Investigating the relationship between person–environment fit and safety behavior: A social cognition perspective

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ABSTRACT

Introduction: This study explored the relationship between person–job fit and safety behavior, as well as the mediating role played by psychological safety, from the perspective of social cognitive theory and person–environment fit theory. *Method:* A total of 800 employees from petroleum enterprises were recruited, with cluster random sampling used to collect data in two stages. *Results:* The results showed that employees' safety behavior is higher under the condition of "high person–job fit—high person–organization fit" than under that of "low person–job fit—low person–organization fit." In other words, the more congruent the level of person–job fit and person–organization fit for a given employee, the higher their level of safety behavior. *Practical Applications:* Psychological safety plays a mediating role between the congruence of both person–job fit and person–organization fit and employees' safety behavior.

Although occupational safety protocols have improved in recent decades (Guo & Yiu, 2015), accidents and casualties still occur from time to time in the workplace (Smith et al., 2018). Workplace safety accidents are characterized by high mortality and disability rates (Christian et al., 2009), which can have detrimental consequences for both employees and their organizations. According to the U.S. Bureau of Labor Statistics (BLS, 2017), 5,190 fatal workplace safety accidents were reported in the United States in 2016 alone. Although most safety accidents were caused by the interaction of multiple factors, individual behavior often plays a significant role. According to a workplace survey, over 70% of safety accidents were caused by individual mistakes or unsafe behavior, resulting in tens of billions of economic losses every year (Christian et al., 2009). Accordingly, improving employees' understanding of safety protocols and reducing their risky behavior in the workplace is an urgent issue for many enterprise managers.

According to Lewin's field theory (Lewin, 1951), the life space includes the individual and his or her psychological environment. A person's behavior (B) depends on the interaction between the person (P) and his or her environment (E), that is, behavior depends on the individual's life space (B = f(P, E)). The idea of person––environment fit (P–E fit) has always been regarded as an important factor to explain and study employees' behavior and performance within organizations (Kristof-Brown, Zimmerman, & Johnson, 2005; Lv & Xu, 2018). It embodies the idea of "the interaction between individuals and the environment." According to the theory of P–E fit (Kristof-Brown et al., 2005), working behavior and employees' working attitudes are influenced by the degree of consistency between employees' internal characteristics and the characteristics of their organizations. In other words, when the support of the environment is consistent with employees' needs, their motivation and engagement at work can be stimulated (Lv & Xu, 2018). P–E fit also has a positive impact on employees' innovation behavior (Afsar, Badir, & Khan, 2015), voice behavior (Cheng et al., 2013), organizational citizenship behavior (Cheng et al., 2013) and other desirable behaviors. Thus, P–E fit is consistently recognized as an important factor in improving employees' behavior (e.g., safety behavior) and organizational performance (e.g., safety performance; Edwards, 2008).

Research has shown that the key dimensions at play in P–E fit include job, organization, occupation, group, and person (Kristof-Brown et al., 2005). Person–job fit (P–J fit) emphasizes the consistency between individual characteristics (e.g., knowledge, personality traits), personal expectations and job requirements, reflecting the complementary fit between individuals and job requirements at the micro-level. Person–organization fit (P–O fit) indicates whether individuals and organizations have similar characteristics or complementary needs, reflecting a similarity fit at the

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macro-level (Kristof-Brown et al., 2005). Existing literature on the relationship between P–E fit and safety behavior is still relatively lacking. However, relevant studies have shown that both P–J fit and P–O fit impact employees' behavior and attitudes. For example, a study by Afsar et al. (2015) demonstrated that high levels of P–J fit and P–O fit promote innovative behavior among employees. Accordingly, we hypothesize that P–J fit and P–O fit will have the same effect on safety behavior. P–J fit and P–O fit have, however, different mechanisms. Lauver and Kristofbrown (2001) compared the effects of these two fit types on job satisfaction, job performance, turnover intention, and peripheral performance, and found that P–O fit better predicted job performance, turnover tendency and peripheral performance, but did not predict job satisfaction better than P–J fit. In short, although the relationship between the two types of fit is close, and both are related to employees' work behavior, they are different in concept, measurement, scope of application, and mechanism. Edwards (2008) posits that although there are differences in the effects of P–J fit and P–O fit on employees' behavior and attitudes, there are situations in which they work together. In light of this, the present study takes P–J fit and P–O fit as two subordinate concepts of P–E fit to explore the effects of the (in)congruence of the two P–E fit types on safety behavior.

According to social cognitive theory, behavior is influenced by the interaction of individual factors and environmental factors, with cognitive factors representing an important part of personal traits. Existing research has tended to focus on external factors such as organizational support or other work-related factors (Warr & Inceoglu, 2012) when exploring the mediating mechanisms of P–E fit on employees' behavior, while paying less attention to individuals' subjective cognitive factors. Relevant studies have shown that employees' work behavior is affected by their subjective cognitive feelings (Egan, Zigarmi, & Richardson, 2019), and these subjective cognitive feelings are also influenced by the fit between individuals and their environment (Cheng et al., 2013). Psychological safety, for example, is an individual's belief and perception of safety in the face of a risky environment (Edmondson, 1999). When individuals perceive that their safety is guaranteed, they may interact more with the environment or with others, and perform behaviors with high aspirations that might be outside of their roles (Men et al., 2020), which are consistent with the requirements of safety behavior. The present study explores the mediating role of psychological safety in the relationship between P–E fit and safety behavior.

