



The role of organizational innovation climate on the association between learning culture and resilience*

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ABSTRACT

The objective of this research is to establish a theoretical and empirical connection between organizational resilience and its proposed precursors, i.e., organizational learning culture and innovation climate, and elucidate how these factors can contribute to the development of resilience within companies. This study examines learning culture and innovation climate as organizational resources that lead to success. The hypotheses formulated in light of relevant literature are tested using quantitative data obtained from a questionnaire given to managers from small or medium-sized companies and also larger companies in Türkiye. The empirical data is analyzed and the results suggest that innovation climate mediates the association between learning culture and organizational resilience.

Öğrenme kültürü ve kurumsal dayanıklılık arasındaki ilişkide inovasyon ikliminin aracı etkisi

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ÖZ

Bu çalışmanın amacı, örgütsel dayanıklılık kavramını örgütsel öğrenme kültürü ve inovasyon iklimi gibi önerilen öncülleriyle teorik ve ampirik olarak ilişkilendirmek ve bunların kuruluşlar için dayanıklılık oluşturmaya nasıl yardımcı olabileceğini açıklamaktır. Bu bağlamda bu çalışma, inovasyon iklimi ve öğrenme kültürünü başarıya katkıda bulunan örgütsel kaynaklar olarak ele alarak kaynak temelli bakış teorisine katkıda bulunmaktadır. Türkiye'deki işletmelerin orta düzey yöneticilerine uygulanan anket yoluyla toplanan nicel veriler, ilgili literatür ışığında geliştirilen hipotezleri test etmek için kullanılmıştır. Sonuçlar, inovasyon ikliminin örgütsel öğrenme kültürü ve örgütsel dayanıklılık arasındaki ilişki üzerindeki aracı etkisine yönelik destekleyici ampirik kanıtlar sağlamıştır.

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1. Introduction

Today's dynamic and unstable business world presents organizations with opportunities and risks. Positive and/or negative change is now a normal aspect of organizational life, and organizations and organizational studies academics are increasingly concerned with surviving in such an environment. In fact, businesses have frequently found that merely surviving is insufficient and that in order to meet these challenges, they may find themselves under more pressure to achieve even greater results. The recent Covid-19 pandemic can be considered a resilience test for organizations in many regards, such as human resources policies, supply chain management, and operations. In organizational studies, resilience has recently come to be more and more recognized, and scholars have begun to use the term resilience more and more in their writing. According to Burnard and Bhamra (2011), resilience is a component of both human and organizational responses to issues and disruptions. The purpose of this study is to provide an explanation for how the development of specific organizational attributes can help companies increase their capacity for resilience. The objective of this study is to establish a theoretical and empirical connection between the notion of organizational resilience and its proposed antecedents, namely learning culture and innovation climate, and elucidate how these factors can contribute to the development of latent resilience within companies.

To achieve this goal, this study makes an effort to statistically examine the factors that precede organizational resilience and explain how these factors contribute to resilience. By explaining how proposed precursors lead to organizational resilience, this study will contribute to the understanding on resilience.

2. Literature survey

Below are explanations and literature review on organizational resilience, organizational learning culture, and innovation climate are provided. Together, these constructs are widely explored in the literature, offering insights into how organizations navigate change, foster development, and maintain competitiveness in dynamic environments.

2.1. Organizational resilience

Research on organizational resilience acknowledges the unpredictability and uncertainty of business activities and points to the need for an adaptive approach (Andersson, Cäker, Tengblad, and Wickelgren, 2019). Several studies have defined resilience within an organizational context (Mallak, 1998; Tasic, Amir, Tan, and Khader, 2020; Burnard and Bhamra, 2011); others have regarded resilience from an industrial perspective (McCullough, 2008; Biggs, 2011); and some others conceptualize resilience from a social perspective (Graugaard, 2012; Boin and McConnell, 2007; Adger, 2000; Cox, 2012). According to Borekci, Rofcanin, and Sahin (2014), the fundamental tenet of resilience is an organization's ability to rebound to endure difficult times. Organizational resilience has been considered from different perspectives as capability, capacity, characteristics, behavior, outcome, and even a strategy (Hillmann and Guenther, 2021). According to Langnick-Hall and Beck (2003), resilience may be considered a pattern rather than a set of exercises that must be followed in response to changes or unfavorable circumstances.

