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The impact of ethical leadership on service innovation behavior: The mediating role of psychological capital

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Abstract

Purpose – Ethical leadership is at the forefront of what matters in today's business life and current issues, with a view to making strong moral decisions through bilateral communication. Service innovation behavior is important in terms of individual and institutional actions in the process of producing and implementing new ideas. Investigating the mediating role of psychological capital which consists of self-efficacy, optimism, hope and psychological endurance dimensions, between ethical leadership and service innovation behavior, is a matter to be investigated. This study aims to assess the impact of ethical leadership on service innovation behavior by means of a comprehensive literature review. In this framework, psychological capital forms the scope of researching the mediating role.

Design/methodology/approach – This study was conducted with 376 blue-collar workers randomly selected from 140 company which were selected from 1,294 joint stock companies among 76,882 companies operating in the province of Adana in Turkey and registered in the Adana Chamber of Commerce, by applying a questionnaire of 40 items.

Findings – As a result of the factor analysis, 6 items which could not provide reliability were extracted from the scale and the remaining 34 items were distributed in three factors and the validity of the construct validity was measured by the convergence and divergence methods. Construct reliability (CR) values were found to be statistically significant (SRMR: 0.50, RMSEA = 0.058, IFI: 0.955, CFI = 0.97, GFI = 0.96, AGFI = 0.86, TLI = 0.97, χ^2/s.d. = 2.264) when it was above 0.7, and the structural equation model determined that the research data and the initially determined model are compatible. Ethical leadership has a significant effect on psychological capital ($\beta = 0.224$, $p < 0.001$), ethical leadership has a significant effect on innovation ($\beta = 0.113$, $p < 0.001$), psychological capital was found to have a significant influence on service innovation ($\beta = 0.965$, $p < 0.001$), and ethical leadership was mediated by psychological capital on service innovation behavior (SIE = 0.235).

Research limitations/implications – Further research is needed to assess conducting research in enterprises with different cultural characteristics. This paper provides the effectiveness of ethical leadership and psychological capital factors, which are effective in improving employee service innovation behavior and enabling managers to develop human resources strategies in this respect.

Practical implications – The results provide the impact of ethical leadership on the productivity of employees in the workplace and provide practical benefits in terms of developing innovation-oriented service development behaviors.

Social implications – The innovative behaviors of the employees enable the development of innovative ideas in social life by contributing to consumer satisfaction and economy. Ethical leadership ensures positive behaviors in the society by ensuring that employees in the workplace develop justice sentiments.

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Originality/value – The mediating role of psychological capital between ethical leadership and service innovation behavior has not been investigated before. In this study, the effects of self-efficacy, optimism, hope and resilience factors were investigated in providing ethical leaders and employees, creating value in the enterprise, and in providing innovation-focused services for employees.

Keywords Innovation, Psychological capital, Ethical leadership, Service innovation behavior, Mediating role

Paper type Research paper

1. Introduction

Innovation, leadership and psychological capital constitute the dynamic of today's world economy and affect many areas of life. Emerging technology has made it necessary for the changing social construction enterprises to create differences in service, even in the production sector, and differences between customers and consumers. The concept of service innovation emerged from this point, where significant developments were made for new entrepreneurial and innovation-oriented ideas. The economy is not only limited to production, but the prospect of customer and service has been put forward by the ideas of management philosophers. Along with these ideas, behavioral sciences have been developed with the idea that human beings are seen as machines in increasing productivity in business (Fadem, 2009). Ethical leadership, leadership behaviors and service innovation behavior are important in this context (Brown *et al.*, 2005). The situation of leaders to influence their followers has a significant impact on innovation and loyalty behaviors related to the occupation and the task undertaken by the occupation, in particular by the fact that those who act with ethical leadership concept leave honest, reliable and fair impressions on their followers (Cheng *et al.*, 2014).

Ethical leadership is at the forefront of what matters in today's business life and current issues, with a view to making strong moral decisions through bilateral communication. Service innovation behavior is important in terms of individual and institutional actions in the process of producing and implementing new ideas (Settembre-Blundo *et al.*, 2018). The mediating role of psychological capital, which consists of self-efficacy, optimism, hope and psychological endurance dimensions, between ethical leadership and service innovation behavior, is a matter to be investigated. In this study, the impact of ethical leadership on service innovation behavior was examined by a comprehensive literature review.

Ethical leaders are those who demonstrate honest, trustworthy and fair behavior and who are trying to influence their followers (Cho and Lee, 2018). Ethical leaders play an important role in the upbringing of appropriate staff and entrepreneurs, especially in social, professional and moral terms. Service innovation behavior, which plays an important role in solving the problems that arise in the process of producing and applying new ideas, affects the behavior of employees. Self-efficacy, optimism, hope and psychological endurance of the worker are effective in demonstrating workplace productivity and exhibiting innovation-oriented behaviors (Luthans *et al.*, 2007; Bouckenooghe *et al.*, 2015). However, whether this effect is an intermediary effect is a matter to be investigated. For all these reasons, literature contributions will provide an examination of the mediating role of the psychological capital in the influence of the ethical leadership on the service innovation behavior that allows ethical values to be passed on to the audience.

2. Theoretical background

Leadership and psychological capital are important research topics in the literature, and service innovation behavior is a new and developing issue (Farrukh *et al.*, 2018). The

importance of service innovation behavior for businesses operating in the manufacturing sector is important for human resources policy, sustainable competition, marketing strategies, strategic management and behavioral sciences (Han and Park, 2017).