In summary, the present study uses social cognitive theory and P–E fit theory (Kristof-Brown et al., 2005) to explore the mechanism by which P–J fit and P–O fit affects employees' safety. Specifically, this study positions P–J fit and P–O fit into a P–E fit congruent condition (four kinds of fit conditions are shown in Table 1), used to explore the effect of the congruence between P–J fit and P–O fit on employees' safety behavior. First, we examine the impact of congruence (high and low) on safety behavior where the two types of P–E fit are congruent. Second, we examine which one ("high P–J fit, low P–O fit" or "low P–J fit, high P–O fit") affects safety behavior when they are not congruent. Finally, the study examines psychological safety as a potential mediating variable underlying the mechanism by which P–E fit affects employees' safety behavior.

Table 1
P–E Fit conditions.

P–E fit		P–J fit	
		low	high
P–O fit	low	congruent	incongruent
	high	incongruent	congruent

1. Literature review and hypothesis

1.1. P–E fit and safety behavior

Safety behavior refers to behavior that employees perform to comply with safety regulations and achieve an organization's safety objectives (Griffin & Neal, 2000). The generation of personal safety behavior is not only related to an individual's characteristics but also closely related to their environment. If the environment is consistent with individuals' behavior, it will often promote generation of that behavior. In general, the consistency or compatibility between individuals and their environment is defined as P–E fit. P–E fit theory posits that people are born to adapt to the environment, and strive to find the environment that conforms to their characteristics (Kristof-Brown et al., 2005).

In essence, P–E fit theory holds that there are potential similarities between organizational characteristics and personal characteristics, and that individuals' attitudes and behavior are affected by the similarity or degree of fitting between themselves and their organizations (Edwards, 2008). According to social cognitive theory (Lewin, 1951) and fit theory (Kristof-Brown et al., 2005), individual behavior is affected by the environment. When there is a good fit between employees and their organization, employees experience certain emotional tendencies and attitudes towards it which naturally affect their behavior. As shown by previous studies, P–O fit has a significant impact on important work attitudes such as job satisfaction (Rauvola et al., 2020), organizational commitment (Kooij & Boon, 2018), and turnover intention (Abdalla et al., 2018). If employees realize that there is a good fit between themselves and their workplace, meaning that the organization is able to meet their needs, desires, and preferences (Kristof-Brown et al., 2005), they will produce good results (e.g., trust, creativity, job involvement, job commitment, and job satisfaction). These results can be converted into a sense of belonging, or psychological contract, which in turn will encourage employees to engage in behaviors that are beneficial to their organizations. Previous studies have shown that the higher the P–O fit, the more positive the work outcomes, such as higher job involvement (Lv & Xu, 2018), higher organizational commitment (Kooij & Boon, 2018), better work attitude (Mehlika et al., 2018), and lower turnover intention (Abdalla et al., 2018). Meanwhile, research has shown that higher P–O fit can increase employees' intrinsic motivation and job involvement, thus enhancing their organizational citizenship behavior (Kim & Gatling, 2019). As mentioned above, safety behavior is similar to organizational citizenship behavior, except with a particular focus on safety (Griffin & Neal, 2000; Smith et al., 2018). Thus, we hypothesize that P–O fit has a similar effect on safety behavior as on organizational citizenship behavior.

When employees' values, goals, personality, attitudes, knowledge, skills, and abilities are fitted with factors related to an organization's culture, climate, values, goals, norms, organizational resources, and tasks, the degree of P–O fit is relatively high (Griffin & Neal, 2000; Smith et al., 2018). If the degree of fit between employees and organizations that emphasize safety is high, meaning that they have consistency on safety issues, the safety values and targets of the organization will have a positive impact on employees' safety behavior. Such consistency is conducive to promoting the exchange of safety information between employees and their organizations, increasing the likelihood of employees complying with safety rules and regulations, enhancing the internal safety motivation of employees (Panuwatwanich et al., 2017), and reducing the possibility of being misunderstood by leaders and colleagues, as well as reducing inner uncertainty when performing out-of-role behavior such as making safety-related suggestions. All of these will lead to greater participation in

safety-related activities. Accordingly, this study advances the following hypothesis:

H1: P–O fit is significantly positively correlated with safety behavior.

P–O fit explains the fit between employees and the environment at the macro level, whereas P–J fit explains the fit between employees and the environment at the micro level (i.e., in terms of fitting an individual's skills, knowledge, and abilities to the particular characteristics of a job) (Edwards, 2008). The micro-working environment in which individuals work and perform their duties plays a crucial role in predicting work behavior. In the micro-working environment, position has a stronger impact on employees than the organization, and the fit between positions and employees can be directly perceived by employees. Their suitability to the work environment and work assignments can be compared against their values, knowledge, skills, and needs (Cable & Judge, 1997; Arieli, Sagiv, & Roccas, 2020). Research has shown that employees' work behavior and attitudes are directly affected by the fit between personal interests and their attitudes towards work assignments and the work environment (De Beer et al., 2016). When P–J fit is high, it means that job characteristics, organization demands, and resource availability are matched with employees' ability and internal demands. This leads employees to be satisfied with their positions and naturally comply with the company's rules and regulations regarding job safety. If the company's protocols emphasize the importance of safety, employees will perform more safety behavior. However, it also means that employees' knowledge, skills, and abilities meet the job needs, and they can respond more appropriately to the external environment (Kristof-Brown et al., 2005; Kim & Gatling, 2019). When employees are satisfied with their jobs, they are likely to perform more out-of-role safety behavior, such as proposing new ideas for safety management. Accordingly, we advance the following hypothesis:

H2: P–J fit is significantly positively correlated with employees' safety behavior;

As mentioned above, P–O fit and P–J fit belong to the macro and micro levels of P–E fit, respectively, with both of them having a certain impact on employees' attitudes and behavior. Some studies have found situations where they work together (Cai et al., 2018). The question thus arises as to whether a joint effect between them affects employees' safety behavior, and whether there might be a situation in which the two types of fit are incongruent as regards this joint effect. In other words, given the four different fit permutations, which is more important to safety behavior? As mentioned previously, the micro-environment is more likely to affect employees' perceptions of fit. Therefore, the following hypotheses are proposed in this study from the perspective of P–E fit:

H3: Employees' safety behavior is higher under the congruence condition of "high person–job fit—high person–organization fit" than it is under that of "low P–J fit—low P–O fit."
H4: Employees' safety behavior is higher under the congruence condition of "high P–J fit—low P–O fit" than it is under that of "low P–J fit—high P–O fit."
H5: The more congruent P–J fit and P–O fit are, the higher employees' safety behavior will be.

