

Promoting school effectiveness: Examining the mediating role of teachers' organisational commitment and the moderating role of school cultural attributes

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Abstract

The study suggests a moderator–mediation model: teacher organisational commitment mediates the relationship between the interaction of participative decision-making (PDM) and paternalistic leadership (PL) and a school's cultural attributes to school effectiveness (student academic achievement, teachers' organisational citizenship behaviour, and teachers' perceived strain). The data were collected through a questionnaire returned by a two-stage clusters random sampling of 245 teachers in Israeli elementary schools characterised by different cultural attributes. Data were collected from two sources, self-reports and test grades measures to minimise measure error. The structural equation modelling and bootstrap results highlight the intervening role of a school's cultural attributes on the relationship between PL and school effectiveness, implying that the implications of PL are context dependant. The findings also showed positive implications of PDM on school effectiveness regardless of a school's cultural attributes. Implications for theory and practise are discussed.

Keywords

Participative decision-making, paternalistic leadership, school effectiveness, organisational commitment, school cultural attributes, teachers' perceived strain

Introduction

Studies underline that principal play an important role in promoting best teaching practises, student learning, and teacher positive attitudes towards their work (Berkovich and Bogler, 2021; Leithwood

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et al., 2020; Shaked, 2021). However, study pointed that socio-cultural context influences the content of leadership prototypes with implication for leadership perceptions and the resultant behaviours among employees (Nassir and Benoliel, 2022; Davis, 2020; Lord and Maher, 1991). Yet, research examining the role of cultural characteristics, as factors of adjustment to school environments characterised by high levels of participative decision-making (PDM) and paternalistic leadership (PL), has been neglected. PDM refers to a managerial approach of shared influence between a supervisor and his/her employee in decision-making process (Koopman and Wierdsma, 1998). PL is defined as the traditional paternal authority, and characterised by the values of loyalty, respect, hierarchy, as well as obedience and trust to the leader (Chou et al., 2015). Accordingly, this study proposes that differences in school cultural attributes can influence the implications of principal leadership styles (PDM and PL) on school effectiveness.

Culture is central to the values, beliefs, interpersonal behaviours, and attitudes of stakeholders, leaders, and employees determining an organisation functioning (Davis, 2020). Studies have shown correlations between differences in a school culture and leadership emergence, on one hand, and school outcomes on the other hand (Benoliel and Barth, 2017; Dimmock and Tan, 2013). Hofstede (2001) describes culture as consisting of four dimensions: power distance, uncertainty avoidance, individualism–collectivism, and masculinity–femininity. *Collectivism* characterises societies in which the self is viewed as highly interdependent with others, whereas individualism characterises a society in which the self is viewed as largely autonomous and independent from the group. *Power distance* refers to the extent to which inequality among people in different positions of formal power is viewed as a natural and desirable aspect of social order. In the present study, we focus on Jewish state-secular (general) education as representing an individualistic, egalitarian, and low-power distance culture (Peri-Hazan, 2013), and the Arab education as being characterised by collectivistic, hierarchical, and high-power distance cultural values (Abu-Asba, 2014).

This study draws upon Implicit Leadership Theory (ILT) according to which, individuals hold a set of beliefs about the kinds of attributes, skills, and behaviours that contribute to or impede outstanding leadership (Offermann et al., 1994). These belief systems, variously referred to as stereotypes, are assumed to affect the extent to which an individual accepts and responds to others as leaders (Hallinger and Truong, 2014; Or and Berkovich, 2021). Specifically, the present study aims to investigate in a moderator–mediation model whether organisational commitment (OC)—the employee’s psychological attachment to an organisation (Mowday et al., 1979)—serves as a mediating variable in the relationship between the interaction between a school’s cultural attributes and principal leadership styles (PDM and PL) and school effectiveness in schools characterised by different cultural attributes of individualism–collectivism and power distance drawing upon data collected from culturally different educational systems (Arab and Jewish) in Israel. For school effectiveness, we have focused on *student academic achievement* and on the teachers outcomes of *perceived strain*—subjective perception of physical/mental effort required to perform the task at hand (Jex, 1998) and *organisational citizenship behaviour (OCB)*—a discretionary behaviour of a teacher that goes beyond existing in-role expectations (Somech and Oplatka, 2014). These outcomes were chosen because of their importance to the educational effectiveness literature and the Israeli education research (Barth and Tsemacha, 2021; Goddard et al., 2015; please see Figure 1).

This study can contribute to the existing body of educational management in the following ways. First, pointing to socio-cultural characteristics as important factors influencing leadership practises implications for school effectiveness and teachers’ commitment towards their work can be a mechanism to increase the equity of educational opportunities, by emphasising teachers’ commitment as a possible mechanism to improve students’ academic achievement. Second, limited research has

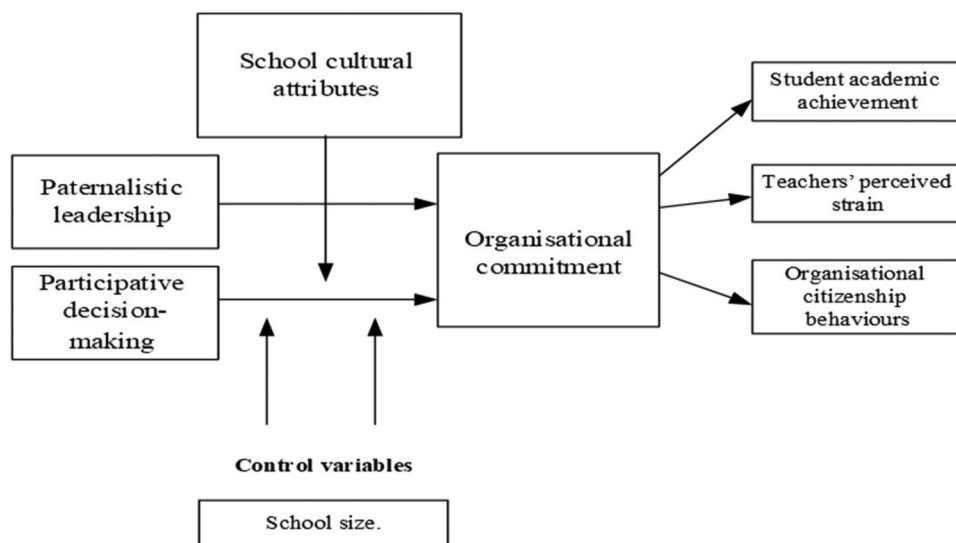


Figure 1. A moderator–mediation model: School cultural attributes as moderators in the relationship of principal leadership styles and school effectiveness mediated by teacher OC.

considered the relationship of school cultural attributes and principal leadership implications on school effectiveness in an integrated model with a particular focus on ethnocultural minority such as the Israeli Arab minority. Third, the proposed integrative model points to possible mechanisms linking PDM and PL and student academic achievement, teachers perceived strain, and OCB by positioning teachers' OC as one possible "path" through which principal leadership facilitates school effectiveness in schools characterised by different cultural attributes. Such an enquiry may offer the possibility of opening new avenues for researchers when studying new social and cultural developments in the field of school improvement and leadership.

