ABSTRACT
This study utilizes psychological ownership theory as theoretical framework to examine high-performance work practices, and attitudinal and behavioral performance as associations of psychological ownership on the population level. Psychological ownership describes a mindset which allows individuals to experience ownership feelings for a target (e.g., organization) regardless of legal ownership rights. Further, psychological ownership theory is integrated with and extended by contingency theory to analyze the moderation effects of societal culture. These effects have been assumed for over 30 years but hardly backed by empirical evidence from cross-cultural samples. Thus, this study analyzes data from 351,919 individuals who participated in 139 published and unpublished studies, using rigorous and advanced meta-analytic techniques. The results show that compensation and benefits, job and work design, and communication practices foster psychological ownership, which in turn enhances constructive deviant behavior, task performance, and favorable attitude while weakening unfavorable attitude. Societal culture significantly strengthens these relationships.

KEYWORDS
Psychological Ownership Theory, Contingency Theory, Meta-Analysis, Human Resources, Cross-Cultural Sample

INTRODUCTION
“Psychological ownership is having an employee pound his fist on the table, demanding that quality not be sacrificed to an overly ambitious shipping schedule.” (Brown, 1989: 15)

Organizations usually want their employees to speak up and take ownership of their jobs and workplaces (Brown, 1989; Glassdoor, 2017). Psychological ownership theory explains why and how employees develop ownership feelings in organizations (Brown, et al., 2014; Dawkins, et al., 2017; Pierce, et al., 2001, 2003). These feelings are a “state in which individuals feel as though the target of ownership or a piece of that target is “theirs” (i.e., “It is mine!”)” (Pierce, et al., 2001, 2003: 86). Employees integrate the target (e.g., their organization or job) into their extended self (Belk, 1988, 2000; Dittmar, 1992; James, 1981). The target becomes the employees’ perceived possession (Van Dyne & Pierce, 2004). As such, psychological ownership is distinct from and goes beyond related constructs such as commitment or identification (Brown, et al., 2014; Pierce & Jussila, 2011; Zhang, et al., 2020). Organizations create psychological ownership in employees through high-performance work practices, such as compensation and benefits, and communication (Posthuma, et al., 2013). In

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However, prior research neglected and dismissed the contingencies of psychological ownership theory. Specifically, the effects of societal culture on the formation and outcomes of psychological ownership have been left in the dark. Assumptions were made, instead of analyzing empirical evidence. The foundational study Pierce, et al. (2003) argued that societal culture affects ownership perceptions because ownership is rooted in the self, which is in turn defined by cultural norms (House, et al., 2004; Hofstede, et al., 2010; Pierce, et al., 2003). While a few studies analyzed psychological ownership in cultural contexts, many obtained data from only one cultural context at a time. Hence, moderation effects could not be investigated (e.g., Baron & Kenny, 1986; Edwards & Lambert, 2007; Kou & Powpaka, 2017; Peng & Pierce, 2015; Wang, et al., 2019a). Recently, Dawkins, et al. (2017), Zhang, et al. (2020), and Renz and Posthuma (2023) qualitatively and quantitatively reviewed psychological ownership theory, but stopped short of recognizing in-depth empirical evidence.

Therefore, this study integrates contingency theory into psychological ownership theory to examine the effect of societal culture on psychological ownership, and reconcile foundational theories of possessions. These theories disagree about whether psychological ownership is experienced because of an instinct satisfying an innate desire (Isaacs, 1972; Kline & France, 1899; McDougall, 1923), or because societies teach to possess (Beaglehole, 1932; Furby, 1978; Seligman, 1975). If psychological ownership is indeed learned, individuals’ societal cultures impact the formational practices and performance outcomes of perceived ownership. The analysis of a large cross-cultural sample of 351,919 individuals on the population level is possible through advanced meta-analytic techniques (Harbord & Higgins, 2008).

The contribution of this study is threefold. First, the study follows the spirit of Hunter and Schmidt (2004: 21), “cleaning up and making sense” of the psychological ownership literature through a large-scale empirical evaluation. Psychological ownership theory is utilized as the theoretical framework to examine high-performance work practices (i.e., compensation and benefits, job and work design, communication), and attitudinal and behavioral performance (i.e., favorable/unfavorable attitude, constructive/destructive deviant behavior, task performance) as associations of ownership feelings on the population level. Thus, true effect sizes free of statistical artifacts are reported (Harbord & Higgins, 2008). Second, contingency theory is integrated into psychological ownership theory to empirically investigate the moderation effects of societal culture. Hence, effects that have been assumed for over 30 years, also in recent review studies (Dawkins, et al., 2017; Renz & Posthuma, 2023; Zhang, et al., 2020), and that could hardly be backed by empirical evidence, are uncovered. Third, theoretical and practical implications are derived from the results that are based on rigorous meta-analytic techniques. The findings are grounded in data from 139 published and unpublished studies using a large sample of 351,919 individuals across societal cultures, and corrected for statistical and sample-specific errors (Harbord & Higgins, 2008; Hunter & Schmidt, 2004; Raudenbush, 2009). Thus, the findings can be interpreted on the population level, and demonstrate the value of psychological ownership to scholars and practitioners alike. Figure 1 illustrates the examined theoretical model.

**PSYCHOLOGICAL OWNERSHIP THEORY**

**ANTECEDENTS**

Prior research found that psychological ownership can be initiated through high-performance work practices, in particular compensation and benefits practices, job and work design practices, and communication practices (Posthuma, et al., 2013). These relationships are revisited in this study to account for statistical artifacts in previous research. In contrast to prior studies that analyzed the
relationships between high-performance work practices and psychological ownership, the current study applies a meta-analytic approach which allows to examine true effect sizes on the population level free of statistical artifacts (Harbord & Higgins, 2008).

![Figure 1. Theoretical Model]

Compensation and benefits practices (e.g., participation in profit-sharing/employee stock ownership plans) give employees efficacy and effectance. This means, employees experience that they have an effect on their environment (Pierce, et al., 2001, 2003). Such experiences are crucial in developing psychological ownership because they satisfy individuals’ need to control their environment (Furby, 1978). Having a stake in the organization’s economic success, such as its profits in the case of employee participation in profit-sharing or rising stock values in the case of employee stock ownership plans, enables employees to control their part of the organization. This control makes employees experience autonomy and influence over their part of the organization (Pierce & Jussila, 2011). Employees can, for example, take their share of the organization’s profit and invest it in goods or services, or other organizations. Employees can also autonomously reinvest any gains from stock ownership plans. This ability creates a sense of ownership (Brown, et al., 2014; Chiu, et al., 2007; Pierce, et al., 2001, 2003; Wagner, et al., 2003).

