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The Role of Network Learning Capability in the Relationship between Open Mindedness and Innovation Performance

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Abstract: Learning, which is the main key of innovation, is an indispensable element for companies to gain sustainable competitive advantage. Although not being adequately studied in management literature, network learning capability, a type of organizational learning ability, is a determining factor in the innovation process. Likewise, open-mindedness is a component that accelerates the creation of knowledge in the organization as well as encouraging the organization to be open towards new opportunities and to value different opinions. In this study, a model including these variables was designed and the mediator role of network learning in the relationship between open-mindedness and innovation performance was explored. It is suggested that open-mindedness has a positive effect on innovation performance and that network learning capability possesses a mediator role in this relationship. The data were collected through surveys answered by the middle and senior managers of Turkey's leading companies. As a result, it is pointed out that there is a positive and significant relationship between open-mindedness and innovation performance, and that network learning has a mediator effect on this relationship. This study adds value to the management literature by highlighting the momentousness of network learning capability in the innovation process as well as offering several avenues of future studies and implications for different stakeholders.

Keywords: *Open Mindedness, Network Learning Capability, Networking, Innovation Performance, Innovation.*

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1. Introduction

This paper attempts to explain the role of network learning capability in the relationship between open-mindedness and innovation performance. Nowadays, organizations are usually connected with other organizations through various social and economic relations such as supply relations, resource flows, trade association membership etc (Gulati, 1998). High environmental uncertainty and intense competition highlight the significance of organizations' learning and innovation capabilities. As major innovations are predominantly based on interdisciplinary and intersectoral developments beyond a single firm; the establishment of partnerships between organizations is eminently encouraged (Lubatkin et al., 2001). Inter-organizational learning is defined as the social process in which firms learn from each other and create knowledge together (Mokhtarzadeh et al., 2020). Network learning occuring in inter-organizational networks nurtures innovation since it gives companies access to various information and resources outside the organization. Collaboration enables complementary information from different organizations to be integrated and shared (Ahuja, 2000). Networks also directly foster innovation by providing knowledge and technical expertise knowledge as well as facilitating problem solving (Ahuja, 1996). Network liaisons contribute to firm survival, affect innovation output and indirectly augment performance (Brass et al., 2004). In addition to contributing to innovation, inter-organizational networks can also affect the competitive position of the firm. According to Hanna's results (2007), some firms affiliate with the network to strengthen their competitive posture rather than gaining access to resources. Networks, facilitating the synthesis of knowledge and the transfer of effective skills, are recognized as potential sources of learning (Beckman & Haunschild, 2002). Moreover, network learning outcomes lead to preponderant coordination, shared practices and the opportunity to improve partnership behavior (White, 2008). The examination of Mokhtarzadeh et al. (2020) stated that the innovation performance depends on the companies' knowledge actions based on collaborative work, for the environmental complexity is immense. It has also been observed that external connections that bring information to the network heighten technical success in innovation (Fukugawa, 2006). Shan et al. (1994) and Ahuja (2000) discovered that the collaborative relationships established by the firm are linked to innovation outputs (Paruchuri, 2010). The fact that innovation provides competitive advantage for companies, by bringing high profits and market share, has rendered the concept of innovation one of the pivotal topics in organizational research. In the light of the past examinations, considering that innovative

activities eventuate with the procurement of new knowledge, we argue that network learning capability, which is a learning competency effectuating at the inter-organizational network level, has a relation with innovation performance (White, 2008). Additional reasons for the inclusion of network learning capability in this research is the inadequacy of studies in the current literature apropos this learning skill and the fact that network learning ability has a valuable place in learning and innovation processes. Another notable notion that provides speed and flexibility to firms and whose positive effect on innovation has been proven by various past studies is open mindedness (Calantone et al., 2002; Hernandez-Mogollon et al., 2010). In previous studies, it has been remarked that open-mindedness advances learning, networking skills and the innovation potential of organizations. For this reason, we argue that open-mindedness, which is the basis of learning, has a positive effect on both network learning and innovation performance (Dukeov et al., 2020; Lord, 2015). Considering that open-mindedness, which attempts to modify the mental structures in the organization and the fundamental assumptions that guide behavior; is an indispensable part of an innovative atmosphere, we anticipate that it is a significant variable that needs to be analyzed with network learning and innovation performance (Hernandez-Mogollon et al., 2010). Thus this research also sheds light on the place of open-mindedness in the organizational research, a concept that is currently being studied more widely in the philosophical literature. Innovation performance which is another dimension involved in our research, can be designated as the output or impact of the innovation activities of the firm (Pan et al., 2019). In an effort to enrich the innovation performance literature, we postulate that innovation performance has a relation with open-mindedness.