Theoretical background

The moderating role of school's cultural attributes on the relationship of principal leadership (PDM and PL) and OC

OC, as defined by Mowday et al., (1979), is "the relative strength of an individual's identification with and involvement in a particular organisation" (p. 245). This concept is based on three factors: *identification*, the acceptance of the organisation goals and values; *involvement*, the willingness to invest effort on behalf of the organisation; and *loyalty*, the importance attached to keeping up membership in the organisation. These characteristics imply that teachers wish to be active players in the school, and are willing to contribute beyond what is expected of them (Bogler and Berkovich, 2022). OC is a critical aspect in determining the success of educational reform and student academic achievement and OCB (Berkovich and Bogler, 2021). We propose that a school's cultural attributes of individualism-collectivism and power distance dimensions will influence the relationship between PDM and PL and teachers' OC.

PDM emphasises the value of collegial decision-making (Zulkify et al., 2020). PDM has had a number of positive implications; PDM is positively correlated to teachers' job satisfaction and teachers' motivation, as well as teachers' commitment to implementing the decisions they were involved in (Walker and Hallinger, 2015). Also, PDM promotes teamwork, problem-solving collaboration, and facilitates subordinate involvement in the decision-making process through encouragement, support, and influence (Or and Berkovich, 2021). Therefore, PDM seems more consistent with the self-definition of individualism and low-power distance, which favours the pursuit of personal interests and career achievement opportunities. A study by Benoliel and Barth (2017) showed a positive relationship between PDM and OC. The opportunity to be involved in decision-making is interpreted as a sign that one's supervisor wishes to engage in a process of social exchanges and thus reciprocate accordingly. Therefore, in line with ILT, we suggest that the school's cultural attributes, will moderate the relationship between PDM and OC.

Studies have shown that PL is positively associated the OC in societies characterised by cultural values of collectivism and high-power distance (Nassir and Benoliel, 2022; Walker and Hallinger, 2015). Previous research indicated that PL correlates to OC because the individualised care of a paternalistic leader fosters employee identification with the organisation and encourages employees' emotional attachment (Rehman and Afsar, 2012). Therefore, in line with the ILT, teacher from a more collectivistic and high-power distance society perceived prototypes of the ideal leader are more likely to match the behaviours associated with PL. In contrast, schools characterised by individualism and low-power distance, involve managerial models that emphasise teachers' self-reliance with a high tendency towards autonomy (Peri-Hazan, 2013). Also, teachers' expectations in these cultural attributes include collegial relationships with the principal and an emphasis on their professional development (Oplatka and Hertz-Lazarowitz, 2011). Hence,

H1a: School cultural attribute moderates the relationship between PDM and OC such that the positive relationship between PDM and OC will be significantly stronger in schools characterised by individualism and low-power distance.

H1b: School cultural attribute moderates the relationship between PL and OC such that the positive relationship between PL and OC will be significantly stronger in schools characterised by collectivism and high-power distance.

The relationship between OC and school effectiveness

In investigating school outcomes, this study focuses on *student academic achievement*, *teacher perceived strain*, and *teacher OCB*. First, in the most general sense, 'school effectiveness' refers to the level of goal attainment of a school, based on academic achievement (Beard & Hoy, 2010). However, researchers have emphasised that in complex organisations such as schools, alternative criteria such as teacher behaviours should also be considered (Benoliel, 2021). For instance, in the school effectiveness research, several teacher outcomes such as job satisfaction (e.g., Toropova, et al., 2020), OCB (Kristiani et al., 2019), OC, teacher well-being and burnout (e.g., Polat and Iskender, 2018) were considered as additional important as significant factors for evaluating school functioning due to their consequences for teachers, students, and school outcomes. Overall, these findings emphasised that the relevant measurement for 'school effectiveness' had to include features operating both at the teacher level as well as the school-wide level. This is so because effectiveness in one area may not necessarily imply effectiveness in another, therefore,

several factors have been incorporated to measure school effectiveness. Accordingly, in the present study, student academic achievement, as an objective measure, was chosen because it is a critical criterion for evaluating school functioning from the school's viewpoint (Goddard et al., 2015; Perera and John, 2020). However, it might be poor criterion from the teacher's viewpoint. Therefore, teacher-perceived strain and OCB were also considered as school effectiveness outcomes. The present study suggests that OC promotes school effectiveness.

Student academic achievement is the most common indicator of achievement that generally refers to a student's performance in academic areas as measured by achievement tests (Cunningham, 2012). Teachers' OC results from a sincere identification with the school's goals and a desire to achieve those goals successfully. For example, Oreg and Berson (2015) found that teachers' OC positively correlates to their intention to invest considerable efforts for the school. Research findings have consistently indicated that teacher OC promotes student achievement regardless of the school culture (Altun, 2017; Özgenel and Koç, 2020). For instance, a study conducted in the Israeli Jewish educational system schools showed a positive relationship between teacher OC and student academic achievement (Cohen and Caspary, 2011). In another study performed in the Arab educational system schools, Altun (2017) showed that teacher OC was positively correlated to student academic achievement. Accordingly, we propose a positive correlation between teacher OC and student academic achievement.

Teacher's perceived strain is defined as a sense of stress, which refers to the cognitive processes involved in assessing the quantity of work, the intellectual requirements, and the time constraints of the job (Jex, 1998). The teaching profession is exposed to a variety of stressful events that can affect the teacher's personal well-being and strain (Ryan et al., 2017). Research has indicated that a teacher's perceived strain at work reduces the amount of energy available to the teacher and prevents him from working on multiple tasks simultaneously for many hours of work, leading to mental fatigue and decreased work performance (Oplatka, 2012). Individual responses to stressful situations can vary greatly (Redding and Henry, 2018). According to the Transactional model of stress and coping by Lazarus and Folkman (1984), different people evaluate the demands of the environment differently: as a threat or as a challenge. Lazarus and Folkman (1984) indicated that people employ specific efforts, both behavioural and psychological, to master, tolerate, and minimise stressful events. Research findings indicated that responses to threat include high subjective strain and poor task performance among teachers (Benoliel and Somech, 2014). Akdemir (2019) found in their study that teachers with high OC appraise a situation as challenging whereas teachers with low OC appraise a situation as threatening so they see that their coping resources are inadequate to cope with the event. Therefore, we propose a negative correlation between OC and teachers' perceived strain.