Job and work design practices (e.g., work autonomy, participation in decision-making) let employees build self-identity. Employees form an identity around the organization when they interact with the organization and reflect about their experiences (Dittmar, 1992; Pierce, et al., 2001). Employees are, for example, asked for input or feedback about a decision to be made, or can influence and decide how they fulfill their specific job responsibilities. Through this personal investment, the organization becomes a part of their self and an expression of employees’ identity (Beaglehole, 1932; Dittmar, 1992; Pierce, et al., 2001). Once such an identity is formed, employees experience a need to maintain and communicate their self-identity (Pierce, et al., 2001; Tajfel & Turner, 1979). The ownership that employees take in the organization serves this purpose, and enables employees to invest themselves again and again through their time, skills, and energy. Employees can, for example, work over-time or put extra effort into a project to ensure its success, and thus develop psychological ownership (Brown, et al., 2014; Liu, et al., 2012; O’Driscoll, et al., 2006; Pierce, et al., 2001, 2003).
Communication practices (e.g., sharing of business/financial information) show employees that the organization is a safe space, because they know about major developments within the organization. This experience is important for employees since finding a place to dwell is a fundamental aspect of human nature (Pierce, et al., 2001; Weil, 1952). Effective and transparent communication throughout the organization via practices such as individual conversations, team meetings, or internal newsletters gives employees the opportunity to learn about the organization, and fully get to know, for example, its structure, processes, goals, and challenges. Such deep knowledge and familiarity with the organization creates an active relationship and strong association between the organization and employees (Beaglehole, 1932; Pierce, et al., 2001; Weil, 1952). This intimate connection fosters ownership feelings in employees (Brown, et al., 2014; Ferrante, 2003; Pierce, et al., 2001, 2003).

**Hypothesis 1:** High-performance work practices, specifically (a) compensation and benefits practices, (b) job and work design practices, (c) communication practices are positively related to psychological ownership.

**CONSEQUENCES**

Psychological ownership is linked to attitudinal and behavioral performance outcomes. At the attitudinal level, psychological ownership is associated with favorable attitudes, such as commitment (Liu, et al., 2012), identification (Lim, 2018), job satisfaction (Bernhard & O'Driscoll, 2011), and intentions to stay (Zhu, et al., 2013). Burnout is for example recognized as unfavorable attitudinal consequence (Kaur, et al., 2013). The relationships between favorable and unfavorable attitudes as overarching categories and psychological ownership are examined in this study to account for statistical artifacts that biased previous research. In contrast to prior studies that analyzed the relationships between specific attitudes and psychological ownership, the current study applies a meta-analytic approach which allows to examine true effect sizes on the population level free of statistical artifacts (Harbord & Higgins, 2008).

Overwhelming empirical evidence suggests a positive link of both favorable and unfavorable attitudes with psychological ownership. The experience of ownership satisfies innate and learned needs of individuals. Specifically, the needs for efficacy and effectance, self-identity, and having a place are served (Pierce, et al., 2001). When employees experience psychological ownership, they are able to observe how they affect the part of the environment that they own (Furby, 1978). Employees get the opportunity to define themselves through the owned entity (Dittmar, 1992), and to feel protected in the (tangible or intangible) space that the owned entity provides (Weil, 1952). These experiences of protection, self-expression, and control trigger feelings of satisfaction and reinforce employees’ evaluations of their surroundings and situations (Breckler, 1984). This means, employees are reinforced and confirmed in their attitudes, whether they are favorable or unfavorable from the perspective of the organization.

**Hypothesis 2:** Psychological ownership is positively related to (a) favorable attitude, (b) unfavorable attitude.

At the behavioral level, psychological ownership is associated with constructive and destructive deviant behavior, and task performance (Rotundo & Sackett, 2002). Constructive deviant behavior describes employees’ behavior that benefits the organization but deviates from norms (Warren, 2003). It includes organizational citizenship (Wang, et al., 2019b) and stewardship behavior (Zhu, et al., 2013). In contrast, destructive deviant behavior describes employees’ behavior that deviates from norms and harms the organization (Warren, 2003). It includes knowledge hiding (Wang, et al., 2019b)
and unethical behavior (Xu & Lv, 2018). Task performance describes in-role behavior that job descriptions require from employees and that is neither constructive nor destructive deviant behavior (Rotundo & Sackett, 2002). It includes entrepreneurial behavior (Siegler, et al., 2013) and in-role performance (Wang, et al., 2019b).

These behavioral performance outcomes are expected to be positively linked to psychological ownership. When employees perceive ownership, they integrate the organization and its parts as the target of their psychological ownership into their extended self (Belk, 1988, 2000; Dittmar, 1992). They make the target a part of their self and thus their identity (Pierce, et al., 2001; Pierce & Jussila, 2011; Tajfel & Turner, 1979). The target is ‘theirs’ and becomes a part of them similar to a part of their physical body (James, 1981). One feels responsible for the health of one’s body, and tries to support and maintain it by eating healthy on most days, exercising regularly at a gym or outdoors, or going to health check-ups with a physician. In the same way, employees feel responsible for the organization and devote their available resources (e.g., energy, time) to benefit the target of their ownership feelings. In the most direct way, employees benefit their organizations by contributing task performance and constructive deviant behavior (Wagner, et al., 2003; Williams & Anderson, 1991). Performing well on assigned tasks (i.e., task performance) is important for the employee (Rotundo & Sackett, 2002). Exceeding requirements and expectations additionally enables employees to live and demonstrate the perceived identity as an owner (Brown, et al., 2005; Brown, et al., 2014; Tajfel & Turner, 1979). However, employees may also overshoot in their efforts to benefit the organization so that well-intentioned efforts do not help but rather harm the owned entity. Employees can for example hide knowledge about a project from their colleagues because they do not want the colleagues to interfere and potentially mess up the outcome of the project. This behavior can backfire because exchange of information and collaboration is hindered (Huo, et al., 2016). Such destructive deviant behavior can thus also occur in the organization as a result of psychological ownership (Rotundo & Sackett, 2002; Wang, et al., 2019b; Xu & Lv, 2018).

**Hypothesis 3:** Psychological ownership is positively related to (a) constructive deviant behavior, (b) task performance, (c) destructive deviant behavior.

**CONTINGENCY THEORY OF SOCIETAL CULTURE FIT**

In prior literature, the contingencies of psychological ownership theory were neglected and dismissed by making assumptions about important relationships rather than analyzing empirical evidence. Specifically, foundational theories of possessions disagree about whether psychological ownership is experienced because of a natural instinct satisfying an innate desire in all individuals (Isaacs, 1972; Kline & France, 1899; McDougall, 1923), or because individuals learn to possess parts of their environment (Beaglehole, 1932; Furby, 1978; Seligman, 1975). Assumptions are posed especially about the effects of societal culture on the associations of psychological ownership. If psychological ownership is learned, individuals’ ownership feelings are likely affected by societal cultures in which the individuals were brought up or live. Hence, psychological ownership was theorized to be affected by societal culture. Empirical evidence in this context, however, was either weak or nonexistent (Dawkins, et al., 2017; Pierce, et al., 2003; Renz, et al., 2022; Renz & Posthuma, 2023; Zhang, et al., 2020). Therefore, this study integrates contingency theory of societal culture fit (Aycan, et al., 1999, 2000; Delery & Doty, 1996; Triandis, 1993) into psychological ownership theory to shed light on these lingering but unanswered questions.