2.1 Ethical leadership

Ethical leadership is a normative and appropriate management indicator of honest, fair and trustworthiness through interpersonal and interpersonal relationships. The ethical leader seeks to strengthen the moral direction through decision-making through bilateral communication (Brown *et al.*, 2005). Ethical leadership is based on two basic theories called social learning and social exchange. According to the theory of social learning, followers imitate their leaders by observation and other means, and are influenced by them (Bandura, 1986). The social exchange theory helps to understand the reciprocal relationships shared by leaders and their followers (Dhar, 2016).

2.2 Psychological capital

Psychological capital includes having sufficient effort to successfully complete difficult tasks and to have confidence in taking responsibility (self-efficacy); to develop a positive perspective (optimism) about being successful now or in the future; to be perseverant for the goals; and to find new ways to achieve the goals (hope) to achieve success when problems and difficulties are encountered (psychological resistance) (Luthans *et al.*, 2007).

Kim *et al.* (2017) found that the breach of psychological contracts with the work of "service innovation behavior with breach of psychological contract: psychological capital as a mediator" worsened the psychological capital of occupants and frustrated service innovation behaviors. In addition, it has been demonstrated that psychological capital acts on service innovation behaviors of employee with the same study, and breach of psychological contract is mediated by psychological capital for the effect of service innovation behavior. In this sense, it should not be forgotten that psychological capital is important for the development of innovation-oriented entrepreneurs in the personal development and social tendencies of elderly individuals, as well as together with service innovation behavior.

2.3 Service innovation behavior

Service innovation behavior is individual and institutional action carried out in the process of producing and implementing new ideas. This process begins with the diagnosis and presentation of the problem and continues with the introduction of new ideas to solve the problem (Scott and Bruce, 1994). Topics such as organizational processes and systems, project management skills, organizational culture and vision are important issues in developing service innovation behavior (Matear *et al.*, 2004).

As a result of the bibliographic analysis carried out by Ferraz and Melo Santos (2016), 61 researches on service innovation issues in organizational researches were found to concentrate on the issues of market adaptation, performance management and product management from the sub-headings of the strategy. Service innovation is fundamentally explored on three theoretical approaches:

(1) *Technology-based approach*: Takes into account the issue of technological developments, which affect the service sector, outside the organization.

(2) *Service-based approach*: Based on features and innovations that differentiate the service sector from the manufacturing sector.

(3) *Integrative approach*: Based on tangible/intangible, technological/non-technological issues that suggest a broad perspective on innovation in the similarities in service and production (Ferraz and Melo Santos, 2016; Gallouj and Savona, 2009).

Hu *et al.* (2009) conducted a survey on 621 employee in hotels operating in the international tourism sector: information sharing, team culture and service innovation performance. Hu *et al.* (2009) formed service innovation measure in two dimensions. They have taken the dimension of new service development from Matear *et al.* (2004) and the dimension of employee service innovation behavior from Scott and Bruce (1994). Scott and Bruce (1994) developed an operational service innovation behavior scale in response to interviews with senior executives of businesses. Managers exemplify the success of those who have been recognized as leaders in the hospitality industry (Enz and Siguaw, 2003; Hu *et al.*, 2009).

H1a. There is a significant relationship between ethical leadership and psychological capital.

H1b. There is a significant relationship between ethical leadership and service innovation behavior.

H1c. There is a significant relationship between psychological capital and service innovation behavior.

2.4 Mediating role of psychological capital

According to Mathieu and Taylor (2006), there are three models of mediation related to organizational behavior: indirect impact model – represents dependent and independent variables associated with the mediator; partial mediator model – represents a direct relationship between independent and dependent variables with effectiveness; full mediator model – in which the direct relationship no longer exists after being inserted into the mediator model (Park, *et al.*, 2017). The model of our study consists of the direct interaction between the ethical leadership independent variable and the service innovation behavior dependent variable and the mediating effect of the psychological capital mediator variable. The mediator variance analysis method proposed by Baron and Kenny (1986) will be used to determine the role of ethical leadership and internal entrepreneurship and service innovation behavior. According to the instrumental variable analysis method, the existence of the conditions of independent variable change in the model is taken into account in model creation (Baron and Kenny, 1986).

The study model for the impact of ethical leadership on service innovation behavior with the mediating role of psychological capital is shown in Figure 1.

H1d. Psychological capital mediates the influence of ethical leadership on service innovation behavior.

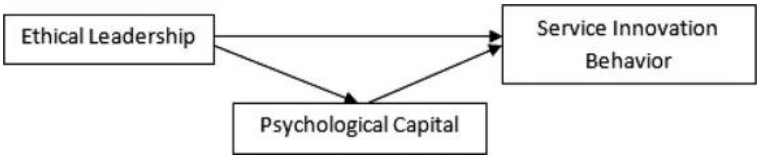

Figure 1.
Study model

3. Methodology

3.1 Participants

The population of this study consists of 376 blue-collar workers randomly selected from 140 companies which were selected from 1,294 joint stock companies among 76,882 companies operating in the province of Adana in Turkey and registered in the Adana Chamber of Commerce. In total, 126 of the 1,294 joint stock companies are in liquidation and are not active. The data were collected in December 2017 to January 2018. Because it is not possible to reach all individuals, cluster sampling method is preferred.

For the sample to better represent the universe, employees with different demographic knowledge were reached as much as possible. To be able to conduct the questionnaire survey within the scope of the research, information about e-mails and telephone information and addresses of the companies from Adana Chamber of Commerce were obtained.

3.2 Data collection

The questionnaire prepared for the measurement of the relationship between blue-collar workers' psychological capital, ethical leadership and service innovation behaviors in proportion to the purpose of the study was conducted by an individual interview method. A face-to-face interview method is a reliable method that allows individuals to answer survey questions in a serious way. Participants were told that their participation in the survey was voluntary and that they did not have to answer the questionnaire if they did not want to. Participants received approval for the survey and the necessary confidentiality was obtained.