OCB refers to a voluntary behaviour left to the teacher's discretion and for which the teacher receives no professional training, and which is not remunerated by the organisation (Somech and Oplatka, 2014). Drach-Zahavy and Somech (2015) proposed three main dimensions of OCB in the school setting: (a) *OCB towards their students*, that is, behaviours that help students to deal with personal issues outside of the school; (b) *OCB towards school*, such as organising school projects and assimilating innovations in teaching; and (c) *OCB towards school staff*, such as participating in the school's organisational setting on a voluntary basis. Research has shown that teachers' OCB promotes self-learning of new and unconventional skills, exposes teachers to unique and innovative practises and contribute to student academic achievement and teachers' commitment towards their work (Shapira-Lishchinsky and Levy-Gazenfrantz, 2019). Study findings indicated that OC is one of the key factors encouraging teacher OCB (Drach-Zahavy and

Somech, 2015). Also, research has indicated that highly committed teachers are more helpful to struggling staff members or at-risk students (Grego-Planer, 2019). According to a study by Somech and Khotaba (2017), teachers committed to the school perform beyond the level of their basic job description. Similarly, Cohen and Abd-El-Majid (2018) found in their study that OC was related to OCB among teacher in a more collectivistic society and high-power distance. Thus, we propose a positive correlation between OC and teachers' OCB.

H2: OC is positively associated with (H2a) student academic achievement and (H2b) OCB and negatively associated with (H2c) teachers' *perceived strain*.

Moderator–mediation model

We propose a moderator–mediation model of principal leadership influences on school effectiveness. We suggest that PDM and PL can have both direct and indirect influences on school effectiveness, with the school cultural attributes, acting as a moderator, and teacher OC acting as a mediating variable in the proposed model. Our rationale lies in the fact that principals have constant exchanges with teachers that provide occasions to motivate and sustain their OCB and school effectiveness (Benoliel, 2020; Leon and Finkelstein, 2016). These exchanges supplement “indirect approaches” targeted at producing a caring school environment for productive instruction and academic achievement (Boyce and Bowers, 2018). Researchers agree that the influence of principal leadership on school effectiveness is achieved indirectly and directly by shaping conditions that contribute to an effective teaching and learning environment (Lian and Wardiah, 2020; Liu and Hallinger, 2018). Hence, this study postulates the possibility of mediation.

H3a: OC mediates the relationship between the interaction of PDM and school cultural attributes to school effectiveness.

H3b: OC mediates the relationship between the interaction of PL and school cultural attributes to *school effectiveness*.

Method

Setting

The educational system in Israel is characterised by its various cultures, being composed of several ethnic and religious sectors. Seventy-three percent of the students in the Israeli educational system come from the Jewish sector, while 27% come from the Arab sector (Israel Central Bureau of Statistics, 2020). The Jewish educational system is characterised by low-power distance and more individualist standards that place a greater emphasis on teachers' independence, autonomy, and prioritisation of their own goals as well as a justifiable desire in pursuing their own interests in personal achievement ((Oplatka and Hertz-Lazarowitz, 2011).

Two additional sectors of the official school system are Arab (19% of Israel's population; Ministry of Education, 2011) and Druze (4% of Israel's population; Falah, 2000). Arab society differs from Jewish society in that they have their own culture, language, and traditional practises (Cohen and Abd-El-Majid, 2018). The majority of Arab schools are part of the formal educational system and are run by and funded by the Ministry of Education. Several schools are additionally supported by donors and/or parents, the majority of which are Christian (ICBS, 2020). The Arab minority is considered religious and highly conservative, with people's behaviour regulated

through strict societal norms and a tendency to conservatism with a high-power distance that produces a large communication gap between individual and leader (Arar and Abu-Nasra, 2019). These sectoral divisions are reflected in the structure of the education system and in the general curriculum.

Participants and procedure

Data were collected from two sources, self-reports and test grades measures to minimise problems associated with same source bias (Avolio et al., 1991). Data were collected randomly from a two-stage clusters sample. At the first stage, schools were chosen as a cluster randomly. At the second stage, teachers were chosen as a cluster and five teachers were randomly asked to participate. The sample included 245 teachers in elementary schools from both the Arab educational system (65%) and the Jewish educational system randomly chosen in Israel with an average school enrolment of 514.20 pupils ($SD = 164.97$).

Of the teachers who participated in the study, 67.8% were women, with an average age of 38.53 years ($SD = 7.47$). They had an average of 15.23 years of experience in the teaching profession ($SD = 7.75$). With respect to education, 46.1% held a master's degree, 25.7% held a bachelor's degree, 25.3% held a B.Ed. (bachelor's degree with teaching credentials), and 2.9% held a "professional" degree (equivalent to a junior college diploma with teaching credentials).

Prior to data collection, several steps were taken to address ethical concerns and to ensure participants' commitment to the research. Permission from our university's institutional review board and from the Israeli Ministry of Education was obtained. After receiving approval from the Ministry of Education to perform the research, schools were randomly chosen from a list provided by the Ministry of Education. The principals were contacted, and the research goal was presented. Once principals agreed to have their school participate, teachers were solicited to participate. Participants participated voluntarily through validated survey questionnaires. Teachers completed questionnaires on PDM, PL, OC, perceived strain, and OCB. As the study aimed to examine teachers' emotional outcomes to social environment, self-reported data was suitable for capturing teachers' perceptions of these variables (McCall, 2013). In addition, caution was taken to minimise the impact of potential common method bias as suggested by Podsakoff et al., (2003). First, we guaranteed our participants' response confidentiality, and the significance of candid answers was stressed. Also, we emphasised that the results would be reported only as group averages, and that no school or individual teacher could be identified. Second, to reduce the risk that relationships might be inflated because of common method variance we decided to treat leadership behaviours (PDM and PL) as a group-level variable since aggregate measurements are generally more stable (see level of analysis; Lenzi et al., 2012). Finally, to corroborate our findings by evidence from test grades measures, we used records about student academic achievement provided by the National Authority for Measurement and Evaluation in Education.

Measures

Except as otherwise noted, respondents answered a five-point Likert scale ranging from *Strongly disagree (1)* to *Strongly agree (5)*.

PDM. PDM was assessed using Sagie et al., (2002) 3-item scale: (e.g., 'To what extent are you involved in solving problems in your school?', $\alpha = .92$).

PL. PL was measured using the scale of Cheng et al., (2000). The CFA indicated good goodness-of-fit indexes, $\chi^2 = 368.427$, CFI = .986, IFI = .987, RMSEA = .029, and involves: *authoritarian leadership* (i.e., "My principal has asked me to obey his/her instructions completely",

9 items, $\alpha = .91$); *benevolent leadership* (i.e., “My principal devotes all his/her energy to taking care of me”, 11 items, $\alpha = .95$); *moral leadership* (i.e., “My principal doesn’t take the credit for my achievements and contributions for himself/herself”, 6 items, $\alpha = .80$). The whole questionnaire internal reliability was $\alpha = .91$.

OC. OC was assessed using Mowday et al. (1979) 15-item scale suited to the teacher population (Somech and Bogler, 2002), (e.g., ‘I am willing to put in a lot of effort, even beyond expectations, to help my school succeed’, $\alpha = .85$).