Contingency theory of societal culture fit provides a needed perspective to extend psychological ownership theory. According to contingency theory of societal culture fit, the societal culture in which an organization operates affects the practices that the organization needs to implement in order to
be successful (Aycan, et al., 1999, 2000; Dastmalchian, et al., 2020; Delery & Doty, 1996; Thomas & Peterson, 2016; Triandis, 1993). Organizations need to become congruent to their environment by adapting their practices to their unique and specific circumstances (Burns & Stalker, 1961; Delery & Doty, 1996). Prior literature showed the effectiveness of this approach. Posthuma, et al. (2022), for example, demonstrated that the effect of one practice, pay-for-performance, on financial performance is moderated by societal culture. In societies high in individualism, future orientation, uncertainty avoidance, and low in power distance, the use of incentive pay in connection with performance appraisals is linked to lower turnover and absenteeism (Peretz & Fried, 2012). Decreased turnover and absenteeism can also be found when flexible work arrangements are implemented in societies that are low in institutional and in-group collectivism, power distance, and uncertainty avoidance (Peretz, et al., 2018). Likewise, Prince, et al. (2020) showed that the strength and direction of the incentives-performance relationship is moderated by societal culture.

The overall implementation of high-performance work practices is based on cultural contexts (Prince, et al., 2018). Specifically, Rabl, et al. (2014) empirically supported the importance of cultural fit of high-performance work systems for organizational performance. Performance is enhanced because employees use their cultural background to navigate and make sense of the complex organizational environment in which they work. They use their societal culture as a roadmap to interpret and understand each other’s expectations and behaviors. Employees also form their own expectations and demonstrate behaviors that they think are desired by the organization and its policies and practices (Dastmalchian, et al., 2020). When organizations thus implement high-performance work-practices that are congruent to employees’ culture, these practices are better understood by employees and align with their values. Employees are enabled to fulfill the organization’s expectations, and empowered to take ownership and develop psychological ownership (Pierce, et al., 2001, 2003). Vice versa, a lack of cultural congruence or fit can have opposite effects for high-performance work practices and psychological ownership.

In their foundational article, Pierce, et al. (2003) proposed that societal culture influences psychological ownership because the perception of ownership is closely linked to the perception of the self. The concept of the self, in turn, arises from cultural norms (Hofstede, et al., 2010; House, et al., 2004; Pierce, et al., 2003). A few studies have examined psychological ownership in the context of culture but obtained data from only one cultural context at a time, which prevented the empirical examination of moderation effects (e.g., Baron & Kenny, 1986; Chiu, et al., 2007; Edwards & Lambert, 2007; Huo, et al., 2016; Kou & Powpaka, 2017; Md-Sidin, et al., 2009; Pan, et al., 2014; Peng & Pierce, 2015; Wang, et al., 2019a). Decades after the inception of the theory, Dawkins, et al. (2017), Zhang, et al. (2020), and Renz and Posthuma (2023) qualitatively and quantitatively reviewed the literature on psychological ownership, but stopped short of identifying in-depth empirical evidence.

Psychological ownership can in turn lead to a variety of attitudinal and behavioral outcomes (Pierce & Jussila, 2011), as extensively discussed above. These associations can additionally be affected by the cultural environment that employees apply to navigate the workplace due to the close link between one’s cultural background and one’s self that defines the extent to which ownership is taken (Belk, 1988, 2000; Pierce, et al., 2001, 2003). Specific hypotheses are developed based on this theoretical framework of psychological ownership theory and contingency theory of societal culture fit, and drawing from House, et al. (2004)’s nine cultural dimensions.

**PERFORMANCE ORIENTATION**

Societal cultures high in performance orientation incentivize innovation, high standards, and performance improvement. Performance-oriented societies believe that individuals are in control and should take initiative to achieve their goals (Javidan, 2004). This internal locus of control aligns with
the need to exercise control that psychological ownership satisfies (Pierce, et al., 2001; Rotter, 1966; Trompenaars & Hampden-Turner, 1998). The more control one is able to exercise, the more the owned entity becomes a part of the self (Belk, 1988, 2000; Furby, 1978). A strong association with the self makes the entity a part of the individual and thus promotes feelings of ownership. The entity becomes ‘theirs’ and can be used to accomplish their goals. High levels of performance are fostered (Pierce, et al., 2001, 2003).

Hypothesis 4: Performance orientation moderates the relationships between psychological ownership and (a) high-performance work practices, (b) attitudinal performance, (c) behavioral performance, such that higher performance orientation strengthens the relationships.

FUTURE ORIENTATION

Societal cultures high in future orientation reward investments in the future like planning behaviors and delayed gratification. Future-oriented societies promote intrinsic motivation and vision-driven behaviors (Ashkanasy, et al., 2004). This focus on long-term success aligns with the need for a safe place and home (Pierce & Jussila, 2011). A safe home is built and obtained through conscientious planning and an eye on what may happen in the future. Such a safe home fosters feelings of belonging and is “a need of the human soul” (Weil, 1952: 41). To experience belonging and safety in their personal and work life, employees develop psychological ownership for their organization. The organization can provide these feelings because it is larger and more stable than their self (Antonakis & House, 2002; Pierce, et al., 2001; Zhang, et al., 2020).

Hypothesis 5: Future orientation moderates the relationships between psychological ownership and (a) high-performance work practices, (b) attitudinal performance, (c) behavioral performance, such that higher future orientation strengthens the relationships.

GENDER EGALITARIANISM

Societal cultures high in gender egalitarianism strive to reduce gender inequality. Gender-egalitarian societies enable all genders to obtain the same occupations and roles of authority in their system (Emrich, et al., 2004). When all genders have similar opportunities in society, they also have similar opportunities to take ownership and develop psychological ownership. No gender is expected to step in ownership roles more than others. From a binary gender lens, men usually focus on the legal rights that are associated with possession. Women, in contrast, relate ownership to responsibility, self-connection, and pride (Rudmin, 1994). This female perspective aligns more with the meaning of psychological ownership and extending one’s self than the male perspective. Hence, the equal participation of genders in society fosters the emergence of psychological ownership since everyone, including women that are more prone to psychological ownership, are able to take ownership (Barry, et al., 1957; Pierce, et al., 2001, 2003).

Hypothesis 6: Gender egalitarianism moderates the relationships between psychological ownership and (a) high-performance work practices, (b) attitudinal performance, (c) behavioral performance, such that higher gender egalitarianism strengthens the relationships.

ASSERTIVENESS

Societal cultures high in assertiveness consider assertive, aggressive, and tough behavior in
relationships with others as acceptable and desirable. In assertive societies, aspiring and taking control is valued. Thoughts and feelings, including feelings of control and ownership, are expressed directly (Den Hartog, 2004; Trompenaars & Hampden-Turner, 1997). This behavior aligns with the core of psychological ownership. When a potential target of ownership can be controlled, the individual integrates it into their extended self. The line between ‘me’ (i.e., who I am) and ‘mine’ (i.e., what I own) becomes blurred. The owned entity is no longer treated as a separate external entity but rather as an extension of one’s physical body or a limb (Belk, 1988, 2000; Dittmar, 1992; James, 1981). Assertiveness facilitates this behavior because other’s ownership claims can be easily disregarded in this cultural context, so that developing ownership feelings is encouraged (Pierce, et al., 2001).