3.3 Data analysis

In the study, data obtained using IBM SPSS, AMOS 22 statistical package programs were evaluated and "descriptive analysis" was used for demographic variables. The Structural Equation Modeling (SEM) method has been used, which has a widespread use due to its ability to demonstrate versatile regression correlations on a single model and test (Kline, 2015). Confirmatory factor analysis and reliability analysis were performed with the structural equation modeling tool.

In this research, data collection and data analysis processes used relational model and questionnaire as the quantitative research methods. In the linguistic study of the scales, they were translated and retranslated by experts. In this study, the scale was translated from the original scale in English to Turkish. Later, the Turkish form was translated into English and translated back into Turkish, and looked for consistency with the previous translation. In total, 14 experts were consulted for content validity. Scales were measured using a five-point Likert type scale, 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree. The questionnaire consists of 40 items with demographic items. The initial six items match up to service innovation behavior, 7 to 30 expressive psychological capital, 31 to 40 expressive ethical leadership scale.

3.3.1 Ethical leadership. "Ethical leadership" scale (short version) was obtained from Brown *et al.* (2005). The scale consists of ten items. Sample items included "My leader disciplines employees who violate ethical standards," "My leader conducts his/her personal life in an ethical manner" and "My leader has the best interests of employees in mind."

3.3.2 Service innovation behavior. The "Service innovation behavior" scale was obtained from Hu *et al.* (2009). The scale consists of 14 items. Sample items included "At work, I sometimes come up with innovative and creative notions," "At work, I seek new service

techniques and methods" and "At work, I sometimes propose my creative ideas and try to convince others."

3.3.3 Psychological capital. The "Psychological capital" scale was obtained from Luthans *et al.* (2007). The scale consists of 24 items. Sample items included "I feel confident representing my work area in meetings with management," "I feel confident helping to set targets/goals in my work area" and "I feel confident contacting people outside the company (e.g. suppliers, customers) to discuss problems."

4. Results

4.1 Demographic characteristics

4.1.1 Descriptive statistics. Demographic information on participants' gender, education level, age, marital status, work experience and own a vocational qualification status are explained in Table I.

Demographic factors	Frequency	(%)
Education level		
Primary education	88	23.4
High school	151	40.2
Associate degree	24	6.4
Bachelor's degree	101	26.9
Master's degree	12	3.2
Total	376	100
Marital status		
Single	107	28.5
Married	*269*	*71.5*
Total	376	100
Work experience		
Less than 5 years	182	48.4
5-10	111	29.5
11-15	33	8.8
16-20	31	8.2
21 years and over	19	5.1
Total	376	100
Age		
Less than 25	22	5.9
25-35	182	48.4
36-45	127	33.8
46-55	33	8.8
Over 55	12	3.2
Total	376	100
Gender		
Female	49	13
Male	*327*	*87*
Total	376	100
Own a vocational qualification		
No	269	71.5
Yes	107	28.5
Total	376	100

Table I. Personal demographic variables table

Approximately 13 per cent of participants are female, and 87 per cent are male. When the distribution according to education levels is examined, approximately 23.4 per cent are in primary education, 40.2 per cent are in high school, 26.9 per cent are pursuing bachelor's degree, 6.4 per cent pursuing associate degree and 3.2 per cent pursuing master's degree. According to Table I, 48.4 per cent of the participants are concentrated in the age range of 25-35. Other age ratios cover 5.9 per cent for less than 25 years, 33.8 per cent for 36-45 years, 8.8 per cent for 46-55 years and 3.2 per cent for those over 55 years. In terms of their experience in business, approximately 48.4 per cent of the participants were found to have less than 5 years of seniority, and participants were found to concentrate in this range. The other part of the participants is 29.5 per cent for 5-10 years, 8.8 per cent for 11-15 years, 8.2 per cent for 16-20 years and 5.1 per cent for those who have more than 21 years seniority. Further, 71.5 per cent of the participants have no vocational qualification certificate and 28.5 per cent have vocational qualification certificate.

Information on the operation in the survey is given in Table II. In total, 45.7 per cent of the enterprises surveyed are in the nourishment sector, 15.4 per cent are in the building and construction sector and 16.5 per cent are in the metal and machine sector. In total, 77.7 per cent of these enterprises have operated in Turkey, and 22.3 per cent have operated in foreign countries (Table III).

4.1.2 Intergroup diversities. Psychological capital, service innovation behavior and ethical leadership factors were analyzed by independent samples *t*-test, which showed diversities according to gender. The homogeneity of variances includes psychological capital (p = 411), service innovation behavior (p = 790) and ethical leadership (p = 100). The variances are homogenous at $p > 0.05$. Diversity analysis results between groups according to gender: psychological capital (p: , 021), service innovation behavior (p: . 017), and ethical leadership (p:. 003). For all three factors are measured as of $p < 0.05$, it is understood that there is diversity between the groups. For this reason, the levels of psychological capital (3.975), service innovation behavior (3.993) and ethical leadership (4.269) were significantly higher (PS: 3.788; Hİ: 3.701; EL: 3.877) among female employees than male employees.

Demographic factors	Frequency	(%)
Sector		
Metal and machine	*62*	*16.5*
Automotive	8	2.1
Textile	18	4.8
Mining	2	0.5
Nourishment	172	45.7
Building and construction	58	15.4
Chemistry	7	1.9
Aluminum	10	2.7
Plastic	17	4.5
Other	22	5.9
Total	376	100
The market in which the business operates		
Domestic*	292	77.7
Foreign	84	22.3
Total	376	100

Note: *Turkey

Table II. Demographic variables table with the company

According to the results of the intergroup diversity analysis on the marital status of the participants: single participants' service innovation behavior (p=. 796), psychological capital (p = 941) and ethical leadership (p = 779); single participants service innovation behavior (p: 776), psychological capital (p: 898) and ethical leadership (p: 706). The variances are homogenous at $p > 0.05$. Regarding all three factors, $p < 0.05$, it is understood that there is no diversity between the groups. According to participants' marital status, the mean of married employees' service innovation behavior (3.747), psychological capital (3.815), ethical leadership (3.917) and single employees' service innovation behavior (3.721), psychological capital (3.807) and ethical leadership (3.955) did not show any significant diversity.