1.2. Mediating role of psychological safety

Psychological safety is a necessary condition for people to feel supported and engaged in their work, thereby enabling them to fully display their talents without worrying about a negative impact on their image, status, or career (Kahn, 1990). This study follows Kahn's (1990) definition of psychological safety as a positive individual psychological trait that refers to the perception of one's own safety when a member of an organization contributes beneficial actions or suggestions. According to social cognitive theory (Lewin, 1951), the behavior of individuals is affected by their cognitive factors. Psychological safety is the perception of interpersonal risk. Before reaching a decision to act, individuals in the workplace will first deliberate on the potential responses of leaders and team members to their behavior (Cai et al., 2018). When individuals perceive that their behavior may invite negative reactions from others, they may choose not to engage in that behavior. However, when individuals believe that their safety is guaranteed, and they have a sense of psychological safety, they may interact more with the environment or others (Singh, Winkel, & Selvarajan, 2013; Hu, Zhu, et al., 2018), engaging in high-aspiration or extra-role behavior (Cheng et al., 2013), both of which are consistent with the requirements of safety behavior. When employees' psychological safety is high, and their enterprise emphasizes safety, they will abide by the appropriate safety rules and regulations. Furthermore, if individuals have a high level of psychological safety, supervisors and colleagues will encourage and support employees in taking risky, extra-role behavior, which motivates them to contribute further safety advice.

From a fitting perspective, ensuring a fit of values enables individuals in a group to hold similar beliefs and norms, which in turn promotes the loyalty of team members and trust in each other (Arieli et al., 2020). In other words, employees are more likely to experience friendliness and trust from managers and colleagues when their values and needs are fitted to that of the organization. In such trusting relationships, individuals perceive their work environment as a safe environment where they can express their true selves and promote their own psychological safety (Kahn, 1990; Men et al., 2020). In contrast, individuals with incompatible values, or those experiencing a mismatch between supply and demand in the group, may experience psychological pressure, negative emotions, and broken interpersonal relationships, thus reducing their psychological safety (Men et al., 2020). Previous studies have shown that P–E fit is positively correlated with the quality of the working relationship (Liang et al., 2012). High-quality relationships can increase trust and reduce fear and embarrassment among people (Tepper et al., 2018). Meanwhile, research conducted by Jiang et al. (2019) found that when individuals have confidence in their team, they have reduced fears about the possible negative consequences of their actions, thus increasing their psychological safety. Given that P–E fit has a positive effect on individual psychological safety, we propose the following hypothesis:

H6: Psychological safety plays a mediating role between the congruence of person–job fit and person–organization fit and employee' safety behavior.

2. Measures

2.1. Procedure and participants

The current study investigating employees' safety behavior was conducted with the employees of a large national oil enterprise. We collected data in two stages. With the help of the human resources department, we used a whole group random sampling method to select 800 participants out of 1309 employees at the organization for a questionnaire survey. All participants took part in our study voluntarily and signed an informed consent form at the beginning of the process. Additionally, all procedures conformed to the ethical standards of the research committee of

Shandong Normal University and the 1964 Helsinki Declaration, and other similar ethical standards.

The questionnaire presented at stage 1 included demographic information (number, name of sub-unit, gender, age, marital status, education level, position, working years, etc.), as well as the person–job fit scale, person–organization fit scale and psychological safety scale. Twenty days later, the questionnaires at stage 2 were collected, which included demographic information and the safety behavior scale.

At stage 1, we distributed 800 questionnaires; 737 were returned, comprising 698 valid questionnaires. At stage 2, we distributed 698 questionnaires and all were returned (including blank questionnaires that were not filled out), comprising 636 valid questionnaires. This resulted in a total response rate of 79.5%. Fifty-three percent of the employees were males; 36.6% had a junior college degree, and 34.0% had an undergraduate degree; 95.9% were married. Sample respondents were on average 39.58 years old ($SD = 6.38$), and had worked at the company for an average of 17.78 years ($SD = 8.51$). Front-line employees (construction staff, business organizers, etc.) accounted for 75.4%.

To explore whether the respondents who participated in stage 1 and stage 2 (group 1) and those who only participated in stage 1 (group 2) were homogeneous, we conducted nine independent sample t-tests to compare the differences between the two groups. The results showed that the two groups were generally homogeneous.

2.2. Measures

2.2.1. Person–job fit

Some researchers have asserted that the measurement of person–job fit should be measured locally: the working environment should be divided into different aspects so as to enable comparison of the consistency between different aspects of the working environment and individuals' requirements of that environment (e.g., Ironson, Smith, Brannick, Gibson, & Paul, 1989). This kind of measurement, however, could lead to omission and bias due to variation of environments between different employees, thus failing to accurately reflect the generalized phenomenon. An alternative global form of measurement allows employees to evaluate how well they fit with the overall working environment based on how they feel about it (Cable & Judge, 1997). Existing studies have shown that this global measurement provides a better prediction of person–job fit (Lauver & Kristofbrown, 2001).