Hypothesis 7: Assertiveness moderates the relationships between psychological ownership and (a) high-performance work practices, (b) attitudinal performance, (c) behavioral performance, such that higher assertiveness strengthens the relationships.

IN-GROUP COLLECTIVISM

Societal cultures high in in-group collectivism express pride, loyalty, and cohesiveness in groups, such as the organization or family (Gelfand, et al., 2004; Markus & Kitayama, 1991). The collective dimension of psychological ownership (i.e., “This is OUR organization.”) is expected to prevail in collectivistic societies, while individual psychological ownership is expected to dominate in individualistic societies (i.e., “This is MY organization.”; Pierce, et al., 2003; Pierce & Jussila, 2010; Renz, et al., 2022). However, psychological ownership is expected to be generally enhanced through in-group collectivism. Collectivistic societies emphasize individuals’ relatedness to the larger group, and encourage participation in the group. An important way to participate in the group for employees is to define and build one’s identity around the organization (Dittmar, 1992). Such participation in the larger group of employees and the ability to express one’s identity through the organization fosters perceived ownership, because oneself and others experience one’s identity interconnected with the organization (Gelfand, et al., 2004; Pierce & Jussila, 2011). If the self is always presented in connection with the organization, the self and the organization can no longer exist in isolation, and psychological ownership emerges.

Hypothesis 8: In-group collectivism moderates the relationships between psychological ownership and (a) high-performance work practices, (b) attitudinal performance, (c) behavioral performance, such that higher in-group collectivism strengthens the relationships.

INSTITUTIONAL COLLECTIVISM

Societal cultures high in institutional collectivism seek collective action and distribution of resources (Gelfand, et al., 2004). This cultural context is anticipated to strengthen the relationships between psychological ownership and its associations. Similar to societies high in in-group collectivism, the strong integration into the larger collective and call to collective action make employees experience responsibility for the organization (Markus & Kitayama, 1991). This responsibility supports employees in integrating the organization into their self and seeing the organization as ‘theirs’. They are the ones who care for the organization (Belk, 1988, 2000; Dittmar, 1992; James, 1981; Van Dyne & Pierce, 2004). The organization and the self-become inseparable, and can only be perceived in co-existence. The owned entity serves the collective, the individual, and the individual’s soul (Weil, 1952).
Hypothesis 9: Institutional collectivism moderates the relationships between psychological ownership and (a) high-performance work practices, (b) attitudinal performance, (c) behavioral performance, such that higher institutional collectivism strengthens the relationships.

POWER DISTANCE

Societal cultures high in power distance support authority, power differences, and status privileges. Only a select group of individuals has access to resources such that society is separated into different classes (Carl, et al., 2004). Organizations are reluctant to share information with employees, and allow for only limited employee participation (Rabl, et al., 2014). Prior empirical evidence indicates that power distance hinders the emergence of ownership feelings (e.g., Liu, et al., 2012; Renz, et al., 2022). A clear distinction between owners and employees discourages employees from seeing themselves as owners (Renz, et al., 2022). Limited opportunities to learn about the organization, and to invest their resources (e.g., energy, time) into the organization further inhibit that a substantial connection is created between the self and the organization (Pierce, et al., 2001, 2003). As a result, the emergence of psychological ownership is hindered.

Hypothesis 10: Power distance moderates the relationships between psychological ownership and (a) high-performance work practices, (b) attitudinal performance, (c) behavioral performance, such that higher power distance weakens the relationships.

HUMANE ORIENTATION

Societal cultures high in humane orientation encourage individuals to be fair, generous, caring, and kind (Kabasakal & Bodur, 2004). These values motivate individuals’ behaviors and let them strive for affiliation and belonging (Triandis, 1995). A need for belonging is also at the center of psychological ownership. Ownership feelings come into existence because individuals want a place of their own (Brown, et al., 2014; Pierce, et al., 2001). Having a place to belong to has early been described as a “need of the human soul” (Weil, 1952: 52). This basic need can be satisfied when employees take ownership in the organization. Informal relationships and procedures additionally help employees take ownership to fulfill the need of belonging and affiliation (Kabasakal & Bodur, 2004; Pierce, et al., 2001). Hence, the values of humane orientation strengthen the associations of psychological ownership in this cultural context.

Hypothesis 11: Humane orientation moderates the relationships between psychological ownership and (a) high-performance work practices, (b) attitudinal performance, (c) behavioral performance, such that higher humane orientation strengthens the relationships.

UNCERTAINTY AVOIDANCE

Societal cultures high in uncertainty avoidance perceive ambiguous situations as rather threatening and prefer rules and order. Policies and procedures are formalized to reduce ambiguity (Sully De Luque & Javidan, 2004). This approach hinders individuals in taking ownership in their organizations. Psychological ownership is not a formalized process and does not involve legal ownership rights (Etzioni, 1991). Instead, psychological ownership is a state of mind that encompasses contradictions between the legal environment and the psychological environment in the organization (Pierce, et al., 2001). This means, employees can experience strong ownership feelings for the organization and everything that it entails – however, they may still have no legal claims towards any financial or
intellectual assets of the organization. Accepting such tensions within the workplace is unlikely for employees in a cultural context of high uncertainty avoidance because they rely on formalized structures to minimize ambiguity. Hence, high uncertainty avoidance is expected to weaken the relationships of psychological ownership.

**Hypothesis 12:** Uncertainty avoidance moderates the relationships between psychological ownership and (a) high-performance work practices, (b) attitudinal performance, (c) behavioral performance, such that higher uncertainty avoidance weakens the relationships.

**METHOD**

The hypotheses were tested using meta-analytic techniques.

**DATA COLLECTION**

Data were collected from literature on psychological ownership, following four steps. First, search terms were identified that included psychological ownership and synonyms which were used in the literature (i.e., psychological possession(s), mental ownership/possession(s), perceived ownership/possession(s)). Second, the terms were employed to search for relevant literature on commonly used databases in the management field (i.e., Business Source Premier/Complete, EBSCO, ERIC, IEEE Xplore, Web of Science, JSTOR, PsycARTICLES, PsycINFO, ScienceDirect). The search was extended to databases of major publishers of management journals (i.e., Emerald, Taylor and Francis, and Wiley). Third, unpublished literature was identified through databases of the Academy of Management, Society for Industrial and Organizational Psychology, and ProQuest Dissertations & Theses Global. Fourth, reference lists of relevant literature were reviewed and manually cross-referenced. This process resulted in 815 studies.

**INCLUSION CRITERIA**

Two scholars who published psychological ownership research independently screened the studies for literature that examined psychological ownership with high-performance work practices (Posthuma, et al., 2013), attitudinal/behavioral performance (Rotundo & Sackett, 2002), and corresponding mechanisms. Studies needed to provide sufficient data for meta-analytic techniques, which are sample size and correlation of antecedent/consequence with psychological ownership. Studies missing these data and non-empirical literature (e.g., conceptual/review studies) were excluded. Overall, 120 published studies and 19 unpublished studies were included. These studies provided 203 effect sizes of psychological ownership with antecedents and 431 effect sizes of psychological ownership with consequences. The entire sample size was 351,919 individuals who participated in the primary studies.