The structure of this paper is divided into eight parts. Introduction section is followed by a conceptual background where we examine literature related to the concepts that constitutes our research model. After the conceptual background, research model and development of hypotheses is offered which is pursued by research methodology. Finally we offer discussion, implications, limitations, future research prospects of our study and conclusions.

2. Conceptual Background

2.1. Network Learning Capability

Network, which is a well-known concept in social sciences, is explained as a set of nodes consisting of people and organizations connected by a cluster of social relations (examples of these social relations include

transfer of funds, strategic alliances, cooperations, ties of friendship, economic relations etc.) (Bergenholtz & Waldstrom, 2011; Gulati, 1998). A network includes two or more connected sets of exchange relationships (Coviello & Munro, 1997). It is an assemblage of actors that includes large and small organizations, universities, research institutions, individuals, and inter-organizational relationships trying to achieve a certain goal of exchanging resources (Mokhtarzadeh et al., 2020). Networks are mechanisms for generating and conveying social capital as well as being entities that affect dissemination in an inter-organizational context (Ahuja et al., 2012). Networks also provide access to resources and capabilities outside the organization (Zaheer et al., 2010). Networks can be composed of companies that join together for a common purpose to cultivate innovation, for instance the Swedish YWOOD network is an example of manufacturing companies that coalesce to develop new products related to the wood industry (Thorgren et al., 2009). There are four categories of networks in organizational research; intra-organizational networks in which business units within the organization are organized in the network structure, network organizations characterized by flexibility and adaptability, legally independent organizational groups that are highly dependent on each other, and finally, a collection of organizations that are linked by similar activity or geographic proximity (Knight, 2002). Prior research underlined that networks are significant elements in the internationalization process by enabling organizations to combine their activities and resources (Mort & Weerawardena, 2006). Inter-firm networks are a set of legally separate but economically interconnected entities (Sydow & Windeler, 1998). Inter-firm networks are considered as information sharing tools where member firms utilize the network to transfer information and thus prevent many costs associated with inter-market information transfers (Gibb et al., 2017). Four motives to effectuate inter-organizational collaboration have been proposed; obtaining resources, reducing uncertainty, improving legitimacy and reaching common goals (Brass et al., 2004). Even though the concept of network learning is based on expanding the conception of organizational learning, it is not the equivalent phenomenon (White, 2008). Network learning capability is delineated as the qualification of the organization to create, combine and reconstruct technical and non-technical information obtained through external connections and institutions (Weerawardena et al., 2014). Although the concepts of individual, group and organizational learning are profoundly examined in previous studies, this type of learning that occurs at the fourth level (an inter-organizational network) is not sufficiently explored and analyzed in management literature (Knight, 2002; Knight & Pye, 2005).

Network learning is designated as learning by groups of organizations as a group (Knight & Pye, 2004). In order to be identified as a network learning, the process must generate a visible transition in the network characteristics (Knight & Pye, 2005). The changes in the properties of the network that were caused by network learning might be enumerated as interaction processes, structures and shared narratives (Knight & Pye, 2005). Network learning capability is beneficial for companies to develop and obtain information that is useful in a specific network context, thereby firms can obtain information from external sources and collaborate with other companies to create common knowledge, improve their applications and competencies (Gibb et al., 2017). Network learning capability encompassess the organization's ability to access extant networks and to develop new ones for internationalization via the vision and experiences of the founders (Weerawardena et al., 2014).