In light of this, person–job fit was measured by global measurement using the 4-item questionnaire developed by Singh and Greenhaus (2004), and revised by Weng (2010). Employees rated these items on a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The higher the score, the higher the degree of person–job fit. One sample item was "The requirements of my new job match my experience, specific talents and skills." The Cronbach's alpha for this scale in the study was 0.88.

2.2.2. Person–organization fit

Person–organization fit was measured using the 7-item questionnaire developed by Cable and Judge (1997), and revised by Huang and Cao (2008). Items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating a higher degree of person–organization fit. One sample item was "I think my personality traits match the company's image traits well." The Cronbach's alpha for this scale in the study was 0.91.

2.2.3. Psychological safety

Psychological safety was assessed using a three-item scale adapted by He (2010) from the instrument developed by Edmondson (1999). The second and third items were reverse-coded. Employees rated items on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), with higher scales indicating a higher level of psychological safety. One sample item was "Working with members of this team, my unique skills and talents are valued and utilized." The Cronbach's alpha for this scale in the study was 0.78.

2.2.4. Safety behavior scale

Safety behavior was assessed using an 11-item questionnaire developed by Neal and Griffin (2006), and revised by Ye et al. (2014). Employees rated items on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scales indicating a higher level of safety behavior. One sample item was "I strictly abide by the safety rules and regulations in my work." The Cronbach's alpha for this scale in the study was 0.96.

2.3. Analysis and design

Polynomial regression was used in the current study to test the hypotheses. This included linear terms (e.g., X and Y), n-degree polynomial terms (e.g., X^2 and Y^2), and interaction terms (e.g., $X \times Y$) that could test not only the linear effects of variables, but also the non-linear relationships (e.g., quadratic, cubic nonlinearities). According to Edwards and Cable (2009), applying difference scores may cause spurious correlations, as well as low reliability and validity. Hence, we tested the consistency in fit by using quadratic polynomial regression and response surface methodology. The steps were as follows:

First, following the method of Edwards and Parry (1993), we established the regression equation: $Z = b_0 + b_1 X + b_2 Y + b_3 X^2 + b_4 X \times Y + b_5 Y^2 + e$, where Z represents safety behavior; X and Y respectively represent person–job fit and person–organization fit; e is a random disturbance term; b_0 is the constant term, and b_1 to b_5 are the regression coefficients of each item respectively.

Second, the independent variables were standardized or centralized to construct the product term ($X \times Y$) and quadratic term (X^2 and Y^2) of the regression equation.

Next, we calculated the coefficients of regression equation (b_1 to b_5), the slope ($a1 = b_1 + b_2$) and curvature ($a2 = b_3 + b_4 + b_5$) of the congruence line ($X = Y$), and the slope ($a3 = b_1 - b_2$) and curvature ($a4 = b_3 - b_4 + b_5$) of the incongruence line ($Y = -X$).

If the slope of the congruence line is significant and the coefficients are positive, it indicates that safety behavior is higher in the case of "high P–J fit—high P–O fit" than for "low P–J fit—low P–O fit." In contrast, if the slope of the incongruence line is significant and the coefficients are positive, it indicates that safety behavior is higher in the case of "high P–J fit and low P–O fit" than for "low P–J fit—high P–O fit." Moreover, if the curvature of the congruence line is significantly positive and the curvature of the incongruence line is significantly negative, it indicates that the higher the degree of person–job fit and person–organization fit, the higher the level of employee's safety behavior.

Finally, as regards mediation, we explored the relationship between psychological safety on person–environment fit and safety behavior. The independent variable was conceptualized as the interaction between person–job fit and person–organization fit. It would be inappropriate to directly analyze the moderating effects of the two variables separately. Instead, a block variable should be constructed to represent person–environment fit. Following the standard recommended by Edwards and Cable (2009), we multiplied the regression coefficients of the equation with the original values of the corresponding variables (i.e., X, Y, X^2, $X \times Y$, and Y^2) and then added them to obtain the block variable and evaluate the hypotheses via path analysis.

3. Results

3.1. Validity of measures

To obtain discriminant validity, we used Mplus 8.0 to conduct a confirmatory factor analysis (CFA) on the self-reported questionnaires of person–job fit, person–organization fit, psychological safety, and safety behavior. We compared the hypothesized four-factor model, three-factor model, and two-factor model. The results of a Chi-square difference test indicated that the four-factor model displayed a better model fit (χ^2/df = 4.46, RMSEA = 0.07, CFI = 0.93, TLI = 0.92, SRMR = 0.04) than the alternative models (see Table 2). All results showed that the other three models provided a worse fit than the four-factor model, suggesting that our measures had desirable discriminant validity. Based on Podsakoff, MacKenzie, Lee, and Podsakoff's (2003) standard, the one-factor model displayed the worst fit, indicating that there was no serious problem with common method biases.

3.2. Descriptive statistics

Table 3 displays the means, standard deviations, and intercorrelations of the four main variables and demographic variables, from which we observed that person–job fit and person–organization fit are positively correlated with safety behavior (r = 0.26, $p < 0.01$; r = 0.14, $p < 0.01$), and psychological safety also correlates positively with safety behavior (r = 0.33, $p < 0.01$). This analysis thus supports hypothesis 1 and hypothesis 2.

3.3. Hypothesis testing

Polynomial regression was used to test hypotheses 3 to 5, combined with response surface methodology to analyze the curvatures and slopes. Before the polynomial regression analysis, the pairing condition of the samples was tested (Shanock et al., 2010); that is, the consistent and inconsistent proportions of P–O and P–J were counted. If the proportions are greater than the threshold value of 10%, it indicates that further analysis is necessary; if less, it indicates that polynomial regression is not required. Since person–job fit and person–organization fit belong to two different scales, it is not possible to compare them directly. Therefore, z-score conversion was carried out for the scores of the two scales, and then the degrees of consistency of the z-scores were compared. The specific results are shown in Table 4.