According to the results of the analysis of diversity between the groups that have vocational qualification of participants, service innovation behavior (p = 180), psychological capital (p = 100) and ethical leadership (p = 348); service innovation behavior (p = 0.141), psychological capital (p = 0.133) and ethical leadership (p = 0.332). The variances are homogenous at $p > 0.05$. Regarding all three factors, $p < 0.05$, it is understood that there is no diversity between the groups. According to the participants' vocational qualification, the mean of those who do not have vocational qualification, their service innovation behavior (3.696), psychological capital (3.782) and ethical leadership (3.893), and those who have vocational qualification, their service innovation behavior (3.835), psychological capital (3.876) and ethical leadership (3.993) did not show any significant diversity.

According to the results of analysis of variance (ANOVA) of service innovation behavior (p = 0.786), psychological capital (p = 0.003) and ethical leadership (p = 0.001) in terms of

Factor	Gender	*N*	Mean	*S*	SEM	Sig.	*p*
SIB	Female	49	3.993	0.855	0.122	0.79	0.017
	Male	327	3.701	0.786	0.043		
PC	Female	49	3.975	0.482	0.069	0.411	0.021
	Male	327	3.788	0.532	0.029		
EL	Female	49	4.269	0.690	0.098	0.100	0.003
	Male	327	3.877	0.886	0.049		

Table III.
Gender diversity group statistics table

Notes: PC: psychological capital; SIB: Service innovation behavior; EL: ethical leadership; *N*: number of cases; SEM: standart error of the mean; *S*: standart deviation; sig.: significance of homogeneity, sig.(two-tailed): significance of diversity

Factor	Marital status	*N*	Mean	*S*	SEM	Sig.	*p*
SIB	Single	107	3.721	0.81739	0.0790	0.796	0.776
	Married	269	3.747	0.79496	0.0484		
PC	Single	107	3.807	0.53892	0.0521	0.941	0.898
	Married	269	3.815	0.52701	0.0321		
EL	Single	107	3.955	0.87213	0.0843	0.779	0.706
	Married	269	3.917	0.87449	0.0533		

Table IV.
Marital status diversity group statistics table

Notes: PC: psychological capital; SIB: service innovation behavior; EL: ethical leadership; *N*: number of cases; SEM: standart error of the mean; *S*: standart deviation; sig.: significance of homogeneity; sig.(two-tailed): significance of diversity

education level, it was determined that psychological capital and ethical leadership factor constructs were not homogeneous since they were unable to meet the $p > 0.05$ criteria. For this reason, the difference according to the level of education was measured by Tamhane's T2 test. According to the results of analysis, the mean of those who have a bachelor's degree in terms of service innovation behavior (4.120), the mean of those who have an associate degree in terms of psychological capital (3.996) and the mean of those who have a bachelor's degree education in terms of ethical leadership (4.350) are higher than other educational levels.

According to the results of ANOVA of service innovation behavior (p = 0.954), psychological capital (p = 0.825) and ethical leadership (p = 0.349) in terms of work experience were found to be homogeneous since they coule meet the $p > 0.05$ criteria. The analysis shows that, the mean of those who have 21 years and over of work experience in terms of service innovation behavior (4.210), in psychological capital (3.899) and in ethical leadership (4.336) is higher than that of other work- experience levels.

According to the results of ANOVA, service innovation behavior (sig. = 0.369), psychological capital (sig. = 0.032), and ethical leadership (sig. = 0.093) in terms of age were found to not be homogeneous, as these did not meet the $p > 0.05$ criteria. For this reason, the difference according to level of age was measured by Tamhane's T2 test. According to the analysis results in terms of service innovation behavior, the mean of age of the participants aged 55 years and over (4.263) were higher than the other age groups in terms of service innovation behavior.. There was no significant diversity between participants according to age in terms of psychological capital and ethical leadership.

4.2 Model testing

In our study, the variables prepared according to the five-point Likert scale were measured by a questionnaire with 40 items. As a result of the factor analysis, a total of six items – 13, 14, 16, 20, 23, 24 – belonging to the psychological capital factor which cannot be relied on were extracted from the scale. Confirmatory factor analysis (CFA) was applied to the data to test the validity of the one-factor structure obtained as a result of the principal components analysis (Figure 2).

As can be seen in Table VI, the initial conformance test values of the model are moderate and provide acceptable adaptive values. However, some modifications have been made to the model for better adaptive values. The model values after the modification are shown in Table VI.

Conformity of the data used in the study with the original three variables were tested with χ^2/s.d., SRMR, RMSEA, IFI, GFI, TLI, CFI and AGFI values, and the obtained results are shown in Table VII. The χ^2 values (1172.912) for the initially determined three-variable models were both significant and when the χ^2/s.d. value (2.264) is below 5, it is in conformity with the initially determined model. When the indicators related to model conformity and the values obtained are examined – SRMR: 0.50, RMSEA = 0.058, IFI: 0.955, CFI = 0.97, GFI = 0.96, AGFI = 0.86, TLI = 0.97 – it is understood that the collected data are compatible with the designed model.

To determine whether there is a significant discrepancy between the one-factor model and the three-factor model, the χ^2 values were tested and the discrepancy was significant (Table VII). This indicates that there is no common method deviations (MacKenzie and Podsakoff, 2012).