2.2. Innovation Performance

Innovation is specified as an idea, product, process, system or device that is perceived as new for the individual, people, group of companies, industrial sector or society as a whole (Hung et al., 2011). Innovation is a capital and a method for the organization to maintain competitive advantage (Wang & Ellinger, 2011). According to Drucker, who is envisaged as one of the first researchers to elucidate the momentousness of innovation, being innovative is an indispensable prerequisite for survival in a volatile and uncertain environment (Yeşil et al., 2013). According to the definition of Carnegie & Butlin, innovation is an existence new or developed that adds value directly to the company or its customer (Gloet & Terziovski, 2004). Furthermore innovation is a strategic alternative that ameliorates firms' competitiveness (Lee et al., 2008). Innovation can emerge in three comprehensive areas, including product, process and organization (Hung et al., 2011). According to the resource-based approach, the origin of the innovation performance of the organization is human capital (Wang & Ellinger, 2011). Although the concept of performance is generally associated with efficiency and effectiveness, innovation performance can be defined as the output or impact of the company's innovation activities (Pan et al., 2019). Innovation performance is anticipated to have a direct impact on firm performance (Alegre & Chiva, 2013). In former studies, innovation performance was generally measured by the number of new products, sales income of new products, and the number of patents (Pan et al., 2019). According to Schumpeter's classification, innovation performance measures can be grouped into five different categories; new products, new production

methods, new supply sources, the use of new markets and new approaches of organizing business (Inauen & Schenker-Wicki, 2011). Singh and Fleming's research (2010) has proved that collaboration in the form of a team or an organizational relationship enables a more detailed and meticulous selection of noteworthy ideas. Therefore, the likelihood that innovation will be useful increases when inventors are associated with an organization or a team, rather than the innovation that is the result of individual actions. As innovation is a process resulting of interactions between different actors, networks which facilitate the promulgation of information and resources are fundamental factors in the advancement of innovation (Zeng et al., 2010). Knowledge creation also has compelling effects on the speed, quality and quantity of innovation, accordingly innovation is frequently included in research on learning (Lundvall & Nielsen, 2007; Mardani et al., 2018).

2.3. Open Mindedness

Open-mindedness is a person's willingness to actively seek evidence against preferred beliefs, plans, goals, and to measure and ponder these evidences fairly (Cegarra-Navarro & Sanchez-Polo, 2011). According to another definition, it is expressed as the state of acceptance that one can always be mistaken (Riggs, 2010). Open-mindedness, a concept discussed mainly in the educational philosophy literature, is accepted by philosophers as an intellectual virtue as a way of maintaining cognitive contact with reality as well as being acknowledged as a vital feature of an educated mind (Taylor, 2016). In organizational research, open-mindedness refers to the ability of a firm to grasp and accept new ideas or to critically scrutinize its experience of creating new knowledge (Dukeov et al., 2020). Open-mindedness endeavours to reroute organizational values, norms and behaviors by changing the cognitive structures, thinking patterns and basic assumptions that guide behavior (Hernandez-Mogollon et al., 2010). Additionally, open-mindedness underlines the importance of everyone in the organization to voice their different opinions (Mitchell et al., 2012). Open-mindedness, which encourages questioning existing thoughts and practices, being open to new opportunities, sharing ideas and evaluating different perspectives, can be depicted as a tendency to take into account new and different views for the individual; nonetheless in the context of organizations it refers to creating an environment where the search for new knowledge and its adoption is valued (Cegarra-Navarro & Sanchez-Polo, 2011; Wensley et al., 2011). As open-minded employees are more creative and innovative, open-mindedness is a sought qualification in employees (Kmieciak, 2019). Obviously, to keep the organization alive the management team must be open to new opportunities

(Dukeov et al., 2020). Some of the elements that reflect the open-minded environment in an organization are; recognition of failure, ease of information flow, technology and relationships established with partners to acquire external information in order to create a developed organizational structure (Dukeov et al., 2020). It was suggested that managers can complement human resource practices by including open-mindedness among management tools (Wensley et al., 2011). Undeniably, an organization's capacity to create innovation is highly dependent on its internal context and thus on its open-mindedness (Dukeov, et al., 2020). As supported by Chesbrough's open innovation model, the advantages companies obtain from their internal R&D expenditures are decreasing, and it became clear that even though organizations spend less on R&D, they are able to innovate with the information coming from external sources (Laursen & Salter, 2006). Briefly, it is conspicuous in the current literature that open-mindedness plays a significant role in innovation and learning processes.

3. Research Model and Development of Hypotheses

The initial research model suggests that network learning capability plays mediator role in the relationship between open mindedness and innovation performance as shown in Figure 1.