Teacher’s perceived strain. Teacher’s perceived strain is measured using the 17-item General Health Questionnaire (GHQ) of Dupuy’s (1984) which assesses physical complaints, anxiety and sleep disorders, inefficiency at work, and depression (e.g., ‘I suffer from sadness, hopelessness, depression, and many problems,’ $\alpha = .88$).

OCB. OCB was assessed using the Somech and Drach-Zahavy (2004) 23-item scale measuring three-dimensional details of OCB. The CFA indicates good goodness-of-fit indexes, $\chi^2 = 220.269$, CFI = .981, IFI = .982, RMSEA = .036, and involves: *OCB towards the school*, (8 items; e.g., ‘I voluntarily perform many tasks and activities that are not officially required by job definition’, $\alpha = .81$); *OCB towards colleagues*, (7 items; e.g., ‘I usually help new teachers even though it is not part of my role in the school’, $\alpha = .80$); *OCB towards students*, (8 items; e.g., ‘I am used to staying in school even after finishing my work to help students’, $\alpha = .86$). The whole scale internal reliability was .91.

Student academic achievement. Student academic achievements were measured using the national achievement assessment data in the core subjects (language, mathematics, and science) for fifth graders, administered by the Ministry of Education for the years 2015–2019. The grades represent the average achievement of the school, on a scale ranging from 0 to 100.

Control variables. School size (number of enrolled students), teachers’ education, seniority, and gender were chosen as control variables because previous research findings (Cuellar, 2018) showed that these characteristics were positively associated with school climate and school effectiveness.

Level of analysis

Teachers’ OC, OCB, and perceived strain were studied as individual-level variables. To reduce common method variance probability, we treated leadership behaviours as a group-level variable. Teachers in the same school are theoretically interchangeable (Morin et al., 2014) and rate the proposed variables, PDM and PL, directly. To statistically justify the aggregation of measures from individual teacher ratings to the school level, mean rWG values—Within-Group Interrater Reliability (Burke and Dunlap, 2003; James et al., 1993) were calculated, which indicates the degree of agreement among teachers. An rWG value of .70 or higher is suggested as very strong (LeBreton and Senter, 2008). For PL, rWG were .84, .92, and .74, respectively, and rWG for PDM of .70, indicating reasonable within-group agreement. Then, before aggregating individual-level scores to the group level by mean, intraclass correlations (ICCs) were calculated. The ICC(1) reflects the extent of inter- versus intra-group variability and ICC(2), provides an estimate of the reliability of the group means (Bliese, 2000). ICC(1) value generally ranges from 0 to .50, with a median value of .12, justifying aggregation and a group-level analysis (James et al., 1993). Regarding the dimensions of PL, our analyses indicated ICC(1) = .20 and ICC(2) = .55 for benevolence, ICC(1) = .04 and ICC(2) = .16 for authority, ICC(1) = .21 and ICC(2) = .58 for moral, and ICC(1) = .25 and ICC(2) = .62 for PDM. Thus, there was sufficient statistical justification for aggregating teachers’ individual perceptions of PDM and PL.

Data analysis

To test the proposed hypotheses, we used structural equation modelling (SEM; AMOS software 21.0; Joreskog and Sorbom, 1996). The interaction terms were modelled as standardised product terms of the manifest variables in the SEM models. To investigate the mediational effects of interactions, we estimated the appropriate indirect effects, and tested their significance using 90% bias-corrected bootstrap confidence intervals Amos 21.00 (Fairchild and MacKinnon, 2009). We considered the effect to be statistically significant when the 90% confidence interval excluded zero. School size was included in the model to account for its possible confounding the effects. Then, the bootstrapping procedure, based on a 5000 bootstrap sample size, to ascertain the presence of indirect effects was employed (Preacher and Hayes, 2008). Finally, the significant interaction was plotted following Aiken and West's (1991) recommendation for reducing biases by calculating high and low levels of a continuous variable as one *SD* above and below the mean.

Results

Table 1 presents the means, standard deviations, and intercorrelations matrix for the key variables.

Preliminary analysis. To assess if there were significant differences in student academic achievement, teachers' perceived strain, and OCB according to school size, participants education, seniority, and gender, Pearson correlations and *t*-test analysis were performed. A significant correlation between school size and student academic achievement was found ($r = .21, p < .05$). Regarding participants' background, no significant correlations were found between teachers' education and seniority and the school effectiveness (student academic achievement, teachers' perceived strain, and OCB; $p > .05$). No significant differences between men and women were found in teachers' perceived strain and OCB. Therefore, only school size was included as a control variable in the analysis.

Hypothesis test and overall model fit

To examine the proposed mediational role of teacher OC, we computed direct effects as well as indirect effects. A deviation in the fit statistics can be attributed to model misspecification

Table 1. Means, Standard Deviations, and Intercorrelations Matrix for all Key Variables.

Variables	M (SD)	Correlations						
		1	2	3	4	5	6	7
1. PL	4.13 (0.45)	1						
2. PDM	3.50 (0.68)	.458**	1					
3. OC	4.23 (0.65)	.302**	.444**	1				
4. OCB	3.65 (0.67)	.243**	.401**	.492**	1			
5. Teachers' perceived strain	2.07 (0.62)	-.025	-.118	-.331**	-.185**	1		
6. Student academic achievement	64.26 (11.53)	-.237**	.025	-.002	.073	-.151*	1	
7. School size	514.20 (164.97)	-.165**	-.171**	.080	-.063	-.052	.205**	1

Note. $n = 245$. * $p < .05$, ** $p < .01$, *** $p < .001$. PDM: participative decision-making, PL: paternalistic leadership, OC: organisational commitment, OCB: organisational citizenship behaviour.

(Muthén and Asparouhov, 2013). The results are presented in Table 2. The fit of Model 1 was compared to various alternative partial mediating models for school effectiveness (student academic achievement, teachers' perceived strain, and OCB), with added direct paths from the input variables (PDM, PL, the interaction of PDM and school's cultural attributes, and the interaction of PL and a school's cultural attributes) to school effectiveness (student academic achievement, teachers' perceived strain, and OCB), to see if it offers gains in the explanatory power, testing direct and indirect relationships between the input variables and the school effectiveness (see Table 3 and Figure 2).

According to the first model (Model 1—Benchmark model), OC serves as a full mediator in the relationships of the interaction of school's cultural attributes and principal leadership (PL and PDM) and school effectiveness. The results of the proposed model showed a good fit to the data ($\chi^2/df = 2.31$; CFI = .976, TLI = .932, IFI = .977; RMSEA = .073). However, the alternative models showed good model fit; specifically, the results suggested that Model 4 which tested both direct and indirect effects between PDM, PL, the interaction of PDM and school's cultural attributes, and the interaction of PL and school's cultural attributes on teachers' OCB, perceived

Table 2. Comparisons of Path Models.