Organizational resilience, according to Kantur and Iseri-Say (2012), is an internal change that involves the organization's 'renewal and absorption' of any unfavorable circumstances. Thus, the four characteristics of resilient organizations are robustness, redundancy, resourcefulness, and speed. The interplay of particular behavioral, environmental, and cognitive elements produces an organization's resilience potential (Langnick-Hall and Beck, 2009).

2.2. Organizational learning culture

Organizational learning culture, by definition, is that which can create, acquire, and transfer knowledge as well as modify one's own behavior to take into account freshly gained insights (Garvin, 1993). Similarly, Bates and Khasaweh (2005) claimed that organizational learning culture fosters knowledge gathering, learning growth, and continuous learning while also advancing organizational development. Strong learning cultures enable organizations to effectively generate, acquire, and transmit

knowledge while undergoing internal transformations to incorporate the information gained (Skerlavaj et al., 2010).

After reviewing a number of research (e.g., Marquardt, 1996; De Fillippi and Ornstein, 2005; Gilley and Maycunich, 2000), Song and Kolb (2009) made the case that learning culture is primarily dependent on the ongoing process of organizational learning. According to Rebelo and Gomes (2011), a learning organization ought to have a cultural inclination toward learning, or what is known as learning culture. The primary goals of a learning culture are to facilitate knowledge acquisition and exchange for the advancement of the organization. Organizational attitudes and ideas around the importance of learning reflect this culture (Bates and Khasawneh, 2005). Harvey, Palmer, and Speier (1998) characterized a learning culture as one that encourages experimentation, welcomes constructive criticism, owns up to mistakes, and fosters candid communication. Organizations with a well-established learning culture are successful in producing, acquiring, and disseminating knowledge, as also mentioned by Kalyar and Rafi (2013). As a result, these businesses successfully alter their behavior in response to the fresh information and understanding.

2.3. Innovation climate

As stated by Sarros, Cooper and Santora, (2008), in order to companies to effectively meet the dynamic requirements of the modern environment, they need to be more adaptable, creative, flexible, and entrepreneurial. This study proposes to leverage organizational innovation climate as a mediating variable. Innovation climate was specifically chosen, as any idea related to climate reflects the respondents'—in this case, mid-level managers'—perceptions of the given concept. As a result, it is crucial and beneficial to use 'climate' to gauge respondents' opinions of innovation. Numerous research (Patterson, West, Shackleton, Dawson, Lawthom, Maitlis and Wallace, 2005; Kanter 1983; Amabile, 1996) have also suggested that an organization's innovation capacity is explained partly by its organizational climate.

The innovation-friendly environment is a key factor in determining innovation, according to numerous empirical research. A culture that fosters innovation is essential to organizational innovation (Isaksen and Akkermans, 2011). Companies with an inventive work environment are believed to produce more innovative products. The degree to which innovative ideas are encouraged and put into practice in a company is influenced by the climate as seen by its employees (Kheng, June and Mahmood, 2013). Additionally, studies showed that inventive companies appeared to have a positive workplace culture. An organization's atmosphere is considered creative if it places a strong emphasis on rewards, permits independent work, prioritizes training, and gives staff feedback (Hartmann, 2006). According to Hoff (2009), The aspects of an organization's culture that promote innovation or prevent barriers to it are referred to as the innovation climate.