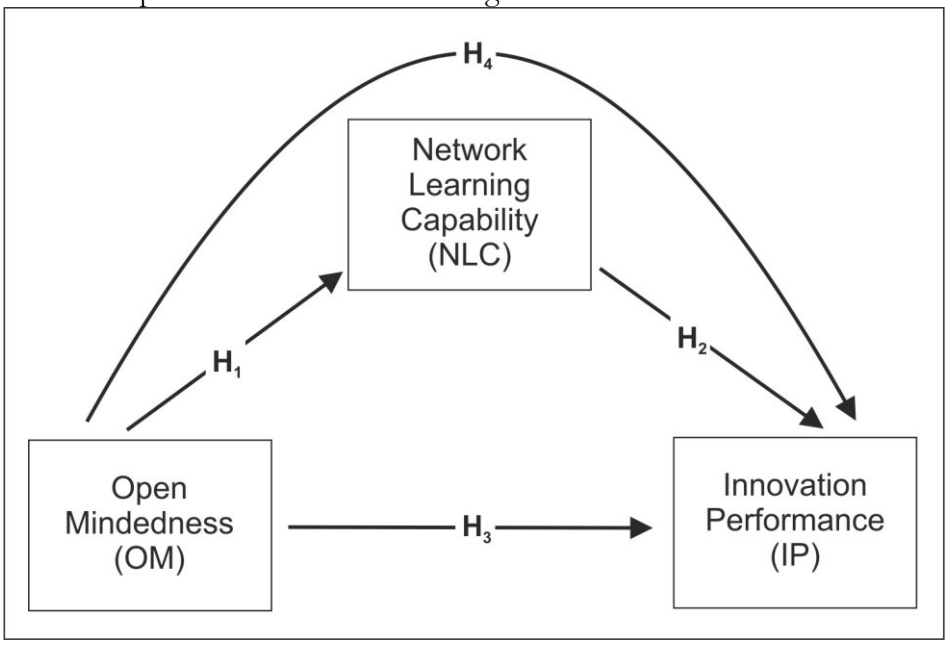


Figure 1. Initial Research Model

3.1. The Relationship between Open Mindedness and Network Learning Capability

In past research; it has been observed that open-mindedness increases learning and has a positive effect on group learning capacity (Lord, 2015). Furthermore, previous studies have declared that open-mindedness improves the company's networking capabilities by enhancing its innovation potential, R&D skills and its ability of adapting to new international environments (Dukeov et al., 2020). Although open-mindedness is considered as the basis of learning and understanding, empirical studies examining the relationship between open-mindedness and learning are in short supply (Lord, 2015).

The hypothesis was developed in the light of the existing literature as follows:

H_1: Open mindedness has a positive effect on network learning capability.

3.2. The Relationship between Network Learning Capability and Innovation Performance

Innovation is an intricate process that necessitates the flow of information between companies and other actors (Huggins et al., 2012). Past research has shown that organizational learning ability has a positive influence on organizational innovation performance (Wang & Ellinger, 2011). In addition, networks enable the creation of a more focused expertise by facilitating specialization and division of labor which stimulate innovation (Ahuja, 1996). Similarly, Alegre and Chiva's research (2008) indicates that learning has a noteworthy effect on innovation performance. Knowledge transfer literature also emphasizes the importance of information exchange between organizations on performance and innovation (Gibb et al., 2017). Knowledge is the main source of innovation as it promotes productivity and creation (Hung et al., 2011). Since knowledge and learning are eminent components of competitive advantage and innovation, the learning capacity of organizations became a central constituent in management research (Caseiro & Coelho, 2019). Doubtlessly, it is recognized that companies depend on their networks to develop and obtain useful information. Moreover, in previous studies, it was accentuated that the network positioning of the company should also be taken into account in innovation research (Lundvall & Nielsen, 2007). Networks accelerate the flow of information and enable structures that create opportunities for innovation (Popp et al., 2014). Furthermore, prior studies have shown that network collaboration or benefiting from external actors and resources has a positive

effect on innovation performance (Zeng et al., 2010). Thorgen et al. (2009) showed that larger networks achieve higher innovation performance. The network is identified as an innovation center as it provides timely access to information and resources while also testing internal learning ability (Powell et al., 1996). Recent research on innovation indicates that knowledge generation and innovation is an interactive process, accordingly companies rarely innovate alone (Lundvall & Nielsen, 2007). It is evident that the role of networks is at the forefront in innovation research (Laursen & Salter, 2006). The relationship between organizational learning and innovation performance, supported by previous studies, has prompted us to include network learning capability as a mediator variable in this study and to examine the relationship between network learning capability and innovation performance (Hung et al., 2011).