Models	Description	χ^2	df	χ^2/df	CFI	TLI	RMSEA	Comparison with Model 1 $\Delta\chi^2$
Model 1:	Benchmark model—full mediation PDM, PL, PDM* school's cultural attributes, paternalistic*school's cultural attributes → OC → Student academic achievement, teachers' perceived strain, OCB (no direct PDM, PL, PDM*school cultural attributes, PL*school's cultural attributes → Student academic achievement, teachers' perceived strain, OCB)	37.00	16	2.31	.976	.932	.073	
Model 2:	Add direct: PDM, PL, PDM*school's cultural attributes, paternalistic*school's cultural attributes → OCB	22.04	12	1.83	.988	.956	.059	14.95, $p < .05$
Model 3:	Add direct: PDM, PL, PDM*school's cultural attributes, PL*school's cultural attributes → OCB, teachers' perceived strain	17.30	8	2.16	.989	.940	.069	19.7, $p < .05$
Model 4:	Add direct: PDM, PL, PDM*school cultural attributes, PL*school's cultural attributes → OCB, teachers' perceived strain, student academic achievement	5.78	4	1.44	.998	.977	.043	31.22, $p < .001$

Note. $n = 245$. χ^2/df improvement is reflected by a lower value. The values of CFI and TLI are recommended to be greater than 0.90; RMSEA is recommended to be up to 0.05, and acceptable up to 0.08. df: degree of freedom, CFI: Comparative Fit Index, TLI: Tucker–Lewis coefficient, RMSEA: Root Mean Square Error of Approximation, PDM: participative decision-making, PL: paternalistic leadership, OC: organisational commitment, OCB: organisational citizenship behaviour.

Table 3. Direct, Indirect, and Moderating Effects of PDM, PL, and School's Cultural Attributes on Student Academic Achievement and School Effectiveness (Teachers OCB and Teachers' Perceived Strain).

Predictor variable	β	SE	LCI 90%	UCI 90%	R^2
Model 1A:					
Direct effects on the mediator variable: OC					0.24
PDM	.36***	.10	.19	.52	
PL	.17	.12	-.02	.37	
School's cultural attributes	.01	.06	-.09	.11	
School size	.18**	.06	.08	.28	
PDM*school's cultural attributes	.06	.10	-.10	.23	
PL*school's cultural attributes	-.03	.11	-.22	.15	
Model 2A:					
Direct effects on the dependant variable: Student academic achievement					0.14
OC	-.02	.07	-.13	.09	
PDM	.11	.11	-.06	.30	
PL	-.24*	.12	-.45	-.04	
School's cultural attributes	-.26***	.06	-.36	-.15	
School size	—	—	—	—	
PDM*school's cultural attributes	.07	.11	-.11	.24	
PL*school's cultural attributes	.02	.12	-.17	.22	
Indirect effects on the dependant variable: Student academic achievement					
PDM→OC→ Student academic achievement	-.01	.03	-.05	.03	
PL→OC→ Student academic achievement	-.00	.01	-.04	.01	
School's cultural attributes →OC→ Student academic achievement	.00	.00	-.01	.01	
School size→OC→ Student academic achievement	-.00	.01	-.03	.02	
PDM*school's cultural attributes →OC→ Student academic achievement	-.00	.01	-.03	.01	
PL*school's cultural attributes →OC→ Student academic achievement	.00	.01	-.01	.02	
Model 2B:					
Direct effects on the dependant variable: Teachers' perceived strain					0.15
OC	-.35***	.06	-.45	-.24	
PDM	.01	.11	-.17	.19	
PL	.21*	.12	.01	.41	
School's cultural attributes	.11*	.07	-.00	.21	
School size	—	—	—	—	
PDM*school's cultural attributes	-.02	.10	-.19	.15	
PL*school's cultural attributes	-.21*	.12	-.39	-.02	
Indirect effects on the dependant variable: Teachers' perceived strain					

(continued)

Table 3. (continued)

Predictor variable	β	SE	LCI 90%	UCI 90%	R^2
PDM→OC→ Strain	-.12***	.04	-.21	-.06	
PL→OC→ Strain	-.06	.04	-.14	.01	
School's cultural attributes →OC→ Strain	-.00	.02	-.04	.03	
School size→OC→ Strain	-.06**	.02	-.11	-.03	
PDM*school's cultural attributes →OC→ Strain	-.02	.04	-.08	.03	
PL*school's cultural attributes →OC→ Strain	.01	.04	-.05	.08	
Model 2C:					0.31
Direct effects on the dependant variable:					
OCB					
OC	.38***	.06	.29	.48	
PDM	.28**	.10	.11	.44	
PL	-.18	.11	-.36	.01	
School's cultural attributes	.16**	.06	.06	.01	
School size	—	—	—	—	
PDM*school's cultural attributes	-.07	.10	-.22	.09	
PL*school's cultural attributes	.20*	.11	.02	.37	
Indirect effects on the dependant variable:					
OCB					
PDM→OC→OCB	.14***	.04	.07	.22	
PL→OC→OCB	.07	.05	-.01	.15	
School's cultural attributes →OC→OCB	.00	.02	-.04	.04	
School size→OC→OCB	.07**	.03	.03	.12	
PDM*school's cultural attributes →OC→OCB	.02	.04	-.04	.09	
PL*school's cultural attributes →OC→OCB	-.01	.04	-.09	.06	
Residual correlations					
OCB WITH Student academic achievement	.38**				

Notes. $N = 245$. * $p < .05$, ** $p < 0.01$, *** $p < .001$. PDM: participative decision-making, PL: paternalistic leadership, OC: organisational commitment, OCB: organisational citizenship behaviour.

School's cultural attributes: 1 = Arab educational system; 0 = Jewish educational system standardised regression coefficients are reported.

Bootstrap replications = 5000; LL: lower limit; CI: confidence interval; UL: upper limit.

Total indirect effect. Sum of indirect effect via OC.

strain and student academic achievement, showed good fit indices ($\chi^2 = 5.78$; $\chi^2/df = 1.44$; CFI = .998, TLI = .977, IFI = .998; RMSEA = .043). Since the difference in fit was significant ($\Delta\chi^2(4) = 11.52$, $p < 0.05$), this is the preferable alternative.