**DATA CODING**

For each association, the effect size, sample size, reliability of the psychological ownership measure, and reliability of the antecedent/consequence measure were coded. Deductive coding was used to synthesize constructs from the primary studies. This means, the constructs from the primary studies were not altered. The initial coding scheme outlined that constructs were coded on pre-defined, theoretically imposed categories that stemmed from existing literature on psychological ownership.
This means, the entire primary study context was read to determine what the authors of each primary study theorized and measured (Villiger, et al., 2022).

High-performance work practices data were coded on compensation and benefits, job and work design, and communication, following the categories of Posthuma, et al. (2013). The authors suggest eight categories of high-performance work practices, however only three of these categories are represented in the psychological ownership literature. Attitudinal performance data were coded on favorable attitude and unfavorable attitude. These categories demonstrate the desirability of the respective attitudes, which are researched in the context of psychological ownership, to organizations. Behavioral performance data were coded on constructive deviant behavior, destructive deviant behavior, and task performance, following the categories of Rotundo and Sackett (2002). All of the authors’ categories were represented in the psychological ownership literature. The average reliabilities of the variables in the study ranged from 0.85 to 0.90.

Societal culture moderators were coded using the GLOBE framework (House, et al., 2004). This framework provides numerical scores to quantify societal cultures on nine dimensions (i.e., performance orientation, future orientation, gender egalitarianism, assertiveness, in-group collectivism, institutional collectivism, power distance, humane orientation, uncertainty avoidance). These scores were used to quantify the societal cultures that were represented in the primary studies. Each study was coded on the practices scores according to the reported sample nationality, following previous literature (e.g., Dastmalchian, et al., 2020; Hechavarria & Brieger, 2022). The sample represented numerous nationalities, including Australia, Canada, China, Finland, Germany, Greece, India, Indonesia, Italy, Malaysia, New Zealand, Pakistan, South Africa, South Korea, Spain, Taiwan, Turkey, and the United States.

**TESTS FOR POTENTIAL BIASES**

To detect potential biases in the data, interrater agreement was tested. The interrater agreement was calculated using Cohen’s kappa. Cohen’s kappa is expressed as the ratio of agreement to total ratings. Since the number of ratings is very large in this study, the asymptotic properties of the measure make Cohen’s kappa an appropriate interrater agreement coefficient (Banerjee, et al., 1999; O’Connor & Joffe, 2020). After each study was independently coded by two scholars, the interrater agreement was 99.94%. Any coding discrepancies were discussed and resolved before the data analysis.

Additionally, the nonparametric trim-and-fill test for publication bias in meta-analyses according to Duval and Tweedie (2000) was performed which includes a funnel plot analysis. If no publication bias was present in the data, the funnel plot should appear to be symmetrical. Figure 2 does not show a symmetrical arrangement of studies. This could either be due to heterogeneity in the correlations, or because publication bias was present. Comparing the effect sizes and confidence intervals of the 634 observed correlations, and the combined sample of 657 observed and imputed correlations revealed that the effect sizes and confidence intervals of both groups were identical up to 15 decimals, and lay with effect sizes of 0.375 well within their 95% confidence intervals [0.372, 0.377]. Thus, no publication bias was present, and the asymmetrical funnel plot could be explained by heterogeneity in the correlations.

**META-ANALYTIC PROCEDURES**

To test the direct effects of the antecedents and consequences, Stata 16.0 was applied to compute random-effects meta-analytic regressions according to Harbord and Higgins (2008) and Hunter and Schmidt (2004), following previous literature (e.g., Park, 2021; Rabl, et al., 2014). Hunter and Schmidt (2004) random-effects models corrected the between-study variance $\tau^2$ for artifact reliabilities and
range restrictions. They result in less biased and thus more accurate population correlations (Field, 2001, 2005) than other approaches, such as Hedges and Olkin (1985) or Hedges and Vevea (1998). Meta-analytic regressions control for the standard error of the correlations, and thus yield more efficient estimations of the true correlations than basic meta-analyses (Harbord & Higgins, 2008). Bivariate correlations between psychological ownership and its antecedents and consequences from primary studies were used as the effect sizes that entered the analyses. Since studies included several antecedents and consequences, \( k \) describes the number of correlations of a variable in the proposed model. If data, which underlaid correlations, were measured at multiple points in time, an average correlation for the points in time was calculated (Hunter & Schmidt, 2004). The significance level of the effect sizes was determined based on \( z \)-statistics and a normal distribution.

Figure 2. Funnel Plot of Nonparametric Trim-and-Fill Test for Publication Bias in Meta-Analyses According to Duval and Tweedie (2000)

Note: The grey lines show the upper and lower limits of the 95% confidence interval. The red line shows the estimated effect size. Imputed correlations are illustrated as orange dots, but are covered by blue dots which show the observed studies.

To test the moderation effects, random-effects meta-analytic regressions according to Harbord and Higgins (2008) with corrections for range restrictions and reliabilities according to Hunter and Schmidt (2004), and with restricted maximum likelihood estimator based on 10,000 iterations according to Raudenbush (2009) were implemented. The Hunter and Schmidt (2004) corrections result in a lower mean-squared error than other methods such as a restricted maximum likelihood estimator (Raudenbush, 2009). However, the Hunter and Schmidt (2004) corrections can lead to negatively biased between-study variances \( \tau^2 \). Hence, restricted maximum likelihood estimations with 10,000 iterations according to Raudenbush (2009) were additionally conducted. This method is associated with a higher mean-squared error, but produces unbiased between-study variances \( \tau^2 \) (Harbord & Higgins, 2008). Antecedents and consequences were aggregated for the moderator analyses, in which cultural dimensions were tested individually, to obtain sufficient degrees of freedom.

The general equation of the random-effects meta-analytic regression models is
\[ y_i = x_i \beta + \mu_i + \varepsilon_i \]  

(1)

where \( y_i \) is the study-specific effect size, \( x_i \) is the study-specific value of the moderator, \( \beta \) is the coefficient estimate of the moderator, \( \mu_i \) is the \( i \)-th study-specific residual heterogeneity and \( \varepsilon_i \) is the \( i \)-th study-specific error (Harbord & Higgins 2008). This equation was estimated for each direct and moderated effect, and each estimation method (i.e., model with corrections for range restrictions and reliabilities according to Hunter and Schmidt (2004); model with restricted maximum likelihood estimator based on 10,000 iterations according to Raudenbush (2009)).

RESULTS

Table 1 shows the results of the random-effects meta-analytic regressions of the direct effects with psychological ownership according to Harbord and Higgins (2008) and Hunter and Schmidt (2004).


