyses the relationship between multiple leadership and organizational agility but in next researches it can also be evaluated for development and organizational innovation and learning of a company. Furthermore, working with more factors and more tests can also lead to organization's behaviours. If more samples were collected, accurate and meaningful results could be generated.

Future studies might examine other consequences of organizational agility and multiple leadership styles in organizations (for example, quality improvement, firms' performance and improvements in relational capacity) and some other constructs, such as shared vision, teamwork or technology. Organizational agility and various behaviours of managers' in organizations could also be explored in future studies (staff satisfaction, workers' productivity and enhancement in efficiency, company performance and organizational ability development). In future studies, managers and employees, together, can assess agile leadership behaviors with organizational agility with some other variables.

Leaders and managers are recommended through the development of a collaborative environment, inspiration, trust and cooperation with employee to create organizational agility where everyone participates in developing a mission and improving the performance of organizations.

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