The estimates of the parameters of the selected path model, Model 4, correlations among the residuals of the integrative model variables, their explained variance (R^2), and bootstrap confidence intervals, are shown in Table 3 and Figure 2. Further analysis examined direct relationships between the independent variables: PDM, PL, the interaction between PDM and school's cultural

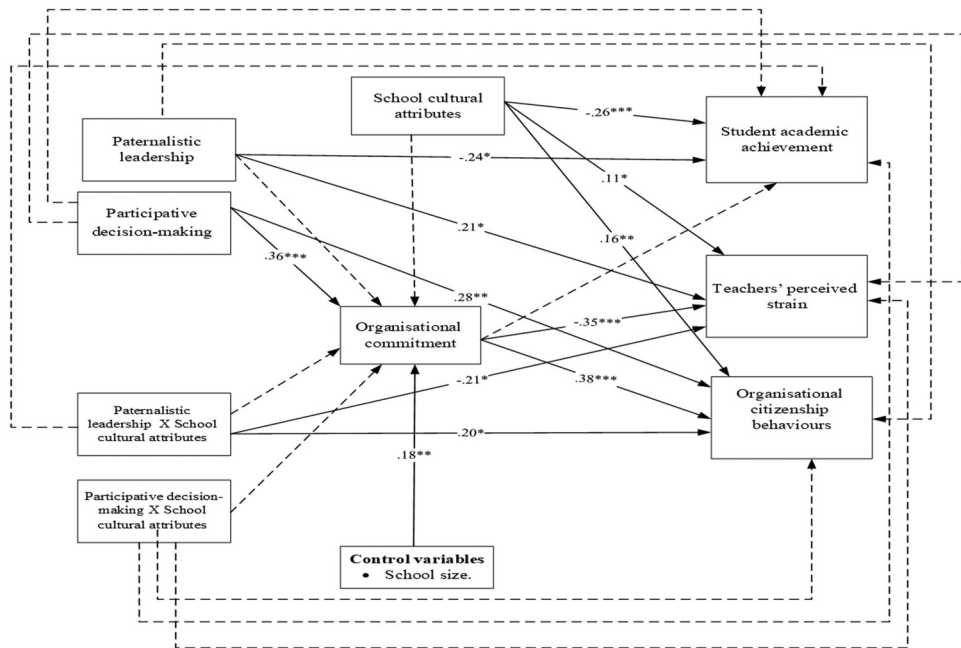


Figure 2. A moderator-mediation model: Teacher OC mediates the relationship between the interaction of principal leadership styles and school's cultural attributes to school effectiveness. Note: $N = 180$. $^*p < .05$, $^{**}p < .01$, $^{***}p < .001$. ($\chi^2 = 5.78$; $\chi^2/df = 1.44$; CFI = .998, TLI = .977, IFI = .998; RMSEA = .043). Dashed lines indicate nonsignificant effects.

attributes, the interaction between PL and school's cultural attributes, and the outcome variables: student academic achievement, teachers' perceived strain, and OCB.

Findings (see Table 3 and Figure 2) indicate that the overall model explained 14% of the variance in student academic achievement, 15% of the variance in teacher's perceived strain, and 31% of variance in teacher's OCB.

Hypothesis 1 concerns the moderating role of a school's cultural attributes on the relationship between PDM and paternalistic and OC. The results showed that the school's cultural attributes (Arab and Jewish) were not a moderator in those relationships. Therefore, both parts of hypothesis 1 (a, b) were not confirmed. However, significant correlation was found between PDM and OC ($\beta = .36$, $p < .001$).

Hypothesis 2 concerns the relationship between teacher OC and school effectiveness. In line with hypothesis 2a and 2b, teacher OC was negatively correlated to perceived strain ($\beta = -.35$, $p < .001$) and positively correlated to OCB ($\beta = .38$, $p < .001$). However, no significant correlation was found between OC and student academic achievement. Therefore, hypothesis 2 was partially confirmed.

Hypothesis 3a concerns the mediating role of OC between the interaction of PDM and school's cultural attributes (Arab and Jewish) and school effectiveness (student academic achievement, OCB, teacher' perceived strain). The bootstrapping analysis indicated that the indirect effect of PDM via OC on school effectiveness was as follows: for teacher perceived strain ($\beta = -.12$, $SE = .04$; 90% CI = $[-.21, -.06]$, $p < .001$); for teacher OCB ($\beta = .14$, $SE = .04$; 90% CI = $[.07, .22]$, $p < .001$). Therefore, the mediation effect of OC between PDM and strain was full. In addition,

direct relationships were found between PDM and OCB ($\beta = .28, p < .01$). Therefore, since the direct effect of PDM on OCB was also significant, the mediation effect of OC was only partial. In addition, no relationship was found between PDM and student academic achievement ($\beta = .11, p > .05$). Therefore, hypothesis 3a was partially confirmed.

Hypothesis 3b concerns the mediating role of OC between the interaction of PL and school cultural attributes (Arab and Jewish) and school effectiveness (student academic achievement, OCB, and perceived strain). Although OC was not found to mediate between the interaction of PL and school's cultural attributes on school effectiveness, the bootstrapping analysis pointed to significant direct relationships between the interaction of PL and school's cultural attributes and school effectiveness. Results showed that the interaction between school's cultural attributes and PL was positively correlated to teacher OCB ($\beta = .20, p < .05$) and negatively correlated to teacher perceived strain ($\beta = -.21, p < .05$). In addition, a direct negative relationship was found between PL and student academic achievement ($\beta = -.24, p < .05$) and positively correlated to teacher perceived strain ($\beta = .21, p < .05$). These results provide only partial support for our hypothesis.

Regarding the moderating role of school's cultural attributes on the relationship between PL and teacher-perceived strain, as Figure 3 illustrates, in schools characterised by collectivism and high-power distance (i.e., Arab society), teachers' perceived strain level was lower with a high level of PL than with a low level (dashed line; $\beta = .14, t = -1.94, p < .05$). However, in schools

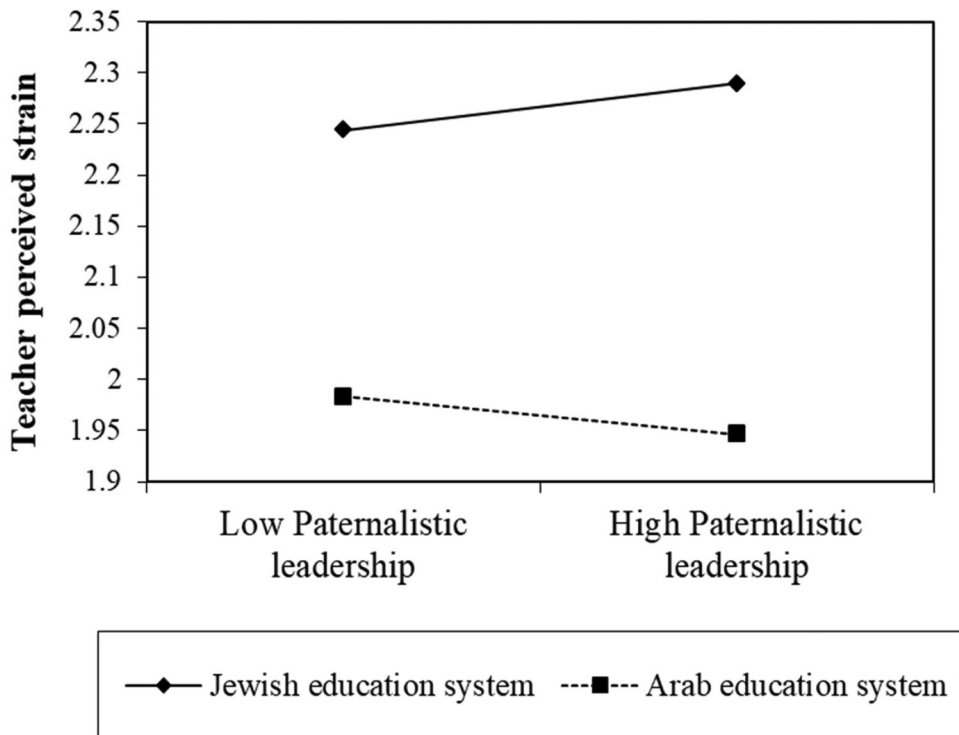


Figure 3. Interaction effect between school cultural attributes (Jewish and Arab) and paternalistic leadership on teachers' perceived strain.