As shown in Table 4, the consistent sample proportion of person–job fit and person–organization fit is 59.43%; samples involving a higher person–job fit than person–organization fit account for 24.37% of the total, while samples involving a higher person–organization fit than person–job fit account for 16.19%. The data threshold of this study is greater than the threshold standard provided by Shanock et al. (2010). Therefore, further polynomial regression analysis can be conducted, with the results shown in Table 5.

In model 1, the direct impact of person–job fit on safety behavior is not significant (b_1 = 0.41, n.s.), but person–organization fit significantly predicts safety behavior (b_2 = 0.12, $p < 0.05$). At the same time, compared with model 1, in model 2, person–job fit has a significant direct impact on safety behavior (b_1 = 0.09, $p < 0.1$), as does person–organization fit (b_2 = 0.12, $p < 0.01$). However, the square of person–job fit has no significant direct impact on safety behavior (b_1 = −0.08, n.s.). The interaction of person–job fit and person–organization fit has a significant predictive effect on safety behavior (b_4 = 0.33, $p < 0.05$), as does the square of person–organization fit (b_5 = −0.14, $p < 0.1$). Additionally, compared with model 1, which includes only linear terms, the second-order polynomial terms explain significant incremental variance in safety behavior (ΔR^2 = 0.03, $p < 0.001$), indicating that response surface analysis can be conducted in the next step (Edwards & Parry, 1993). Following up on these results, we used Origin Pro 2018 software to plot a three-dimensional response surface graph in order to more intuitively present the relationships between person–job fit, person–organization fit, and safety behavior. This surface is shown in Fig. 1.

From Table 5 and Fig. 1 we can see that the response surface is roughly concave. Under the condition of the consistency of person–job fit and person–organization fit, the slope of the surface along the congruence line is significantly positive ($a1$ = 0.21, $p < 0.001$). This means that the level of safety behavior is higher in the condition of "high P–J fit and high P–O fit" than in the condition of "low P–J fit and low P–O fit," thus supporting Hypothesis 3. When there is incongruence between person–job fit and person–organization fit, the slope of the surface along the incongruence line is not significant ($a3$ = −0.03, n.s.), indicating that there is no difference in the level of safety behavior between "high P–J fit and low P–O fit" and "low P–J fit and high P–O fit," a finding that opposes our Hypothesis 4. Moreover, the curvatures of the congruence line and incongruence line are significantly positive and negative, respectively ($a2$ = 0.12, $p < 0.05$; $a4$ = −0.55, $p < 0.001$), demonstrating that the more consistent person–job fit and person–organization fit, the higher the level of employee's safety behavior. This finding thus supports Hypothesis 5.

To explore why Hypothesis 4 was not supported, we used the results of the response surface analysis and plotted a two-dimensional graph depicting inconsistencies between person–job fit and person–organization fit, as shown in Fig. 2. From this figure it can be seen that when the score of either person–job fit or person–organization is low, the corresponding level of safety behavior is not high. As long as both parties maintain a high level, the level of employees' safety behavior will be high. These results correspond precisely with Hypothesis 5.

Note: Z-score is used for conversion, with 0 representing the average score of person–job fit and person–organization fit. A score of 2 means that the score is 2 standard deviations above the mean; a score of −2 represents two standard deviations below the mean.

For Hypothesis 6, we used SPSS's PROCESS macro to test the mediating effect of psychological safety. Following previous findings related to safety behavior (Christian et al., 2009), we con-

Table 2
Models ft results for confirmatory factor analyses (N = 636).

Models	χ^2	df	$\Delta\chi^2$	RMSEA	CFI	TLI	SRMR
four-factor model a	1172.72	263	—	0.07	0.93	0.92	0.04
three-factor model b	2290.68	272	1117.96[***]	0.11	0.85	0.83	0.05
two-factor model c	2972.99	274	1800.27[***]	0.12	0.80	0.78	0.08
one-factor model d	6789.50	275	5616.78[***]	0.19	0.51	0.46	0.23

Note: a: hypothesized model; b: pooling person–job fit and person–organization fit into a single factor; c: pooling person–job fit, person–organization fit, and psychological safety into a single factor; d: pooling all four factors into a single factor.
[***] $p < 0.001$, two-tailed test.

Table 3
Descriptive statistics and intercorrelations among study variables.

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Gender	–	–	1									
2. Age	39.58	6.38	0.03	1								
3. Education	–	–	0.01	−0.46**	1							
4. Marital status	–	–	−0.01	−0.07	0.06	1						
5. Position	–	–	−0.05	−0.07	−0.24**	0.01	1					
6. Working years	17.78	8.51	0.08	0.88**	−0.52**	−0.05	−0.06	1				
7. Safety behavior	6.28	0.86	0.12*	0.09	−0.06	0.01	−0.02	0.18**	(0.96)			
8. Person–organization fit	3.73	0.67	0.11*	−0.01	0.07	0.01	−0.02	−0.02	0.14**	(0.91)		
9. Person–job fit	3.64	0.70	0.07	−0.02	−0.01	−0.08	0.01	−0.02	0.26**	0.52**	(0.88)	
10. Psychological safety	4.72	0.78	0.15**	0.06	0.03	0.04	−0.09	0.05	0.33**	0.52**	0.47**	(0.78)

Note. $N = 636$; gender coded as (1 = male, 2 = female); education coded as (1 = junior high and below, 2 = high school or technical school, 3 = junior college, 4 = undergraduate, 5 = master or above); marital status coded as (1 = married, 2 = unmarried, 3 = others [divorce, etc.]); position coded as (1 = senior management, 2 = middle management, 3 = first-line management, 4 = first-line employees, 5 = others [labor dispatch, etc.]).
* $p < 0.05$.
** $p < 0.01$.