Modification indices are bidirectionally connected because the covariance values show that the 1st and 2nd, 4th and 5th items of service innovation behavior variable show that 1st and 2nd items, 17th and 21th questions and 8th and 9th questions of psychological capital

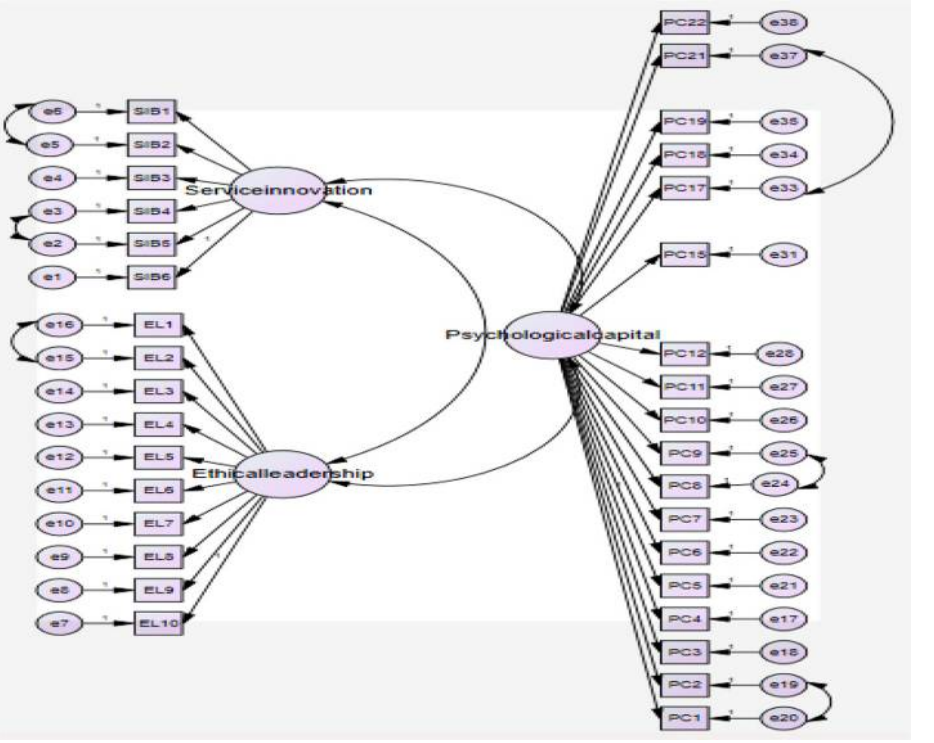

Figure 2.
The confirmatory factor analysis model (post-modification model)

Factor	Own a vocational qualification	*N*	Mean	S	SEM	Sig.	*p*
SIB	No	269	3.696	0.770	0.0469	0.180	0.141
	Yes	100	3.835	0.880	0.0880		
PC	No	269	3.782	0.552	0.0336	0.100	0.133
	Yes	100	3.876	0.467	0.0467		
EL	No	269	3.893	0.854	0.0520	0.348	0.332
	Yes	100	3.993	0.923	0.0923		

Notes: PC: psychological capital; SIB: service innovation behavior; EL: ethical leadership; *N*: number of cases; SEM: standart error of the mean; *S*: standart deviation, sig.: significance of homogeneity; sig.(two-tailed): significance of diversity

Table V.
Vocational qualification diversity group statistics table

variable change at high values. When the model is operated as such, the compliance values give the results as in Table VIII. The remaining 34 questions were distributed into three factors. The tools used in this study are the validity of the construction that measures whether it is aimed to the measurement; convergent validity and divergence and discriminant validity. The standard factor loadings of the scales vary between 0.53 and 0.84, indicating that these loads are greater than 0.5 and meet the criteria (Hair *et al.*, 2006).

Fit index	Initial model values	Post-modification model values	Acceptable model fit levels	Source
χ^2	2122.265	1172.912	Low χ^2 value and $p < 0.01$; $p > 0.05$	Hooper *et al.* (2008)
χ^2/df	2.880	2.264	χ^2/df < 3 χ^2/df < 2	Kline, 2015, Wheaton *et al.* (1977) Tabachnick and Fidell (2007)
SRMR	0.085	0.050	SRMR ≤ 0.05 SRMR ≤ 0.08	Byrne (2013), Diamantopoulos and Siguaw (2000), Hu and Bentler, 1999
RMSEA	0.71	0.058	RMSEA < 0.05 RMSEA ≤ 0.07	Hu and Bentler (1999), Steiger, 2007
IFI	0.835	0.955	0.95 ≤ IFI ≤ 0.95	Miles and Shevlin (2007),
CFI	0.834	0.974	0.97 ≤ CFI ≤ 1	Hu and Bentler (1999),
GFI	0.772	0.960	0.95 ≤ GFI ≤ 1	Tabachnick and Fidell (2007), Miles and Shevlin (2007)
AGFI	0.747	0.857	0.85 ≤ AGFI ≤ 1	Tabachnick and Fidell (2007)
TLI	0.824	0.967	0.95 ≤ TLI ≤ 1	Hu and Bentler, 1999; Sharma *et al.*, 2005

Notes: χ^2: minimum value of the discrepancy function; χ^2/df: minimum value of the discrepancy function divided by degrees of freedom; SRMR: standardized root mean square residual; RMSEA: root mean square error of approximation; IFI: incremental fit index; CFI: comparative fit index; GFI: goodness-of-fit index; AGFI: adjusted goodness-of-fit index; TLI: Tucker–Lewis index