<table>
<thead>
<tr>
<th>Category</th>
<th>( k )</th>
<th>( \bar{r} )</th>
<th>( \rho )</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antecedents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-Performance Work Practices</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compensation and Benefits</td>
<td>55</td>
<td>.30</td>
<td>.31***</td>
<td>14.92</td>
</tr>
<tr>
<td>Job and Work Design</td>
<td>81</td>
<td>.41</td>
<td>.41***</td>
<td>18.47</td>
</tr>
<tr>
<td>Communication</td>
<td>36</td>
<td>.33</td>
<td>.34***</td>
<td>7.31</td>
</tr>
<tr>
<td>Consequences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudinal Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Favorable Attitude</td>
<td>187</td>
<td>.43</td>
<td>.45***</td>
<td>39.03</td>
</tr>
<tr>
<td>Unfavorable Attitude</td>
<td>31</td>
<td>-.17</td>
<td>-.17***</td>
<td>-5.04</td>
</tr>
<tr>
<td>Behavioral Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constructive Deviant Behavior</td>
<td>86</td>
<td>.32</td>
<td>.33***</td>
<td>15.35</td>
</tr>
<tr>
<td>Task Performance</td>
<td>77</td>
<td>.25</td>
<td>.26***</td>
<td>8.98</td>
</tr>
<tr>
<td>Destructive Deviant Behavior</td>
<td>33</td>
<td>-.10</td>
<td>-.09</td>
<td>-1.57</td>
</tr>
</tbody>
</table>

Note: \( k \)=number of correlations; \( \bar{r} \)=true correlation; \( t \)=t-value; ***=p<.01; **=p<.05; *=p<.10 (two-tailed). \( \bar{r} \) is the average correlation calculated based on \( k \). This average correlation was calculated as a preliminary analysis to provide more information on uncorrected correlations that can be observed in primary studies, and on the impact of the corrections.

ANTECEDENTS

Compensation and benefits (\( \rho=.31, p<.01 \)), job and work design (\( \rho=.41, p<.01 \)), and communication (\( \rho=.34, p<.01 \)) practices were positively related to psychological ownership, fully supporting Hypotheses 1a, 1b, and 1c.

CONSEQUENCES

Psychological ownership was positively related to favorable attitude (\( \rho=.45, p<.01 \)) and negatively related to unfavorable attitude (\( \rho=-.17, p<.01 \)), supporting Hypothesis 2a, but not Hypothesis 2b. Additionally, psychological ownership was positively related to constructive deviant behavior (\( \rho=.33, p<.01 \)) and task performance (\( \rho=.26, p<.01 \)), but not destructive deviant behavior (\( \rho=-.09, p=.12 \)), supporting Hypotheses 3a and 3b, but not Hypothesis 3c.
MODERATORS

Tables 2, 3, and 4 show the results of the random-effects meta-analytic regressions of psychological ownership and its antecedents and consequences with moderators according to Harbord and Higgins (2008) with corrections for range restrictions and reliabilities according to Hunter and Schmidt (2004), and with restricted maximum likelihood estimator based on 10,000 iterations according to Raudenbush (2009).

Table 2. Results of the Random-Effects Meta-Analytic Regressions of Psychological Ownership and High-Performance Work Practices With Cultural Moderators According to Harbord and Higgins (2008), Hunter and Schmidt (2004), and Raudenbush (2009)

<table>
<thead>
<tr>
<th>Moderator</th>
<th>Compensation and Benefits</th>
<th>Job and Work Design</th>
<th>Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H&amp;S</td>
<td>REML</td>
<td>H&amp;S</td>
</tr>
<tr>
<td>Performance</td>
<td>0.06***</td>
<td>0.06***</td>
<td>0.09***</td>
</tr>
<tr>
<td>(9.14)</td>
<td>(7.40)</td>
<td>(17.61)</td>
<td>(15.10)</td>
</tr>
<tr>
<td>Future</td>
<td>0.07***</td>
<td>0.07***</td>
<td>0.10***</td>
</tr>
<tr>
<td>(8.94)</td>
<td>(7.30)</td>
<td>(19.18)</td>
<td>(15.66)</td>
</tr>
<tr>
<td>Orientation</td>
<td>0.09***</td>
<td>0.09***</td>
<td>0.12***</td>
</tr>
<tr>
<td>(8.93)</td>
<td>(7.28)</td>
<td>(18.37)</td>
<td>(15.54)</td>
</tr>
<tr>
<td>Egalitarianism</td>
<td>0.07***</td>
<td>0.07***</td>
<td>0.10***</td>
</tr>
<tr>
<td>(8.82)</td>
<td>(7.44)</td>
<td>(18.84)</td>
<td>(15.57)</td>
</tr>
<tr>
<td>Assertiveness</td>
<td>0.05***</td>
<td>0.05***</td>
<td>0.07***</td>
</tr>
<tr>
<td>(9.62)</td>
<td>(6.94)</td>
<td>(15.59)</td>
<td>(13.69)</td>
</tr>
<tr>
<td>In-Group Collectivism</td>
<td>0.06***</td>
<td>0.06***</td>
<td>0.09***</td>
</tr>
<tr>
<td>(9.32)</td>
<td>(7.21)</td>
<td>(16.52)</td>
<td>(14.44)</td>
</tr>
<tr>
<td>Power</td>
<td>0.06***</td>
<td>0.06***</td>
<td>0.08***</td>
</tr>
<tr>
<td>(9.21)</td>
<td>(7.35)</td>
<td>(18.06)</td>
<td>(15.46)</td>
</tr>
<tr>
<td>Distance</td>
<td>0.06***</td>
<td>0.06***</td>
<td>0.09***</td>
</tr>
<tr>
<td>(9.17)</td>
<td>(7.26)</td>
<td>(17.92)</td>
<td>(15.41)</td>
</tr>
<tr>
<td>Humane Orientation</td>
<td>0.06***</td>
<td>0.06***</td>
<td>0.09***</td>
</tr>
<tr>
<td>(9.35)</td>
<td>(7.11)</td>
<td>(15.91)</td>
<td>(14.14)</td>
</tr>
<tr>
<td>k</td>
<td>24</td>
<td>24</td>
<td>45</td>
</tr>
</tbody>
</table>

Note: k=number of correlations; t-values are given in parentheses; H&S=model with corrections for range restrictions and reliabilities according to Hunter and Schmidt (2004); REML=model with restricted maximum likelihood estimator based on 10,000 iterations according to Raudenbush (2009); reported are unstandardized coefficients; ***=p<.01; **=p<.05; *=p<.10 (two-tailed).

Table 2 shows that societal culture was a significant moderator of high-performance work practices using the corrections of Hunter and Schmidt (2004), and using the restricted maximum likelihood estimator. For example, performance orientation moderated the relationship between compensation and benefits practices and psychological ownership using the corrections of Hunter and Schmidt (2004; b=.06, p<.01) in the first row in the first column, and using the restricted maximum likelihood estimator (b=.06, p<.01) in the first row in the second column. The coefficient estimates of all moderation effects between high-performance work practices and psychological ownership were positive and highly significant at p<0.01. Hence, Hypotheses 4a, 5a, 6a, 7a, 8a, 9a, and 11a were
supported. Hypotheses 10a and 12a, which proposed a weakening moderation of power distance and uncertainty avoidance, were not supported.