Table 4
Frequency table of the congruence between person–job fit and person–organization fit.

Categories	P–J < −1	−1 ≤ P–J < 0	0 ≤ P–J < 1	1 ≤ P–J	Proportion%
P–O < −1	54(8.49%)	21	7	1	13.05
−1 ≤ P–O < 0	26	92(14.47%)	94	4	33.96
0 ≤ P–O < 1	8	31	175(27.52%)	28	38.05
1 ≤ P–O	0	3	35	57(8.96%)	14.94
Proportion%	13.84	23.11	48.90	14.15	100%

Note: $N = 636$; P–J means person–job fit; P–O means person–organization fit. This classification is based on the Z-score of each case across the two variables. The diagonal presents the number and proportion (59.43% in total) with the same P–J and P–O scores.

Table 5
Polynomial regression results for safety behavior.

Variables	Safety behavior	
	Model 1	Model 2
Intercept (b_0)	6.34***	6.34***
P–J fit (b_1)	0.41	0.09+
P–O fit (b_2)	0.12*	0.12*
The square of P–J fit (b_3)		−0.08
P–J fit × P–O fit (b_4)		0.33**
The square of P–O fit (b_5)		−0.14+
R^2	0.04***	0.07***
ΔR^2		0.03***
Congruence line		
Slope ($a1$)		0.21***
Curvature ($a2$)		0.12*
Incongruence line		
Slope ($a3$)		−0.03
Curvature ($a4$)		−0.55***

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$, two-tailed test.

P- J fit: person–job fit.

P–O fit: person–organization fit.

Fig. 1. Congruence of person–job fit and person–organization fit on safety behavior.

trolled for two variables related to safety behaviors: gender ($r = 0.12$, $p < 0.05$) and working lifetime ($r = 0.18$, $p < 0.01$). We used 5,000 bootstrap samples to examine all paths of mediation, with specific results shown in Table 6. The results show that block variable (i.e., person–environment fit) plays a significant and positive role in psychological safety ($\beta = 0.92$, $p < 0.001$, 95% CI = [0.65, 1.20]). In addition, when person–environment fit and psychological safety were both added to the regression equation, psychological safety emerged as having a significant positive influence on safety behavior ($\beta = 0.25$, $p < 0.001$, 95% CI = [0.18, 0.32]). Furthermore, person–environment fit still had a significant and positive impact on safety behavior ($\beta = 0.61$, $p < 0.001$, 95% CI = [0.35, 0.88]), indicating that psychological safety played a partial mediat-
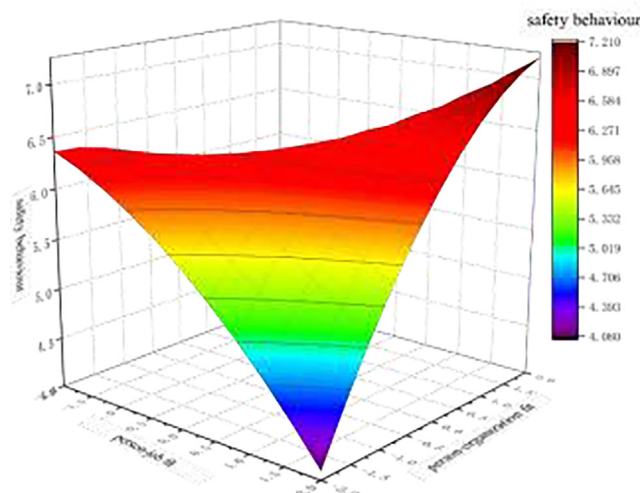
ing role in the relationship between person–environment fit and safety behavior. Finally, the mediation effect size value of the person–environment fit on safety behavior through psychological safety was 0.23 (95% CI = [−0.322, −0.013]), which accounted for 27.47% of the total effect.

4. Discussion

This study has empirically examined the potential impact of two fit types, namely person–job fit and person–organization fit, on safety behavior. The results have shown that both person–job fit and person–organization fit are significantly and positively related to employees' psychological safety and safety behavior. In addition, we found that when person–job fit and person–organiza-
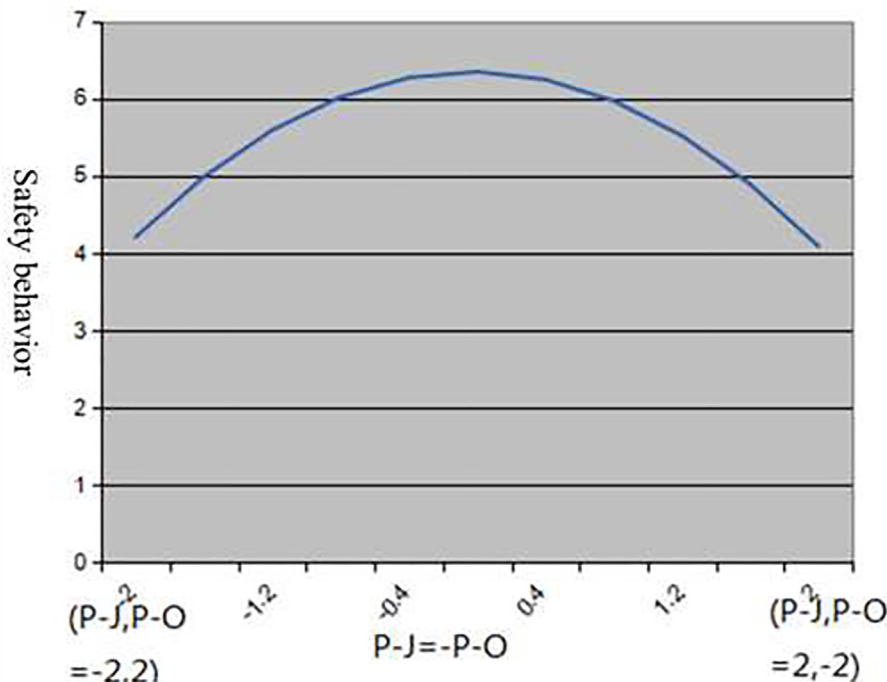
Fig. 2. Incongruence of person–job fit and person–organization fit on safety behavior.