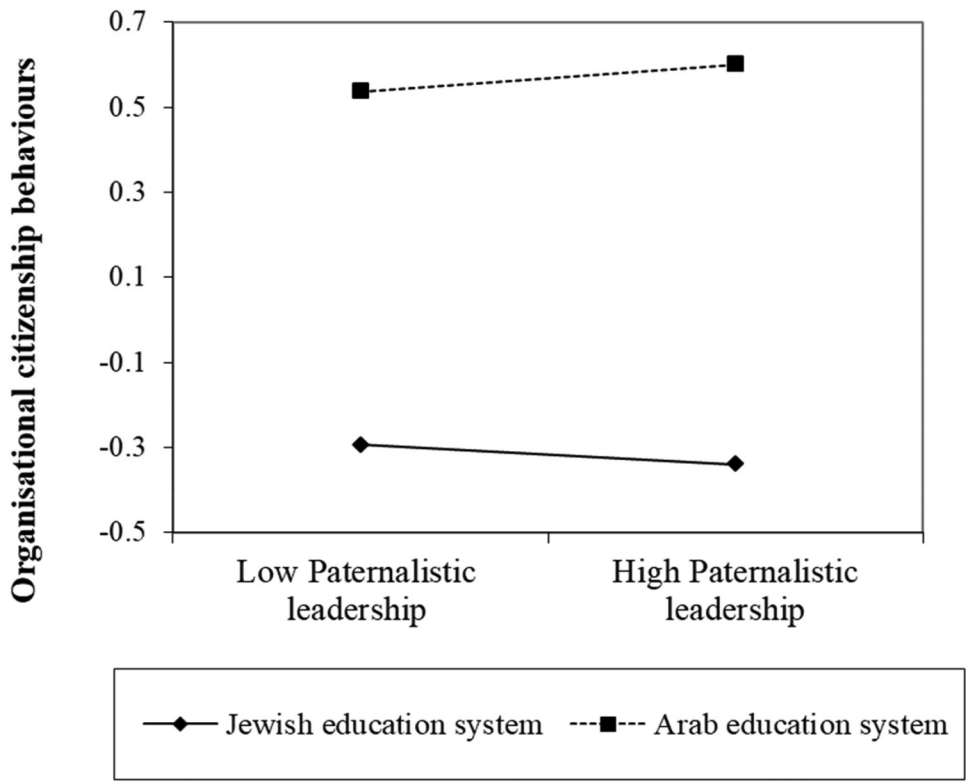


Figure 4. Interaction effect between school cultural attributes (Jewish and Arab) and paternalistic leadership on teacher OCB.

characterised by individualism and low-power distance (i.e., Jewish society), no significant difference was found in teachers’ perceived strain level under a high or low level of PL (solid line; $\beta = -.04$, $t = -0.78$, $p > .05$). As Figure 4 illustrates, the findings indicate that school cultural attributes moderated the relationship between PL and OCB. In schools characterised by collectivism and high-power distance (Arab schools), teachers’ OCB level was higher with a high level of PL than with a low level (dashed line; $\beta = .06$, $t = 0.89$, $p < .01$). However, in schools characterised by individualism and low-power distance (i.e., Jewish society), no significant difference in teachers’ OCB was found under with either high or low levels of PL (solid line; $\beta = -.17$, $t = -1.64$, $p > .05$).

Discussion

The call to research the influence of a sociocultural context on the relationship of principal leadership and school effectiveness (Arun et al., 2021; Or and Berkovich, 2021; Shaked, 2022) motivated the present study. The present study suggests a moderator–mediation model: teacher OC mediates the relationship between the interaction of PDM and PL and school cultural attributes to school effectiveness. Overall, the present study findings provide partial support for the research hypothesis

and indicate that school cultural attributes characterised by different levels of collectivism and high-power distance can influence teachers' perceptions regarding ideal leaders' appropriate behaviours and practises, with implications for school effectiveness.

First, our findings highlight the intervening role of school cultural attributes on the relationship between PL and school effectiveness, implying that the implications of PL are context dependent. Second and importantly, our findings highlight the positive implications of PDM on school effectiveness regardless of school cultural attributes. Finally, our results are aligned with recent research (Liu and Hallinger, 2018) emphasising both direct and indirect (through teacher OC) influences of principal leadership on school effectiveness.

Specifically, regarding the direct and indirect influences of PL on school effectiveness, the results indicate that school cultural attributes moderate the relationship between PL and teachers' perceived strain and OCB. Specifically, in school characterised by highly collectivism and high-power distance (i.e., Arab educational system), teacher OCB level was higher, and teachers' perceived strain was lower with higher levels of PL than lower. Our results are aligned with previous research indicating that principals in the Israeli Arab schools are perceived by their teachers as displaying authority, with high-power distance and a tendency towards conservatism (Peri-Hazan, 2013). The present result aligns previous research findings indicating that the effectiveness of the PL style is culture-dependent (Tan and Dimmock, 2014). For example, research findings showed that the characteristics of PL style such as authority, leading by benevolent guidance, and setting a moral example, reflect characteristics that meet the holistic needs of employees in Confucian Asian countries (Rivers, 2019). These countries show relatively high scores on the societal cultural dimensions of high-power distance, emphasis on loyalty, and collectivism (Dedahanov et al., 2019; Rivers, 2019). Similarly, research has indicated that this cultural expectation for a strong leader that make decisions on his own is rooted in the conceptions and expectations of teachers working in schools characterised by more collectivistic values (Chou et al., 2015). Some of these values are close to the values shared in the Arab society in Israel.

Additionally, the results indicated direct negative relationships between PL and teachers' perceived strain and student academic achievement. These results align with previous study findings showing negative effects of PL on school effectiveness (Çetin et al., 2017). This result is interesting because traditionally, schools in the Arab society are generally run in a hierarchical, authoritarian manner: Principal-teacher social and high-power distance is maintained, and policy is determined by the principal with little tendency to involve teachers in the decision-making process (Arar and Abu-Nasra, 2019). However, gradually, due to the impact of sociological changes, a new generation of students and teachers with other expectations such as consideration, encouragement, caring, and support on the part of the principal is developing. As a result, new needs have emerged among teachers and students in this society; for instance, recently, Nassir and Benoliel (2022) indicated that benevolent and moral components of PL meet the aspirations of a new generation of teachers aspiring for less hierarchical and less authoritarian leadership styles. Another study has pointed to an improvement in the status of women in Israeli Arab society reflected by the impressive rise in the number of women school principals (Arar and Masry-Herzallah, 2018).