Table 3. Results of the Random-Effects Meta-Analytic Regressions of Psychological Ownership and Attitudinal Performance With Cultural Moderators According to Harbord and Higgins (2008), Hunter and Schmidt (2004), and Raudenbush (2009)

<table>
<thead>
<tr>
<th>Moderator</th>
<th>Favorable Attitude</th>
<th>Unfavorable Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H&amp;S</td>
<td>REML</td>
</tr>
<tr>
<td>Performance Orientation</td>
<td>0.11*** (29.73)</td>
<td>0.11*** (24.95)</td>
</tr>
<tr>
<td>Future Orientation</td>
<td>0.12*** (30.29)</td>
<td>0.12*** (25.75)</td>
</tr>
<tr>
<td>Gender Egalitarianism</td>
<td>0.15*** (30.53)</td>
<td>0.15*** (25.88)</td>
</tr>
<tr>
<td>Assertiveness</td>
<td>0.11*** (29.59)</td>
<td>0.11*** (25.33)</td>
</tr>
<tr>
<td>In-Group Collectivism</td>
<td>0.10*** (32.91)</td>
<td>0.10*** (25.11)</td>
</tr>
<tr>
<td>Institutional Collectivism</td>
<td>0.11*** (31.44)</td>
<td>0.11*** (25.30)</td>
</tr>
<tr>
<td>Power Distance</td>
<td>0.10*** (33.84)</td>
<td>0.10*** (26.84)</td>
</tr>
<tr>
<td>Humane Orientation</td>
<td>0.12*** (31.77)</td>
<td>0.12*** (26.13)</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>0.11*** (30.73)</td>
<td>0.11*** (25.08)</td>
</tr>
<tr>
<td>k</td>
<td>86</td>
<td>86</td>
</tr>
</tbody>
</table>

Note: k=number of correlations; t-values are given in parentheses; H&S=model with corrections for range restrictions and reliabilities according to Hunter and Schmidt (2004); REML=model with restricted maximum likelihood estimator based on 10,000 iterations according to Raudenbush (2009); reported are unstandardized coefficients; ***=p<.01; **=p<.05; *=p<.10 (two-tailed).

Table 3 shows that societal culture moderated the relationship between psychological ownership and attitudinal performance. For example, performance orientation moderated the relationship with favorable attitude using the corrections of Hunter and Schmidt (2004; b=.11, p<.01) in the first row in the first column, and using the restricted maximum likelihood estimator (b=.11, p<.01) in the first row in the second column. The coefficient estimates of all moderation effects between psychological ownership and attitudinal performance were significant at p≤.01 and a positive sign for favorable attitude, and significant at p≤.05 and a negative sign for unfavorable attitude. Hence, Hypotheses 4b, 5b, 6b, 7b, 8b, 9b, and 11b were supported. Hypotheses 10b and 12b, which proposed a weakening moderation of power distance and uncertainty avoidance, were not supported.

Table 4 shows that societal culture moderated the relationship between psychological ownership and behavioral performance. This moderation is limited to the relationships of constructive deviant behavior in the first and second column, and task performance in the third and fourth column. For example, performance orientation moderated the relationship between psychological ownership and constructive deviant behavior using the corrections of Hunter and Schmidt (2004; b=.09, p<.01) in the first row in the first column, and using the restricted maximum likelihood estimator (b=.09, p<.01) in
the first row in the second column. The coefficient estimates of all moderation effects between psychological ownership and constructive deviant behavior, and between psychological ownership and task performance were positive and significant at \( p \leq 0.01 \). In contrast, the moderation effects between psychological ownership and destructive deviant behavior were not significant. For example, performance orientation did not moderate the relationship between psychological ownership and destructive deviant behavior using the corrections of Hunter and Schmidt (2004; \( b = -0.02, p = 0.14 \)) in the first row in the fifth column, and using the restricted maximum likelihood estimator (\( b = -0.02, p = 0.13 \)) in the first row in the sixth column. Hence, Hypotheses 4c, 5c, 6c, 7c, 8c, 9c, and 11c were partially supported. Hypotheses 10c and 12c, which proposed a weakening moderation of power distance and uncertainty avoidance, were not supported.

Table 4. Results of the Random-Effects Meta-Analytic Regressions of Psychological Ownership and Behavioral Performance With Cultural Moderators According to Harbord and Higgins (2008), Hunter and Schmidt (2004), and Raudenbush (2009)

<table>
<thead>
<tr>
<th>Moderator</th>
<th>Constructive Deviant Behavior</th>
<th>Task Performance</th>
<th>Destructive Deviant Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>H&amp;S</td>
<td>REML</td>
<td>H&amp;S</td>
</tr>
<tr>
<td>Performance</td>
<td>0.09***</td>
<td>0.09***</td>
<td>0.06***</td>
</tr>
<tr>
<td>Orientation</td>
<td>(13.62)</td>
<td>(12.70)</td>
<td>(5.45)</td>
</tr>
<tr>
<td>Future</td>
<td>0.10***</td>
<td>0.10***</td>
<td>0.06***</td>
</tr>
<tr>
<td>Orientation</td>
<td>(14.26)</td>
<td>(13.46)</td>
<td>(5.23)</td>
</tr>
<tr>
<td>Gender</td>
<td>0.13***</td>
<td>0.13***</td>
<td>0.08***</td>
</tr>
<tr>
<td>Egalitarianism</td>
<td>(13.13)</td>
<td>(12.46)</td>
<td>(5.28)</td>
</tr>
<tr>
<td>Assertiveness</td>
<td>0.10***</td>
<td>0.10***</td>
<td>0.06***</td>
</tr>
<tr>
<td>In-Group Collectiv</td>
<td>0.07***</td>
<td>0.07***</td>
<td>0.05***</td>
</tr>
<tr>
<td>Collectivism</td>
<td>(13.44)</td>
<td>(13.30)</td>
<td>(5.75)</td>
</tr>
<tr>
<td>Institutional</td>
<td>0.09***</td>
<td>0.09***</td>
<td>0.05***</td>
</tr>
<tr>
<td>Collective</td>
<td>(13.32)</td>
<td>(12.60)</td>
<td>(5.61)</td>
</tr>
<tr>
<td>Power</td>
<td>0.08***</td>
<td>0.08***</td>
<td>0.05***</td>
</tr>
<tr>
<td>Distance</td>
<td>(14.07)</td>
<td>(13.64)</td>
<td>(5.48)</td>
</tr>
<tr>
<td>Humane</td>
<td>0.09***</td>
<td>0.09***</td>
<td>0.06***</td>
</tr>
<tr>
<td>Orientation</td>
<td>(14.32)</td>
<td>(13.48)</td>
<td>(5.45)</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>0.09***</td>
<td>0.09***</td>
<td>0.05***</td>
</tr>
<tr>
<td>Avoidance</td>
<td>(12.49)</td>
<td>(11.91)</td>
<td>(5.69)</td>
</tr>
</tbody>
</table>

Note: \( k \)= number of correlations; \( t \)-values are given in parentheses; H&S=model with corrections for range restrictions and reliabilities according to Hunter and Schmidt (2004); REML=model with restricted maximum likelihood estimator based on 10,000 iterations according to Raudenbush (2009); reported are unstandardized coefficients; ***=\( p < 0.01 \); **=\( p < 0.05 \); *=\( p < 0.10 \) (two-tailed).