Table VI.
SEM model: initial and final coefficient of concordance

Model title	χ^2	χ^2/df	SRMR	RMSEA	IFI	CFI	GFI	AGFI	TLI
One Factor Model	3658.391	6.942	0.148	0.126	0.591	0.589	0.461	0.392	0.563
Initial Model	2122.265	2.880	0.085	0.71	0.835	0.834	0.772	0.747	0.824
Default Model	1172.912	2.264	0.050	0.058	0.955	0.974	0.960	0.857	0.967

Notes: χ^2: minimum value of the discrepancy function; χ^2/df: minimum value of the discrepancy function divided by degrees of freedom; SRMR: standardized root mean square residual; RMSEA: root mean square error of approximation; IFI: incremental fit index; CFI: comparative fit index; GFI: goodness-of-fit index; AGFI: adjusted goodness-of-fit index; TLI: Tucker–Lewis index

Table VII.
Comparison of one factor and default model

Varriables	PC^{pc}	SIB^{pc}	EL^{pc}	Mean	SD	α	CR	AVE	ASV
PC	1	0.684**	0.368**	3.812	0.529	0.887	0.907	0.340	0.389
SIB	0.684**	1	0.358**	3.739	0.800	0.879	0.880	0.552	0.386
EL	0.358**	0.368**	1	3.928	0.872	0.941	0.941	0.617	0.148

Notes: pc: Pearson correlation; PC: psychological capital; SIB: service innovation behavior; EL: ethical leadership; α: Cronbach's alpha reliability; CR: composite reliability; AVE: average variance extracted; *Correlation (r) is significant at the 0.05 level (two-tailed). **Correlation (r) is significant at the 0.01 level (two-tailed); AVE is significant over the 0.50 level; the acceptable value of CR is 0.7 and above

Table VIII.
Mean, Standard deviation, Reliability and correlation values for variables table

If the average variance extracted (AVE) values of the scales are greater than 0.50, it can be shown as proof of convergence validity (Fornell and Larcker, 1981). The AVE value of the psychological capital was measured as 0.34. However, according to Fornell and Larcker (1981), although the AVE value is below 0.50, a value of 0.34 AVE is acceptable if the construct reliability (CR) value is above 0.70. For the discriminant validity, the correlation between the variables is smaller than 0.80, which can be expressed as proof of divergence and discriminant validity. According to Kline (2015; 2016), Table VIII shows that alpha reliability and CR for the data obtained from the relevant scale and that both reliability levels are greater than 0.70 can be expressed as proof of the reliability of the measurement results (Fornell and Larcker, 1981; Hair *et al.*, 2006; Nunnally, 1976).

According to the correlation values in Table VIII, there is a positive and significant relationship between service innovation behavior and psychological capital (0.684) and ethical leadership (0.358). *H1a* and *H1b* are therefore accepted. Accordingly, as service innovation behavior increases, psychological capital and ethical leadership will increase. There is also a significant positive relationship between psychological capital and ethical leadership (0.368). In this case the *H1c* is also accepted. From this point of view, it is possible to say that as psychological capital increases, ethical leadership will increase.

As a result:

The relationship between ethical leadership and psychological capital is significant and positive ($r = 0.358, p < 0.001$).

The relationship between ethical leadership and service innovation is significant and positive ($r = 0.368, p < 0.001$).

The relationship between psychological capital and service innovation is significant and positive ($r = 0.684, p < 0.001$).

4.3 Mediation effect results of structural equation model

A structural equation model was used to test recomended research hypotheses. According to Table IX and Figure 3, ethical leadership has a significant effect on psychological capital ($\beta = 0.224, p < 0.001$). *H1a* is supported.

As seen in Table IX, ethical leadership has a significant effect on service innovation ($\beta = 0.113, p < 0.001$). *H1b* is supported. Psychological capital has a significant effect on service innovation ($\beta = 0.965, p < 0.001$). *H1c* is supported (Table X).

As can be seen from Table V, the ethical leadership influence on service innovation behavior (SIE = 0.235) is mediated by psychological capital. Thus, *H1d* is supported. The structural model of the mediating effect of psychological capital on the influence of ethical leadership on service innovation behavior is shown in Figure 3. Table V shows the probability of achieving the same results if 3,760 data which is about ten times the 376 data

Table IX.
Structural equation model relationship table

Independent variables	Dependent variables	Beta	β	S.E	CR	p	Decision
EL	PC	2.70	0.224	0.029	7.68	0.01***	Supported
EL	SIB	0.78	0.113	0.037	3.072	0.02**	Supported
PC	SIB	888	0.965	0.060	15.963	0.01***	Supported

Notes: β, standart beta; S.E, standart errors; p is significant at *0.1 level (two-tailed); **p is significant at 0.05 level (two-tailed); ***p is significant at 0.01 level (two-tailed)

were collected. According to this measure, the mediating effect of psychological capital at the lowest data level is LB = 0.184, and at the highest data level is UB = 0.345.

5. Discussion and conclusions

5.1 Theoretical implications

The mediating effect of psychological capital on some types of leadership and other behavioral sciences topics has been examined in the literature. For instance, employees' psychological capital completely mediates the relationship between empowering leadership and employees' psychological well-being, while partially mediates the relationship between job engagement and empowering leadership (Park *et al.*, 2017), psychological capital mediating between job satisfaction and life satisfaction (Liao *et al.*, 2017), psychological capital mediating between transformational leadership and front-line sales staffs' service quality (He *et al.*, 2016). However, the mediating effect of psychological capital on ethical leadership and service innovation behavior has not been examined in the literature. For this reason, I suggest that the researches on this subject should be increased in future studies.