Second, regarding the relationship of PDM to school effectiveness, the results indicated both a direct and an indirect relationship (through the mediating role of teacher OC) of PDM to teachers' perceived strain and OCB. However, no moderating impact of school cultural attributes was found implying that PDM raises the level of OC regardless of school's cultural attributes. These findings are similar to previous study by Somech (2010) that showed that PDM can lead to engagement in OCBs by direct effect, such as helping new members of the work group. These findings are

interesting and may be explained by the fact that the cultural expectation in schools characterised by collectivism and high-power distance (the Arab education system) for an authoritarian principal is accepted in the conceptions and expectations of teachers, which coincide with the present findings. However, concurrently, over the course of time, the Arab society although characterised by collectivistic, hierarchical and high-power distance cultural values, has gone through a broad, gradual process of change. Contact with the Jewish population, agent of modernisation towards more individualistic cultural values, has intensified over the years (Abu-Asba, 2014). This process has involved a change in the Arab society in the basis of individuality, from a traditional patriarchal and collective local identity (based on the village and Hamula—the extended family in the widest sense, or clan) to a more individual identity (Arar and Abu-Nasra, 2019). This shift seems to bring Arabic-speaking teachers closer to more individualistic values and aspirations with appreciation for democratic leadership styles and to be involved in decision-making process.

Regarding the relationship of OC and school effectiveness, in line with our hypothesis, a negative relation was found between OC and teachers' perceived strain and a positive relation was found between OC and OCB. It seems from the present findings that teacher OC is an adaptive resource that helps one makes sense of his situation, thus buffering the harmful effects of stressors and alleviating subsequent deviant behaviours. Our findings are consistent with the previous research findings of Han et al., (2015), indicating that high OC reduces the level of stress and pressure among employee because OC is a cognitive and behavioural barrier to alleviating stressors, as employees remain committed to resolving a problem. Therefore, it seems that teacher OC provides teachers with coping strategies for dealing with stressful work events and can help insulate teachers from the negative effects of perceived strain (Saadeh and Suifan, 2020). Similarly, a positive relationship was found between teacher OC and teacher OCB. It seems that teachers with high levels of OC are willing to contribute beyond their primary role, possibly because they feel connected to the school. This proposition concurs with recent findings emphasising a positive relationship between OC and OCB (Grego-Planer, 2019). These present results add and confirm research emphasising the importance of nurturing teacher OC (Berkovich and Bogler, 2021). For instance, previous study indicated that teacher OC was correlated to pedagogical and collegial improvement within the classrooms (Gökyer and Türkoğlu, 2018). Similarly, recently, Fauzani et al., (2022) showed that teachers who are committed to their workplace tend to be more cooperative with their peers, sharing knowledge and experience, and to be more school goals oriented. However, OC was not correlated to student academic achievement. These findings are surprising. Studies have pointed to additional factors, explaining student achievements, such as student motivation and parental involvement (Gbollie and Keamu, 2017; Kangas-Dick and O'Shaughnessy, 2020). Further studies should investigate additional factors to deepen our understanding of factors facilitating student performance.

Overall, the results showed that PL and PDM together can have a positive influence on school effectiveness within a society characterised by collectivistic, hierarchical, and high-power distance cultural values. These findings corroborate the argument that PL brings positive outcomes for teachers in collective and hierarchical societies, where conservatism and respect for tradition still prevail (Abbas and Ilayyan, 2021). However, at the same time, it seems from the present findings that a new reality is reflected in behaviours and expectations of teachers in schools characterised by collectivism and high-power distance (i.e., the Arab education system), characterised by increased aspirations to participate in school decision-making processes. These results can be explained by several factors. First, the shift from peasantry to work in the general labour market has brought about a loosening of the ties of the extended family, and patriarchal rule has been

weakened (Arar and Abu-Nasra, 2019). Second, higher level of education in the Arab community along with an increase in the percentage of Arab students studying in higher education institutions with new professional aspirations (Shaviv et al., 2013). This professional focus has brought Arab students closer to more individualistic values with a focus on personal career and development. Third, technological changes have produced a social and cultural movement that enables teachers in Arab system schools characterised by collectivism and high-power distance to be leaders in schools, to stand out more, and to be more inclined to assume positions of influence (Abu-Asba, 2014). Therefore, these findings may be beneficial in leading researchers and practitioners to rethinking the utility of implementing PDM and involving teachers in the decision-making process in schools characterised by high collectivism and low-power distance.

Limitations and future research

Several limitations of the study warrant further attention in future research. While these findings are encouraging for the educational literature, the present study was limited by its mode of operation. First, the cross-sectional design of the present study raises the issue of causality. The data cannot provide direct evidence of causal links between PDM, PL, and teacher behaviours. Conceivably, the causal order could be reversed. Nor can reciprocal causality be ruled out. Future research should use longitudinal designs to further validate the causal inferences suggested in the current study. Second, the sample involved elementary school faculty, limiting the ability to generalise the findings to other samples. Further research should be done on larger and diverse samples, in order to better understand the effects of culture on leadership emergence and implications among minorities. Finally, this study examined only selective moderating and mediating variables that do not fully capture the potential complexity of the relationship between principal leadership and school effectiveness. Further studies should examine the interactive impact of other variables such as principal-teacher gender (dis)similarity, school climate considering a specific focus on ethnocultural Arabic-speaking teacher minority to enhance school effectiveness and commitment towards their work and behaviours.

Practical implications

The present research may inform research and policy-makers regarding the design of programmes and leadership skills. First, according to the present findings, the emergence and implications of PL on school effectiveness outcomes are cultural attributes dependent. That is, PL is better suited to the cultural values of teachers working in schools characterised by collectivism and high-power distance (Arab educational system) than in schools characterised by individualism and low-power distance (the Jewish educational system). However, and interestingly, the finding that PDM leads to positive outcomes regardless of a school's cultural attributes may inform policymakers, practitioners, and researchers regarding the importance of considering and implementing PDM. Namely, promoting participative and supportive work environments can address teachers' need and student needs, which promote students' achievements, teachers' well-being. Practically, this can be developed through a rotation scheme that includes movement between schools from both cultures. Such an arrangement could enable principals and teachers to play a variety of roles informed by broad professional and environmental knowledge. Rotation schemes would provide opportunities to experience various school cultural contexts, values, and norms in order to learn the different demands and objectives of teachers and students. This could help devise leadership practises and develop leadership training better adapted to schools with various socio-cultural attributes. Also, acquiring a larger variety of skills and values can contribute

to principals' individual growth. Thus, promoting collaboration among principals and faculty from schools characterised by different cultural attributes improving their inter-cultural professional skill sets through mutual help and exchange, can enabling leaders and faculty from both communities to better deal with the mutual challenges they encounter.

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