3. Theoretical framework and hypotheses development

Similar to Do, Budhwar, Shipton, Nguyen, and Nguyen (2022), the theory of dynamic capabilities and the resource-based view are the main theoretical frameworks of this study. The resource-based view places a strong emphasis on the resources that businesses have as assets that support organizational success (Penrose, 1959). According to Barney (1991), organizational resources are all the assets, capacities, procedures, knowledge, and other things that are under the organization's control and that help it identify and put into practice methods that increase its efficacy and efficiency. Moreover, dynamic capabilities theory focuses on innovation which highly matters in unstable and uncertain situations (Teece, 2007).

Because both theories comprise learning and innovation capabilities as resources that contribute to organizational competitiveness and success, they are cited as the theoretical foundations for this study. Dynamic capabilities are change agents that help businesses assess what adjustments to resources and capabilities are required to stay competitive in ever-changing settings (Wilden, Gudergan, Nielsen, and Lings, 2013). In a similar vein, Gnizy, Baker and Grinstein (2014) saw dangers to an organization's ability to continue operating in dynamic contexts coming from the lack of dynamic skills. According to Ambrosini and Bowman (2009), academics should be further motivated to incorporate the dynamic capabilities approach into other related domains, including knowledge management, innovation,

organizational development, and learning. Organizational learning is the basis of organizational success, and as such, learning is essential to maintaining an organization's competitive advantage (Ho, 2008).

Learning can play an important role in the formulation of resilience, which is defined as a capacity developed to deal with changes as well as crises. Actually, organizational resilience was defined by Duchek, Raetze and Scheuch (2020) as the capacity to deal with and learn from unforeseen occurrences, hence promoting organizational change. Furthermore, since resilience is an ongoing ability, learning should be embedded into culture in order to potentially increase the learning's persistence. An essential component of organizational resilience is a robust culture. Although Fietz, Hillmann and Guenther (2021) linked resilience to a wider national culture, Borekci et al. (2014) also found an association between culture and resilience in their research. The body of research on resilience indicates a strong correlation between crisis management and learning (Roux-Dufort, 2000; Stern, 1997). Accordingly, in order to increase organizational adaptability and competitiveness, resilient firms must amass knowledge resources (Mafabi, Munene and Ntayi, 2012). Organizational resilience is influenced by the processes and dynamics that produce and preserve resources, as noted by Burnard and Bhamra (2011). Resilient responses to obstacles are made possible by positive organizational concepts (Gunderson, 2000; Walker, Carpenter, Anderies, Abel, Cumming, Janssen, Lebel, Norberg, Peterson, and Pritchard, 2002).

Therefore, the resource-based view and dynamic capabilities are the theoretical foundations of this study. They contend that organizational learning cultures and climates for innovation foster the development of dynamic capabilities that enable companies to add to their resilience capacity and be ready for unforeseen transformations without collapsing. The purpose of this study is to provide an explanation for "how" organizations might increase their capacity for resilience by cultivating specific organizational attributes. The aim of this study is to establish a theoretical and empirical connection between the notion of organizational resilience and its proposed antecedents. Additionally, it aims to elucidate how organizational attributes such as organizational learning and an innovative atmosphere can facilitate the development of latent resilience within companies. Based on this, this study will consider resilience from a competency perspective.

The following hypotheses are proposed in this study:

H1: Learning culture has a significant and positive impact on resilience.

H2a: Organizational learning culture has a significant and positive impact on the innovation climate.

H2b: Innovation climate has a significant and positive impact on resilience.

H3: Innovation climate mediates the association between learning culture and resilience.