5.2 Practical implications

It is found that psychological capital mediates the effect of ethical leadership on service innovation behavior in this study, which we conducted on the employees of joint stock companies registered in Chamber of Commerce, that there is a significant relationship between ethical leadership, service innovation and psychological capital. The majority of participants are in the 25-35 age range at higher school level. In addition, the majority of participants are married, have less than five years of work experience, male and do not have vocational qualification. The majority of businesses operate in the nourishment sector and in domestic market. The results of the research show that female employees have higher levels of psychological capital, service innovation behavior and ethical leadership than male employees. In this case, it is proposed to increase the number of female employees in

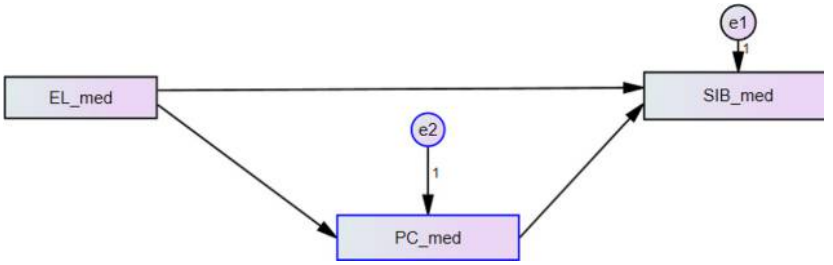

Figure 3.
The structural equation mediation effect model

Independent variables	Dependent variables	STE	SDE	SIE	LB	UB	*p*
EL	PC	0.386	0.270	–	–	–	–
EL	SIB	0.096	0.096	0.235	0.184	0.345	0.000
PC	SIB	0.678	0.678	–	–	–	–

Notes: STE: standardized total effects; SDE: standardized direct effects; SIE: standardized indirect effects; LB: lower bounds; UB: upper bounds; *p*: two-tailed significance)

Table X.
Structural equation model mediation effect table

enterprises. It was determined that the marital status did not differ among the participants regarding these three factors.

In terms of service innovation behavior, the mean of those with bachelor's degree, in terms of psychological capital among those with associate degree and in terms of ethical leadership among those with bachelor's degree, is higher than that of those at other education levels. According to these results, it is suggested to provide in-service trainings in terms of the development of service innovation behavior. In addition, strategic human resources policies need to be scrutinized in terms of ethical leadership and psychological capital.

It has been determined by this research that the mean of those who have 21 years and over work experience in terms of service innovation behavior, in terms of psychological capital and in terms of ethical leadership is higher than that of those with other work experiences in terms of service innovation behavior. In terms of service innovation behavior, the number of participants who have a mean of 55 years and over age is higher. According to these results, it is suggested that the employees who have a higher work experience should share their experiences with other employees; mentorship and coaching practices should be included in human resources policies.

Psychological capital has a mediating role on the relationship between ethical leadership and service innovation behavior in the context of having the necessary effort to successfully complete difficult tasks, having an optimistic attitude, exhibiting resolute behaviors to reach the targets and finding new ways, being psychologically resistant is important for strategic management of joint stock companies.

If decision-makers give great importance to the influence of the mediating role of the psychological capital among employees may increase the productivity of the employees. The effect of the mediating role of the psychological capital between two important issues, such as ethical leadership and service innovation, should be explored on the employees of businesses, government agencies and non-governmental organizations operating in the service sector.

5.3 Limitations

The most important limitation of this study is that it is limited to randomly selected enterprises operating in Adana Province in Turkey. The fact that the survey has not been able to reach the employees of other countries with different geographies, cultural characteristics constitute a limitation of the study. Results may vary in different times, geography, culture, age, gender and so on. Cognitive difficulties that participants will experience in responding to the questionnaires may lead to false answers and misleading results (Converse and Presser, 1986).

References

Bandura, A. (1986), *Social Foundations of Thought and Action: A Social Cognitive Theory*, Prentice-Hall, Englewood Cliffs, NJ.

Baron, R.M. and Kenny, D.A. (1986), "The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51 No. 6, pp. 1173-1182.

Bouckenooghe, D., Zafar, A. and Raja, U. (2015), "How ethical leadership shapes employees' job performance: the mediating roles of goal congruence and psychological capital", *Journal of Business Ethics*, Vol. 129 No. 2, pp. 251-264.

Brown, M.E., Treviño, L.K. and Harrison, D.A. (2005), "Ethical leadership: a social learning perspective for construct development and testing", *Organizational Behavior and Human Decision Processes*, Vol. 97 No. 2, pp. 117-134.

Byrne, B.M. (2013), *Structural Equation Modeling with Amos: Basic Concepts, Applications, and Programming*, (Second Edition), Taylor & Francis.

Cheng, J.-W., Chang, S.-C., Kuo, J.-H. and Cheung, Y.-H. (2014), "Ethical leadership, work engagement, and voice behavior", *Industrial Management and Data Systems*, Vol. 114 No. 5, pp. 817 -831.

Cho, Y.H. and Lee, J.H. (2018), "Entrepreneurial orientation, entrepreneurial education and performance", *Asia Pacific Journal of Innovation and Entrepreneurship*, Vol. 12 No. 2, pp. 124-134.

Converse, J.M. and Presser, S. (1986), *Survey Questions: Handcrafting the Standardized Questionnaire*, Sage Publications, Newbury Park, CA.

Dhar, R.L. (2016), "Ethical leadership and its impact on service innovative behavior: the role of LMX and job autonomy", *Tourism Management*, Vol. 57, pp. 139-148.

Diamantopoulos, A. and Siguaw, J.A. (2000), *Introducing LISREL*, Sage Publications, London.

Enz, C.A. and Siguaw, J.A. (2003), "Revisiting the best of the best: innovations in hotel practice", *The Cornell Hotel and Restaurant Administration Quarterly*, Vol. 44 Nos 5/6, pp. 115-123.

Fadem, B. (2009), *Behavioral Science*, 5th ed., Lippincott Williams and Wilkins, a Wolters Kluwer business, New York, NY.