The hypothesis was developed in the light of the existing literature as follows:

H_2: Network learning capability has a positive effect on innovation performance.

3.3. The Relationship between Open Mindedness and Innovation Performance

Open-mindedness plays a major role in the first stage of the innovation process which is generating and collecting ideas, and additionaly it contributes to gaining competitive advantage and high organizational performance (Calisir et al., 2013). In the study of Hernandez-Mogollon et al. (2010), it was discovered that open-mindedness had a positive effect on organizational innovation. The findings of the study by Dukeov et al. (2020) also exhibit the notable impact of open-mindedness on organizational innovation activity in the firm. In a different preceding study, it was unveiled that open-mindedness is the the predictor of product and innovation efficiency (Calisir et al., 2013). Furthermore, it has been discerned that open-mindedness has an influence on customer satisfaction, both directly and indirectly, through the organizational innovation (Kmieciak, 2019). As innovation is correlated with a high degree of risk, it is essential for organizations to adopt more flexible structures as well as emboldening their employees to be creative by embracing a more open-minded attitude (Lee et al., 2008). Considering innovation is a learning process that seeks various and new solutions to problems, it depends on the organization's methods and capabilities of obtaining information (Alegre & Chiva, 2008). Since possessing effective mechanisms for idea creation in the organization

portrays a dominant role in the effectiveness of innovation, we included open-mindedness as a variable in this research (Dewangan & Godse, 2014).

The hypothesis was developed in the light of the existing literature as follows:

H_3: Open mindedness has a positive effect on innovation performance.

3.4. The Role of Network Learning Capability in the Relationship between Open Mindedness and Innovation Performance

Open-mindedness facilitates innovation by contributing to the exchange of ideas in the organization and to the creation of an atmosphere that values different ideas (Perin et al., 2016). Anterior explorations have revealed that open-mindedness bolsters organizational innovation (Hernández-Mogollon et al., 2010). Both open-mindedness and innovation performance depend on the learning processes of the firm. Organizations usually try to benefit from external information and sources of information in other organizations instead of innovating on their own (Batterink, 2008). Extensive innovations place a heavy emphasis on the learning process and the acquisition of knowledge from different sources (Perin et al., 2016). Furthermore network learning is one of the ways in which organization can augment its knowledge and talent with external resources in order to be able to innovate. By collaborating in networks, companies share information and gain new insights about the market (Peters et al., 2010). Networks aggrandize knowledge production and thence innovation by establishing a climate defined by communication and participation (Perin et al., 2016). For this reason; learning, open-mindedness, and innovation have always been interrelated concepts in prior research. In this paper we chose to explore the mediating role of network learning capability on open-mindedness and innovation performance, which has not been adequately studied in previous studies.

The hypothesis was developed in the light of the existing literature as follows:

H_4: Network learning capability plays mediator role in the effect of open mindedness on innovation performance

4. Research Methodology

This study is a quantitative cross-sectional research. In the survey, five-point ordinal Likert scale was used. This scale is ranging from strongly disagree to strongly agree. In order to determine the validity of the scales confirmatory factor analysis in AMOS was used after data purification which

was conducted by means of principle component analysis in SPSS. Structural equation modeling is a confirmatory statistical method (Byrne, 2010). Therefore, it was used to confirm the convergent validity of each construct (Civelek, 2018a). Afterwards, composite reliability and Cronbach α values were calculated to determine the reliability of the constructs. AMOS and SPSS statistics programs were used for the analyses. The mediator variable analysis was performed by applying the methodology invented by Baron and Kenny (Baron & Kenny, 1986).