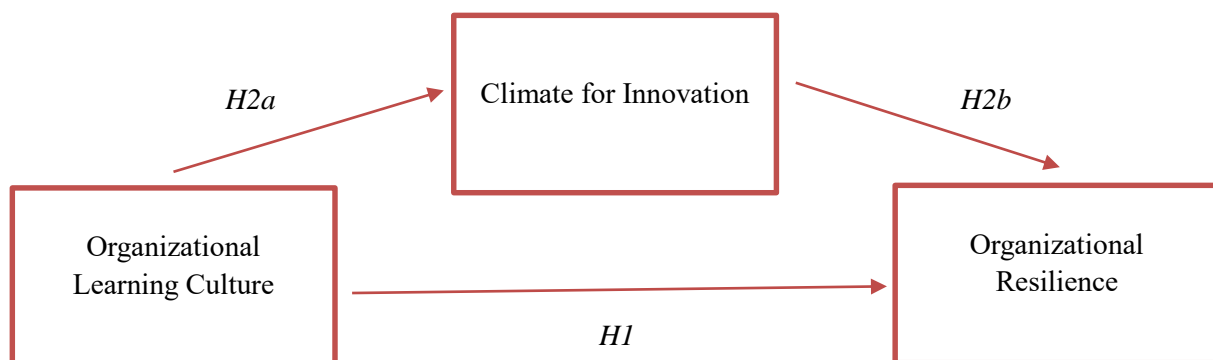


Figure 1. Research model

4. Research design and methodology

4.1 Sample

For every organization in the study sample, at least three mid-level managers received the questionnaire items listed below. The average of all the managers' responses from a particular organization was determined and taken into account for the statistical analysis in order to prevent subjective reactions. In this study, mid-level managers with two years of experience at minimum were requested to fill out the questionnaires. Ethics Committee Approval has been obtained for this research with the 28 February 2017 dated and SBB-EAK 2017/2 numbered decision of Boğaziçi University. The sample size is 250 mid-level managers from 101 companies listed among the top 500 companies in İstanbul Chamber of Industry (ICI). As İstanbul is the most important industry city of Türkiye and most headquarters are based in İstanbul, it is regarded to effectively resemble the characteristics of most Turkish companies. Among the participating companies, 26% of the companies are from the manufacturing sector, and 74 % are from service.

4.2 Measurement

In this study, resilience was measured with the 12 items scale developed by Kantur and Iseri-Say (2015).

The 7-item scale developed by Marsick and Watkins (2003) is used to measure learning culture. After reviewing the various viewpoints on learning organizations in the literature, Ortenblad (2002) concluded that the only theoretical framework that addressed the majority of the idea was Watkins and Marsick's (1993) framework.

Finally, innovation climate is estimated using a 22-item scale developed by Scott and Bruce (1994) using a 5-Likert scale.

5. Findings

The statistical tools utilized are and SPSS AMOS and IBM SPSS Statistics 23. Exploratory (EFA) and confirmatory factor analyses (CFA) are administered to determine which variables share a common variance and are thought to be related to a particular component. To begin with, EFAs are carried out using IBM SPSS Statistics 23 for the scales that will be employed in this investigation. The following CFAs are used to validate the factor structures that were produced by the EFA using SPSS AMOS 23. Reliability analyses are carried out, and structural equation modeling is conducted for mediation analysis.

This study used the 12-item resilience measure created by Kantur and Iseri-Say (2015). The resultant KMO value was 0.88. This implies that factor analysis results applied to the most recent questionnaire data will be valuable and significant. The Bartlett test results demonstrate a high degree of significance in the correlations between the items, indicating that the data is appropriate for factor analysis. Following the completion of the EFA, the number of items was reduced from 12 to 10. Based on a validity examination of ten items, two sub-factors with loadings of .50 and higher were identified. Accordingly, 1. The factor is labeled as 'organizational strength', and 2. The factor is labeled as 'organizational commitment to change.' All of the item loadings scored above 0.50.

This study uses the 7-item learning culture scale created by Marsick and Watkins (2003). The value obtained for the KMO was 0.91. This implies that factor analysis results applied to the questionnaire data are valuable and significant. The Bartlett test results demonstrate a high degree of significance in the correlations between the items, indicating that the data is appropriate for factor analysis. All item loadings scored above 0.60.