Table 6
Results of mediating effect analysis.

Variables	Model 1 psychological safety			Model 2 safety behavior		
	β	SE	95% CI	β	SE	95% CI
Gender	0.21**	0.07	[0.08,0.34]	0.05	0.06	[−0.07,0.18]
Working years	0.01	0.01	[0.00,0.01]	0.01***	0.00	[0.01,0.02]
person–environment fit	0.92***	0.14	[0.65,1.20]	0.61***	0.14	[0.35,0.88]
psychological safety				0.25***	0.04	[0.18,0.32]
R^2	0.08			0.15		

Note: 95% CI means 95% confidence interval. *** $p < 0.001$, ** $p < 0.01$, two-tailed test.

tion fit are consistent, employees show more safety behavior in the case of "high P–J fit — high P–O fit" than in the case of "low P–J fit — low P–O fit." The greater the degree of matching between the two, the higher the safety behavior of employees. Moreover, when the two fit types are not congruent, no significant difference is found for the impact of "low person–job fit and high person–organization fit" or "high person–job fit and low person–organization fit" on safety behavior.

4.1. Theoretical implications

According to social cognitive theory (Lewin, 1951), an individual's behavior is influenced by the environment and arises as a result of the interaction between an individual's internal characteristics and their environment. Safety behavior, such as complying with safety rules and regulations or making safety recommendations, is a matter of individual choice, a process whose intrinsic mechanism is often influenced by the environment (Christian et al., 2009). Our study, which is the first to examine the relationship between person–environment fit and employees' safety behavior, has shown that both person–job fit and person–organization fit are positively related to employees' safety behavior. If employees perceive that they fit their organizational environment well, they naturally develop a sense of belonging or dependence on the organization. This belonging may be transformed into organi-

zational commitment or a psychological contract, resulting in the generation of behaviors that are permitted and supported by the organization (e.g., safety behavior; Kim & Gatling, 2019). If the organization advocates safety behavior, employees will be prepared to obey the associated arrangements, abide by the organization's safety rules and regulations, and engage in extra-role behaviors that benefit the safety procedures, such as actively participating in making safety-related suggestions (Pei, Sparrow, & Cooper, 2016). Person–job fit provides another important perspective in explaining employees' safety behavior. If employees believe that they are very compatible with the position they hold, they will tend to have a strong sense of satisfaction and be full of enthusiasm for work, giving full play to their work abilities, completing their work to a higher standard, and performing more safety behaviors (Tims, Derks, & Bakker, 2016). The current study has contributed to a further understanding of the antecedent variables of employees' safety behavior, while at the same time helping to extend the research on person–environment fit and safety behavior.

Looking back on previous related studies, researchers have mostly focused on the influence of one particular aspect of person–environment fit on employee behavior, such as person–job fit, person–organization fit, or other types of fit, but rarely has the role of both person–job fit and person–organization fit been considered together. Even studies that have integrated multiple types of fit have only examined their linear relationship, ignoring

any joint effect (Cai et al., 2018). This has resulted in an incomplete understanding of the relationship and internal mechanism connecting person–environment fit and safety behavior. Our findings have demonstrated that although person–job fit alone does not necessarily have a significant direct effect on safety behavior, it can indeed affect safety behavior through comparison and interaction with person–organization fit. Person–job fit reflects how employees evaluate their own competencies and needs next to those required for the position, whereas person–organization fit reflects how employees evaluate their own values and goals next to those of the organization (Kristof-Brown et al., 2005). Previous research has confirmed that the closer the psychological distance between environment and individual, the greater the impact of the environment on the individual. For example, Huang et al. (2017) found that supervisors have a greater influence on employees' safety behaviors than seniors. Some researchers, however, have argued that organizational culture and organizational climate are guiding norms that can have a more profound impact on employees. Christian et al. (2009), for example, confirmed that organizational environment plays a greater role in employees' safety behavior. The results of our study thus provide an explanation for the divergence between the two perspectives, namely, that P–O fit and P–J fit are linked and need to be combined in order to explore their common influence. People seek verification of their own abilities and needs (i.e., person–job fit) and hope to maximize consistency in all aspects of the self, such as attitudes, beliefs, and behaviors (Kim & Gatling, 2019). In addition, individuals strive to obtain certainty and predictability. When their own beliefs, attitudes, and behaviors align with those of others in the social environment (i.e., person–organization fit), individuals will realize that they share common characteristics and achieve a sense of belonging (i.e., fit; Arieli et al., 2020). When the two types of fit work together, employees are able to exert control over their own lives, reduce uncertainty, achieve a sense of belonging, and lead happy and fulfilling lives (Afsar et al., 2015), thereby promoting greater safety behavior. This study used polynomial regression to simultaneously examine the linear relationship, curvilinear relationship, and interaction between the two types of fit. Combined with response surface analysis, this permitted an in-depth analysis of the mechanism by which person–job fit and person–organization fit influence safety behavior. As well as revealing a joint influence of person–job fit and person–organization fit on safety behavior, the results have contributed to a deeper understanding of the relationship between the congruence of person–environment fit types and safety behavior.