4.1 Measures and Sampling

In order to measure the concepts in the research model, some scales in the literature were adapted. To measure network learning capability, the scale adopted from Weerawardena et al. (2014) was used. The scale taken from Akgün et al. (2009) was used to measure innovation performance. And finally, scales adopted from Daekwan et al. (2006) was used to measure open mindedness. 250 questionnaires were distributed and 198 valid questionnaires were collected from leading companies in Turkey. Convenience sampling method with voluntary response was used. The informed consent of participants was obtained and the research was carried out according to the The participants were notified that their answers remain anonymous. 149 of the respondents are middle level and 49 are top level managers.

4.2 Construct Validity and Reliability

As a preliminary study, principle component analysis was used to prufy the items. 12 prufied items were got after this process. Afterwards the confirmatory factor analysis (CFA) was carried out on the prufied items. CFA was used to detect the convergent validity of the constructs in the initial research model (Anderson & Gerbing, 1988). CFA model fit indicators reaches adequate degree: $\chi 2/DF = 2.477$, CFI=0.982, IFI=0.982, RMSEA= 0.087. CMIN is the most used indicator of the conformity of the acquired model and the initial model. $\chi 2/DF$ ratio is below the threshold degree of 3 (Civelek, 2018b). Furthermore, other fit indices are near their recommended and acceptable thresholds.

Table 1. Confirmatory Factor Analysis Results

Variables	Items	Standardized Factor Loads	Unstandardized Factor Loads
Innovation Performance (IP)	IP0105	0.654	1
	IP0104	0.745	1.117

	IP0101	0.926	1.524
	IP0103	0.954	1.518
	IP0102	0.995	1.580
Network Learning (NL)	NL0204	0.578	1
	NL0203	0.913	1.710
	NL0201	0.928	1.734
	NL0202	0.952	1.867
Open Mindedness (OM)	OM0312	0.848	1
	OM0310	0.715	0.854
	OM0309	0.849	1.056

$p<0.05$ for all items

According to the fit indices values of CFA analysis convergent validity of the scales was confirmed. As seen in Table 1, the standardized factor loads of each item reached the values larger than 0.5 and significant. For determining the discriminant validity of the constructs, the square roots of average variance extracted values (AVE) were obtained (indicated in the brackets in Table 2). Afterwards, AVE values compared with the correlation values of the constructs in the same column. As seen in Table 2, the values in the bracket were found larger than correlation values in the same column. These results confirmed the discriminant validity (Civelek, 2018b). To test the reliability of each construct the composite reliability and Cronbach α values were obtained. These values were found above the threshold (i.e. 0.7) (Fornell & Larcker, 1981). Table 2 presents the Composite reliabilities, Pearson correlation coefficients of the constructs, average variance extracted values, Cronbach α values, means, standard deviations.

Table 2. Descriptives Statictics, Correlations and Reliability

Variables	1	2	3
1. Innovation Performance	(.865)		
2. Network Learning	.466*	(.857)	
3. Open Mindedness	.231*	.261*	(.806)
Composite reliability	.935	.914	.847
Average variance ext.	.748	.734	.650
Cronbach α	.943	.913	.861