This study makes use of the 22-item innovation climate measure created by Scott and Bruce (1994). The value obtained for the KMO was 0.94. This implies that factor analysis results applied to the most recent data will be valuable and significant. The Bartlett test scores demonstrate a high degree of significance in the correlations, indicating that the data is appropriate for factor analysis. Six items had to be deleted as a consequence of the exploratory factor analysis. Two sub-factors were identified from the examination of sixteen items, all of which had loadings of .50 or higher. Together the two

subfactors resulted to explain 54.82% of the total variance. Accordingly, 1. The factor is named 'recognition of new idea', and 2. The factor is named as 'encourage for creativity.' All item loadings scored above 0.60.

5.1. Confirmatory factor analysis

For further validity testing, AMOS 23 was used for CFA. CFA validates the factor structure discovered with EFA. Specifically, CFA was carried out to corroborate the dimensionality discovered through EFA and provide further details regarding the validity and reliability of the scales. The a priori factor was used to specify the loadings for each item.

Examining the goodness of fit index values for organizational resilience reveals a good and acceptable fit, according to the findings. The values of χ^2/df are less than 3, the GFI and AGFI are greater than 0.90, the IFI, TLI, and CFI are greater than 0.95, the RMSEA is less than 0.08, and the SRMR is less than 0.05. Accordingly, this scale can be applied in this research.

An analysis is conducted on the proposed measurement methodology to validate the proposed seven-item scale. The analysis concluded that the model fits data well and is validated. Upon examining fit index values for the model, it is noted that every result indicates a good fit. RMSEA and SRMR are below 0.05; GFI and AGFI are above 0.90; IFI, TLI, and CFI are above 0.95; and the χ^2/df value is less than 3. As a result, this study may employ the suggested scale.

After analyzing the measurement model, which was recommended in order to confirm the proposed 16-item scale with two sub-factors, it was found that all results showed satisfactory fit, with the exception of χ^2/df , GFI, and SRMR. The SRMR value is less than 0.05, the GFI, IFI, TLI, and CFI values scored above 0.90, and the χ^2/df value is less than 3. Results for a satisfactory fit are provided by RMSEA (0.07) and AGFI (0.87) values. Thus, the proposed scale can be used to this research.

5.2 Reliability analysis

The reliability analysis results for each variable that was performed prior to finishing the confirmatory factor analyses are provided in Table 1 below.

Table 1

Reliability results

	Number of Items	Cronbach Alpha	Reliability Levels
Organizational Resilience	9	0.88	High
F1 Organizational Strength	5	0.84	High
F2 Organizational Commitment to Change	4	0.76	Normal
Organizational Learning Culture	7	0.86	High
Innovation climate	16	0.92	High
F1 Recognition for New Ideas	8	0.89	High
F2 Encourage for Creativity	8	0.87	High

Accordingly, the reliability analysis indicates that the Innovation climate scale has a high degree of reliability ($\alpha=0.92$), as do its subfactors 'Recognition for New Ideas' ($\alpha=0.89$) and 'Encourage for Creativity' ($\alpha=0.87$). The Organizational Learning Culture scale, comprising seven items, also has a high degree of reliability ($\alpha=0.86$), and the Organizational Resilience scale has a high degree of reliability ($\alpha=0.88$), along with its subfactors 'Organizational Strength' and 'Organizational Commitment to Change'.

5.3 Hypotheses testing

Using the enter method, simple linear regression is carried out to examine the impact of learning culture and innovation climate on the resilience. Structural equation modeling is used to investigate if an environment that fosters innovation has a moderating influence on the connection between organizational learning culture and resilience.