Ferraz, I.N. and Melo Santos, N.D. (2016), "The relationship between service innovation and performance: a bibliometric analysis and research agenda proposal", *RAI Revista de Administração e Inovação*, Vol. 13 No. 4, pp. 251-260.

Farrukh, M., Alzubi, Y., Shahzad, I.A., Waheed, A. and Kanwal, N. (2018), "Entrepreneurial intentions: the role of personality traits in perspective of theory of planned behaviour", *Asia Pacific Journal of Innovation and Entrepreneurship*, Vol. 12 No. 3, pp. 399-414.

Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50, doi: 10.2307/3151312.

Gallouj, F. and Savona, M. (2009), "Innovation in services: a review of the debate and a research agenda", *Journal of Evolutionary Economics*, Vol. 19 No. 2, pp. 149-172.

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006), *Multivariate Data Analysis*, 6th ed., Prentice-Hall, Upper Saddle River, NJ.

Han, J. and Park, Cm. (2017), "Case study on adoption of new technology for innovation: perspective of institutional and corporate entrepreneurship", *Asia Pacific Journal of Innovation and Entrepreneurship*, Vol. 11 No. 2, pp. 144-158.

He, Q., An, Q. and Lin, P. (2016), "Transformational leadership, psychological capital and frontline sales staffs' service quality: psychological capital as a mediator", *International Journal of u- and e-Service, Science and Technology*, Vol. 9 No. 7, pp. 309-316, available at: http://dx.doi.org/10.14257/ijunesst.2016.9.7.31

Hooper, D., Coughlan, J. and Mullen, M. (2008), "Structural equation modelling: guidelines for determining model fit", *Electronic Journal of Business Research Methods*, Vol. 6 No. 1, pp. 53-60.

Hu, L. and Bentler, P.M. (1999), "Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives", *Structural Equation Modeling: A Multidisciplinary Journal*, Vol. 6 No. 1, pp. 1-55.

Hu, M.L.M., Horng, J.S. and Sun, Y.H.C. (2009), "Hospitality teams: knowledge sharing and service innovation performance", *Tourism Management*, Vol. 30 No. 1, pp. 41-50.

Kim, T.T., Karatepe, O.M. and Lee, G. (2017), "Psychological contract breach and service innovation behavior: psychological capital as a mediator", *Service Business*, Vol. 12 No. 2, pp. 1-25, available at: https://doi.org/10.1007/s11628-017-0347-4.

Kline, R. (2015), *Principles and Practice of Structural Equation Modeling*, 2nd ed., The Guilford Press, New York, NY.

Liao, S.S., Hu, D.C., Chung, Y.C. and Chen, L.W. (2017), "LMX and employee satisfaction: mediating effect of psychological capital", *Leadership and Organization Development Journal*, Vol. 38 No. 3, pp. 433-449, available at: https://doi.org/10.1108/LODJ-12-2015-0275

Luthans, F., Avolio, B.J., Avey, J.B. and Norman, S.M. (2007), "Positive psychological capital: measurement and relationship with performance and satisfaction", *Personnel Psychology*, Vol. 60 No. 3, pp. 541-572.

MacKenzie, S.B. and Podsakoff, P.M. (2012), "Common method bias in marketing: causes, mechanisms, and procedural remedies", *Journal of Retailing*, Vol. 88 No. 4, pp. 542-555.

Matear, S., Gray, B.J. and Garrett, T. (2004), "Market orientation, brand investment new service development, market position and performance for service organizations", *International Journal of Service Industry Management*, Vol. 15 No. 3, pp. 284-301.

Mathieu, J.E. and Taylor, S.R. (2006), "Clarifying conditions and decision points for mediational type inferences in organizational behavior", *Journal of Organizational Behavior*, Vol. 27 No. 8, pp. 1031-1056.

Miles, J. and Shevlin, M. (2007), "A time and a place for incremental fit indices", *Personality and Individual Differences*, Vol. 42 No. 5, pp. 869-874.

Nunnally, J.C. (1976), *Psychometric Theory*, 2nd ed., McGraw-Hill, New York, NY.

Park, G., Kim, J.S., Yoon, S.W. and Joo, B.K. (2017), "The effects of empowering leadership on psychological well-being and job engagement: the mediating role of psychological capital", *Leadership and Organization Development Journal*, Vol. 38 No. 3, pp. 350-367, available at: https://doi.org/10.1108/LODJ-08-2015-0182.

Scott, S.G. and Bruce, R.A. (1994), "Determinants of innovative behavior: a path model of individual innovation in the workplace", *Academy of Management Journal*, Vol. 37 No. 3, pp. 580-607.

Settembre-Blundo, D., del Hoyo, A.P.F. and García-Muiña, F.E. (2018), "Hermeneutics as innovative method to design the brand identity of a nanotechnology company", *Asia Pacific Journal of Innovation and Entrepreneurship*, Vol. 12 No. 2, pp. 181-205.

Sharma, S., Mukherjee, S., Kumar, A. and Dillon, W.R. (2005), "A simulation study to investigate the use of cutoff values for assessing model fit in covariance structure models", *Journal of Business Research*, Vol. 58 No. 7, pp. 935-943.

Steiger, J.H. (2007), "Understanding the limitations of global fit assessment in structural equation modeling", *Personality and Individual Differences*, Vol. 42 No. 5, pp. 893-898.

Tabachnick, B.G. and Fidell, L.S. (2007), *Using Multivariate Statistics*, (5th edition), Allyn and Bacon, New York, NY.

Wheaton, B., Muthen, B., Alwin, D.F. and Summers, G.F. (1977), "Assessing reliability and stability in panel models", in Heise, D.R. (Ed.), *Sociological Methodology*, Jossey-Bass, San Francisco, pp. 84-136.

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