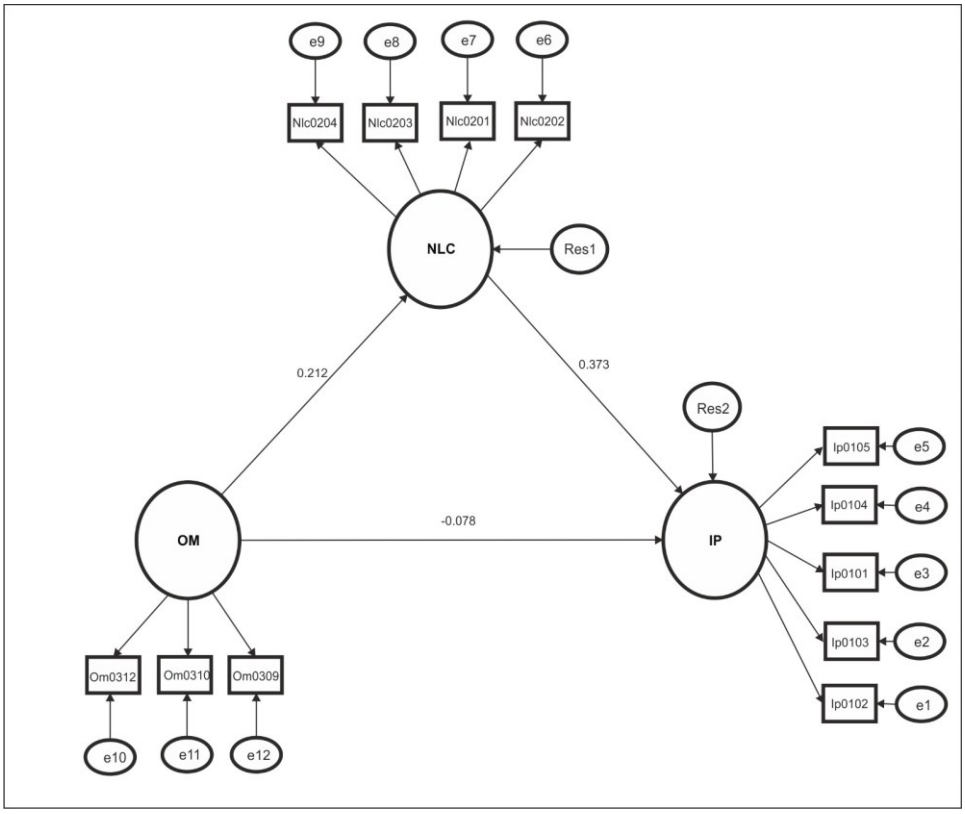
Mean	3.44	2.79	3.64
Standard Deviation	0.92	0.91	0.69

*p < 0.01
Note: Values in the bracket indicate the square root of AVEs.

4.3 Test of Hypotheses

In this study, structural equation modelling (SEM) is used to test the hypotheses put forward in the initial research model. The estimation method was chosen as Maximum likelihood. Firstly, the goodness-of-fit indices of the model were evaluated according to the threshold values mentioned in the literature. In this process, the most preferred absolute and relative fit indices were evaluated. These fit indices are RMSEA, $\chi 2$, the comparative fit index (CFI) and the incremental fit index (IFI).

As Figure 2 indicates, fit indices were found satisfactorily. $\chi 2/DF$ value was found as 2.854 in the acceptable level (i.e. between 0 and 3). CFI and IFI are 0.975 and 0.975, respectively. RMSEA is 0.097. The results determine that the model has adequate fit. As listed in Table 3, H_1, H_2, H_3 and H_4 were supported. These results of the tests supported a positive and significant relationship between open mindedness and network learning capability, between network learning capability and innovation performance.



Note: $\chi 2/DF = 2.854$, CFI = 0.975, IFI = 0.975, RMSEA= 0.097

Figure 2. Results of SEM Analysis of Model 3

The mediator analyses were performed according to the method suggested by Baron and Kenny (Baron & Kenny, 1986). As a prerequisite of this method, correlation values among the variables should be significant (Baron & Kenny, 1986). Correlations among the variables were found as significant. In the Table 2, correlation values are indicated. Hypotheses were tested in below 3 models:

Model 1: IP = β0 +β1.OM + € (used for testing H_3)

Model 2:NL = β0 + β2.OM + € (used for testing H_1)

Model 3: IP = β0 + β1.OM + β2.NL + € (used for testing H_2 and H_4)

Table III Hypotheses Test Results

Relationships	Model 1	Model 2	Model 3
Open Mindedness (OM) → Innovation Performance (IP)	0.191*		-0.078
Open Mindedness (OM) → Network Learning (NL)		0.263*	0.212*
Network Learning (NL) → Innovation Performance (IP)			0.373*
Fit Indices	$\chi 2/DF= 3.490$ CFI=0.983 IFI=0.983 RMSEA=0.092	$\chi 2/DF=1.785$, CFI=0.993 IFI=0.993 RMSEA=0.063	$\chi 2/DF=2.854$, CFI=0.975 IFI=0.975 RMSEA=0.097

Note: Path coefficients are standardized
*$p < 0.01$

As seen in Table 3, H_4 was supported. This is proved as follows: After NLC was included into the model, the relationship between OM and IP turned out to be insignificant. This result showed that NLC mediates the relationship between OM and IP. Figure 2 shows the results of SEM analysis after inclusion of all the constructs into the model 3.