Finally, this study has explored the mediating effect of employees' psychological safety on the relationship between person–environment fit consistency and employees' safety behavior. In previous related studies, researchers focused on organizational support or other work-related factors (Warr & Inceoglu, 2012), yet overlooked the role of individual cognition, an important individual characteristic. According to social cognitive theory, individual characteristics and the social environment are important factors that interact to influence individual behavior. The previous lack of exploration of individual cognition has therefore counted against the development of a deeper understanding of how person–environment fit relates to safety behavior. Supportive organizational measures (e.g., person–environment fit) enhance employees' perceptions of psychological safety, thereby increasing their organizational commitment and performance. For example, research has found that employees' perceptions of organizational support (Singh et al., 2013) can enhance their psychological safety. Person–environment fit reflects the support of an organization for its employees. When a team's organizational characteristics match those of its employees, psychological safety is enhanced. This cognitive state is necessary for learning and change, on which many behavioral outcomes depend, such as learning behavior, shared behavior, organizational citizenship behavior, and creativity. Several studies have shown that psychological safety has a direct impact on task performance (Schaubroeck et al., 2011). It also reduces the potential negative factors of making mistakes, thus enabling employees to focus on tasks that enhance performance (Faraj & Yan, 2009). In addition, psychological safety creates an environment that encourages risk-taking behaviors among people. Employees are more likely to feel that it is safe to voice opinions, make suggestions, and challenge current ways of doing things (Walumbwa & Schaubroeck, 2009). In the context of rapid economic and social changes in China today, employees' perceptions of their job security (e.g., psychological safety) are having a strong influence on their psychology and behavior (Morrow et al., 2010). Integrating environmental factors with individual cognitive factors thus offers a novel and potentially informative direction for future safety behavior research.

4.2. Management recommendations

Based on the results of our study, we propose the following recommendations for improving safety behavior in the workplace. First, organizations and managers need to improve the degree of fit between employees and their workplace. Person–organization fit is primarily a fit of values. Therefore, organizations should regard the fit of values between employees and the workplace as an important screening criterion in the recruitment process. In addition, when considering the appointment and promotion of staff to important positions, companies should choose managers with a high degree of organization fit in order to maximize the impact of such leaders on their subordinates (Hu, Wu et al., 2018). Companies can also enhance employees' participation in decision-making, thus fostering a sense of belonging and commitment, which ultimately serves to enhance the level of fit between them and their organization.

Second, when the congruence of the person–environment fit types is high, it can lead to improvements in employees' safety behavior. Companies can use psychological measurement methods to develop effective tools for evaluating person–job fit during the process of selection and placement, so as to ensure that employees are well adapted to their positions. Furthermore, organizations should guide their employees' interests and strengths and help them to develop detailed career plans. Such measures can ensure that employees have a clear understanding of themselves and experience a high level of person–job fit. Through job rotation, job enrichment, job redesign, and other approaches, companies can help employees to develop deeper interest and understanding of their positions, thereby enhancing their level of fit with the job.

Finally, enterprises and managers should pay more attention to employees' psychological feelings. When employees are in a positive corporate atmosphere, they experience a higher level of psychological safety. Once they have a sense of security and responsibility for the company, they are more likely to identify with the organization's values and rules, and exhibit behavior conducive to the development of the enterprise. Leaders should be expected to care about others and establish a safe working environment through active communication with employees (Liu, Liao, & Wei, 2015), thus enabling them to feel safe at work and demonstrate the behaviors expected by the organization.

4.3. Limitations and directions for future research

Although the current study has yielded informative results, there are several limitations that might by addressed by future research. First, all of the data in this study are drawn from a single state-owned petrochemical company in China, which happens to

place great emphasis on employees' safety at work. All of the employees involved in this study would have had a high level of safety awareness. Such attention to safety might not be replicated within other petrochemical companies or other industries. Future research should extend the scope of the investigation to encompass a more diversified sample of companies, thus improving the level of ecological validity.

Second, to avoid the problem of common method bias, we collected employee self-reported data at two separate points in time. Although we emphasized authenticity and confidentiality during the reporting process, issues such as social desirability and employees' concerns may have influenced the data collected on safety behavior. Future research might aim to simultaneously evaluate employees' safety behavior from the perspective of their leaders or colleagues. The current study is essentially just a cross-sectional study, meaning that causality cannot be inferred. Future cross-lagged analyses and longitudinal investigations would help to address these limitations.

Third, although this study investigated the relationship between the congruence of person–environment fit types and safety behavior, as well as its mediating mechanism, there may well be other mechanisms involved in this relationship, or boundary conditions that make it stronger. While this study used two representative categories, namely person–job fit and person–organization fit, there are other potential classifications of person–environment fit (e.g., person–team fit, person–career fit, person–leader fit). The relationship between the consistency of these two types of fit and other unstudied types of fit and safety behavior, as well as the mechanism underlying them, could prove to be a fruitful avenue of future research. Subsequent studies might also aim to incorporate variables specifically related to social cognition into the research framework.

Finally, whereas the current study explored the moderating mechanism of psychological safety at the individual level, it has been noted that psychological safety can be aggregated at the group level (Singh, Winkel, & Selvarajan, 2013). Safety perceptions at the group level might also have an influence on employees' behavior. Future research could adopt multi-level approaches to explore the effects of psychological safety at the group level.

5. Conclusion

The study found that the more consistent the match between person–job fit and person–organization fit, the higher employees' level of safety behavior. Employees showed more safety behavior in the situation of "high person–job fit - high person–organization fit" than they did in the situation of "low person–job fit - low person–organization fit." Finally, psychological safety has been shown to play a mediating role between the congruence of person–job fit, person–organization fit and employees' safety behavior.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability statement

Research data are not shared.

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