Initially, a multiple linear regression model is developed to determine how resilience is impacted by learning culture and innovation climate. First, the relationship between the innovation climate and organizational learning culture is examined. Given the strong correlation between the two variables, they are examined separately using straightforward linear regression analysis rather than being included in the model simultaneously. The effect of learning culture on resilience was examined using simple linear regression analysis, and the results reveal that the regression model is significant ($F=105.49$; $p<0.001$). Accordingly, the organizational learning culture component of the model explains 52% ($R^2 = 0.52$) of a change in organizational resilience. The independent variable, the organizational learning culture coefficient, is statistically significant. Organizational resilience benefits from an organizational learning culture. This demonstrates the statistical evidence for Hypothesis 1, which claims that learning culture has an effect on resilience.

Second, the regression model results as statistically significant ($F=175.70$; $p<0.001$) based on the simple linear regression that was used to examine the impact of learning culture on the innovation climate. Thus, an organizational learning culture may explain 61% of the innovation climate. This demonstrates the statistical support for Hypothesis 2a, which claims that learning culture significantly has an effect on the innovation climate.

Thirdly, the findings of the simple linear regression model demonstrate the statistical significance of the relationship between resilience and the innovation climate, as proposed in Hypothesis 2b ($F=293.35$; $p<0.001$). Accordingly, the model's innovation climate accounts for 75% ($R^2 = 0.75$) of the variation in organizational resilience. As an independent variable, the climate coefficient for innovation is substantial. This means that resilience benefits from an innovative climate. This demonstrates the statistical support for Hypothesis 2b, which claims that an innovative environment has an effect resilience.

Organizational learning culture is the predictor, organizational resilience is the dependent variable, and the innovation climate has the mediating role in the significant association between learning culture and organizational resilience. The sub-dimensions are not included in the analysis, as the study mainly investigates the associations between the main variables.

Table 2

Results for the *mediation model*

Mediation Hypothesis	Without Mediation	With Mediation	Mediation Type
Org. Learning Culture - Innovation climate - Org. Resilience	0.78 (0.00)***	0.11 (0.19)	Full mediation

***: $p<0.001$

First, the significance of the direct effect is examined in the absence of the mediating variable, as shown in Table 2. The outcome is displayed in the first column without the mediating variable. The values display the standardized direct effects, and the effect is statistically significant.

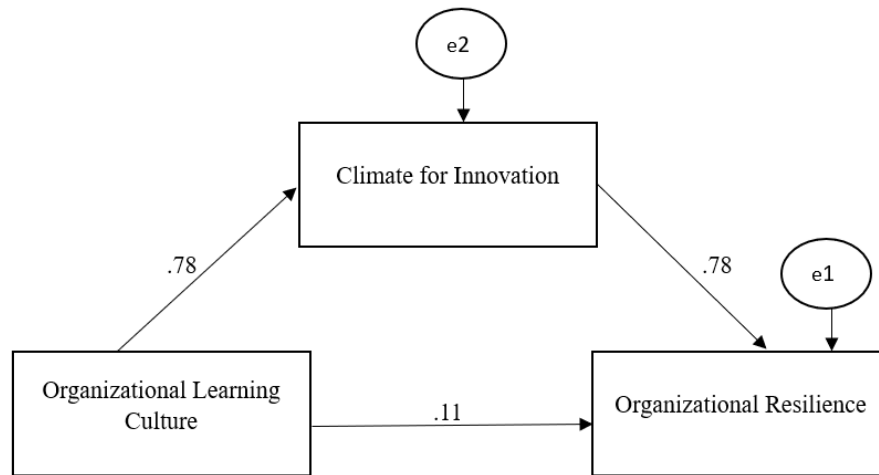


Figure 2. Research model with analysis values

The analysis provides support for Hypothesis 3 (H3), which contends that the organizational innovation climate has a significant mediating role in the association between learning culture and resilience. Thus, it can be contended that the impact of learning culture on resilience can be explicated further with the mediating role of an innovative climate.