5. Discussion

This research can provide meaningful contribution to the existing literature by disclosing the mediator duty of network learning capability in the relationship between open-mindedness and innovation performance. Earlier studies have demonstrated that organizational learning ability and inter-organizational knowledge exchange have positive effects on innovation and innovation performance (Gibb et al., 2017; Wang & Ellinger, 2011). Additionally, the positive influence of network collaboration and outsourcing on innovation performance has been pointed out in previous studies (Zeng et al., 2010). Our findings as well, which are in line with the results of former examinations, highlight a positive and critical relationship between network learning capability and innovation performance. It was illustrated in prior studies that the open-mindedness also advances learning, enhances the networking and R&D skills of the firm (Dukeov et al., 2020). In accordance with this information, our findings support the current literature indicating that a positive and significant relationship exists between open-mindedness and network learning capability. As a result of hierarchical analysis of data gathered by 198 valid questionnaires answered by middle or

senior managers of leading companies in Turkey, all our hypotheses are accepted. Accordingly the mediator role of network learning capability in the relationship between open-mindedness and innovation performance has been clarified.

6. Implications

Current surge in uncertainty and global competition prompt companies to cooperate. The impact of innovation performance on the survival and sustainability of the organization, incites company executives to hunt for routes to ameliorate organizational innovation activities. In accordance with previous studies, our research reinforces and emphasizes the importance of these issues. For this reason, we believe that it will provide influential insights to managers. Managers, especially R&D and product managers, should promote and encourage inter-organizational learning. As also stated by past research, understanding the importance of network learning ability, network dynamics, and open-mindedness can offer valuable guidance to managers (Gulati, 1998). Furthermore, management crew possesses a fundamental role in creating and maintaining organizational open-mindedness. As suggested by Cegarra-Navarro & Cepeda-Carrión (2008), managers should bolster proactive modifications in beliefs and routines in order to respond to environmental changes. Other authors working on this subject also accentuated the significance of creating a flexible environment that is tolerant of mistakes, which inspires individuals to acquire new skills and habits, and supports risk taking (Hernandez-Mogollon et al., 2010). The findings of our study, which are in accordance with these past studies, also suggest that executives should promote collaboration among other organizations and bolster open-mindedness. Since managers play a major role on the company's survival, competitive position and sustainable success; they should praise openness to new ideas, creativity, critical thinking, and questioning old knowledge and processes. The management team should consider how existing rules, procedures and technologies can be modified to encourage increased innovation output.

7. Limitations and Future Research

Conducting research among Turkish firms is considered as a limitation of the study. Therefore future research is encouraged to be conducted with longitudinal data collected from different countries. Since the relationship between open-mindedness and innovation may differ according to different cultures, we recommend future studies to adopt an

intercultural perspective. Comparative studies between countries can be useful as well for advancing research concerning the mediator impact of network learning in the relation between open-mindedness and innovation performance. The impact of innovation on firm performance has been demonstrated by various past studies (Greco et al., 2016; Gunday et al., 2011; Thornhill, 2006; Tuan et al., 2016). Although we emphasize in this paper the importance of network learning, open-mindedness, and innovation performance on firm success; future studies can enrich this research model by adding firm performance into the empirical research. Therefore, we invite scholars to explore the impact of open-mindedness and network learning on firm performance through innovation performance as well. Additionally, we propose that these subjects should be further elaborated and enriched by using qualitative methods in similar future studies.

Network is a very comprehensive subject and has been widely discussed in different literatures such as strategic management, organizational theory, communication, psychology, and sociology (Provan et al., 2007). In general, resource dependency theory and transaction cost theory are associated with the notion of network in the extant literature. The resource dependency theory emphasizes that organizations are not self-sufficient and depend on their environment to reach the resources they need, as the open system approach predicts (Turunç & Turgut, 2017). The findings of our study also support the resource dependence theory. Subsequent studies can analyze these topics through the lens of neo-institutional theory and organizational ecology perspective.

8. Conclusions

In conclusion, this article offers worthwhile information to the literature by acknowledging the crucial role of network learning capability and open-mindedness on innovation performance. In this manner, it has once again been affirmed that the ways of acquiring knowledge and learning are indispensable focal points in the innovation process. Furthermore, it has been authenticated that innovative firms should put more emphasis on the concepts of open-mindedness and network learning capability. Our findings give support to the resource dependency theory and create valuable contribution to both managers and future researchers.

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