6. Discussion and conclusion

This study has aimed to investigate how organizations can build resilience so that they would be ready for any change or crisis that may arise in the future. The statistical analyses conducted in this study on organizational resilience identified a two-factor structure, with the sub-factors known as ‘organizational strength’ and ‘organizational commitment to change’ as the main components. The literature on organizational resilience actually presents a two-pronged debate. While some scholars (e.g., Lengnick-Hall and Beck, 2003) contend that resilience has an orientation for change by generating new opportunities, other studies (e.g., Sutcliffe and Vogus, 2003) assert that resilience is about safeguarding the organization throughout the change. This indicates that while some researchers believe that companies must adapt to the demands of change, others believe that resilient organizations are those that can successfully maintain their strength and remain unaltered in order to avoid destruction. The scale proposed by Lengnick-Hall and Beck (2003) is an example of a measure that explicitly uses the learning-oriented approach. As a result, organizational resilience relates more to the ability to take advantage of and grow from unforeseen circumstances. The scale items were already learning-oriented, so there was no reason to adapt it. Moreover, since the study would also examine the impact of learning culture on resilience, multicollinearity issues would likely arise and there would be no meaningful results. Considering this discussion, this study has used the scale created by İşeri-Say and Kantur (2015) and the analyses reflected the two dimensions suggested.

According to Hung, Lien, Yang, Wu, and Kuo (2011), organizational learning increases knowledge capacity, which leads to improved inventive performance. A statistically significant result was obtained when the innovation climate was proposed as the mediating variable on the association between organizational learning culture and organizational resilience. In addition, the climatic subfactors for resilience and creativity were employed in later mediation analyses. The findings showed that, as subfactors of the innovation climate, the association between learning culture and organizational strength—one subfactor of resilience—is partially mediated by both encouraging creativity and recognizing innovative ideas. Furthermore, the relationship between organizational learning culture and organizational commitment to change, which is the other subfactor of resilience, is entirely mediated by both subfactors of the innovation climate. These results are in line with the related hypothesis, which holds that the relationship between learning culture and resilience is mediated by an environment that fosters innovation.

The findings of this study are believed to have contributed to the related theory and research. The antecedents of organizational resilience, which are receiving more and more attention from organization researchers as a result of the recent increase in corporate environment dynamics, are explained empirically by this study. As previously said at the outset of this study, empirical investigations examining the antecedents of resilience have been relatively limited despite the fact that the amount of research on organizational resilience is increasing.

This research acknowledges the influence of climate on creativity in the connection between resilience and learning culture. According to the RBW, resources are important for organizations as assets that contribute to their success (Penrose, 1959). This study adds to the resource-based view in this way by examining learning culture and innovation climate as resources that lead to success. This study supports the idea of ongoing capability renewal and development in order to improve the organization, as seen from the dynamic capabilities perspective. According to the dynamic capabilities theory, in order to increase organizational resilience, organizations must cultivate and renew their innovative culture and innovation capacities. With the help of dynamic capabilities, a company may adapt to shifting market conditions by growing and updating its organizational capabilities, which gives it a competitive edge that it can maintain.

In summary, this research offered corroborated empirical support for the theoretically mediated relationship between resilience and learning culture via innovation climate. Resilience is emerging as a crucial concept in upcoming organization studies, having been lifted from various fields of study. The reason for this is that advances in technology and international business practices have made the corporate environment more dynamic and ever-changing than before. In summary, it can be maintained that organizational resilience has a major role in economic performance and that further research is therefore required to determine how businesses may become more resilient. This study was an attempt to address this "how" factor, and it found that fostering a culture of learning integration is crucial to resilience development. The more important argument, though, is that the existence of an environment that fosters creativity best explains this effect.

Author statement

Research and publication ethics statement

This study has been prepared in accordance with the ethical principles of scientific research and publication.

Approval of ethics board

Ethics Committee Approval has been obtained for this research with the 28 February 2017 dated and SBB-EAK 2017/2 numbered decision of Boğaziçi University.

Author contribution

This study has one author.

Conflict of interest

There is no conflict of interest arising from the study for the authors or third parties.

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