DISCUSSION

Using advanced and rigorous meta-analytic techniques, this study examined high-performance work practices, and attitudinal and behavioral performance as associations of psychological ownership in the context of societal culture on the population level. The findings show that compensation and benefits practices (e.g., participation in profit-sharing or employee stock ownership plans), job and
work design practices (e.g., work autonomy, participation in decision-making), and communication practices (e.g., sharing of business or financial information) induce psychological ownership. Psychological ownership in turn supports constructive deviant behavior, task performance, and favorable attitude, while reducing unfavorable attitude. Societal culture is identified as a significant moderator which strengthens the relationships.

**THEORETICAL IMPLICATIONS**

Among high-performance work practices, job and work design practices had the largest effect on the development of psychological ownership, followed by communication, and compensation and benefits practices. Other practices likely create perceived ownership, too. Training and development practices (Posthuma, et al., 2013), for example, allow employees to invest the self into the organization through individuals’ learning efforts. Future research should cross-reference high-performance work practices and the genesis of psychological ownership (Pierce, et al., 2001, 2003; Pierce & Jussila, 2011) to investigate additional practices to induce ownership feelings.

Furthermore, psychological ownership triggered favorable attitude while preventing unfavorable attitude. This finding demonstrates that individuals’ satisfaction of innate and learned needs through ownership overcomes undesirable outcomes for the organization (Isaacs, 1972; Kline & France, 1899; McDougall, 1923; Pierce, et al., 2001). Similarly, psychological ownership most strongly fostered constructive deviant behavior. This behavior allows employees to live and demonstrate their perceived identity as owners, followed by task performance (Brown, et al., 2005, 2014; Tajfel & Turner, 1979). The meta-analytic regression did not detect a relationship between destructive deviant behavior and psychological ownership. Yet, prior research focused mostly on desirable consequences. Future research should focus on undesirable outcomes of psychological ownership that may have larger effects, for example by preventing others from ownership-taking through territorial attitudes and behaviors in the workgroup context (Gray, et al., 2020).

The often-theorized but hardly-tested moderation effect of societal culture can be strongly supported by this study. House, et al. (2004)’s nine cultural dimensions (i.e., performance orientation, future orientation, gender egalitarianism, assertiveness, in-group collectivism, institutional collectivism, power distance, humane orientation, uncertainty avoidance) had a strengthening effect on the associations of psychological ownership. The hypothesized weakening effects of power distance and uncertainty avoidance were not supported. Hence, in the context of high power distance, strong power differences and hierarchies do not hinder employees’ ability and willingness to take ownership in the organization (Carl, et al., 2004). This discrepancy from prior findings (e.g., Liu, et al., 2012; Renz, et al., 2022) can be explained through the correcting effects of the meta-analytic techniques (Harbord & Higgins, 2008; Hunter & Schmidt, 2004; Raudenbush, 2009).

In the context of high uncertainty avoidance, individuals are not prevented from ownership-taking in the workplace either. In contrast, the desire to reduce uncertainty and ambiguity likely drives individuals to develop ownership feelings. Ownership provides individuals with security and safety which are innate needs and instincts. Possessions, such as a home or warm clothing, are known to provide protection. Employees can find security and safety also in psychological ownership by reassuring themselves that the organization is a part of their selves and that their selves and the organization cannot easily be separated (Pierce, et al., 2001, 2003; Zhang, et al., 2020). Thus, although the moderation effect of societal culture was supported, this finding points to the innate nature of ownership feelings, too. Psychological ownership is not only learned (Beaglehole, 1932; Furby, 1978; Seligman, 1975), but also a natural instinct satisfying an innate desire (Isaacs, 1972; Kline & France, 1899; McDougall, 1923). Future research should further examine where psychological ownership
transcends the boundary between natural instinct and learned behavior through comparative research designs (e.g., samples from two or more societal cultures).

Especially the strong moderation effect of gender egalitarianism on the associations of psychological ownership was intriguing. The equal status of genders in society may come with more societal freedoms and less stringent boundaries between psychological and legal ownership (Barry, et al., 1957; Emrich, et al., 2004; Etzioni, 1991). Future research should examine how individuals in gender-egalitarian societies view both psychological and legal ownership. Are both types of ownership or either one of them driven by rights, responsibility, self-connection, or pride (Rudmin, 1994)? How are both experiences connected to equality and equity within society? Is everyone entitled to be an owner? How are other areas of society affected?

PRACTICAL IMPLICATIONS

Practitioners can support employees in developing psychological ownership by implementing high-performance work practices. Job and work design practices (e.g., discretion, flexible schedule) are most successful in fostering ownership feelings among researched practices, followed by communication practices (e.g., information sharing, suggestion processes). Compensation and benefits practices are effective, too, but show the smallest effect. Hence, non-monetary practices, which do not require organizations to give employees a financial stake, are more effective than monetary practices (Renz, 2022; Renz & Vogel, 2023). Training and development practices (e.g., cross-functional and multi-skill training; Posthuma, et al., 2013) could also be conducive. Learning processes allow employees to invest themselves into the organization so that they can experience self-identity (Pierce, et al., 2001, 2003; Renz & Posthuma, 2021).

In turn, organizations benefit from employees who experience and live ownership in the workplace through favorable attitude, task performance, and constructive deviant behavior. Yet, practitioners should consider the specific cultural context of the organization where they implement high-performance work practices. Job and work design, and communication practices have particularly strong effects in societal cultures high in gender egalitarianism, future orientation, and assertiveness. Practitioners can expect the strongest effect of perceived ownership on desired employee performance in cultures with high gender egalitarianism.

LIMITATIONS AND FUTURE RESEARCH

These findings are subject to limitations. First, the availability of data was limited. After 30 years, psychological ownership research is a growing but small field. Hence, some relationships were examined based on a small number of correlations and could be biased through a second-order sampling error (Hunter & Schmidt, 2004). However, publication bias could be ruled out (Duval & Tweedie, 2000).

Second, different attitudes constitute different constructs. A global perspective on attitudes was chosen for this meta-analysis. Attitudes that have been associated with psychological ownership were categorized into favorable and unfavorable attitudes. This approach is justified because it allows to examine whether fostering psychological ownership in employees leads to rather desirable or undesirable outcomes from the perspective of the organization. At the same time, this approach allows to focus on the main contribution of this study, which is examining the moderation effect of societal culture on the relationships between psychological ownership and its associations. This would not be possible with a more dissected approach towards attitudes due to the limited availability of data.
Third, some data in the included studies were either highly aggregated or not reported (e.g., Md-Sidin, et al., 2009; O’Driscoll, et al., 2006). Thus, sample characteristics such as age, position, and industry could not be investigated as moderators. For example, usable data on the average age of participants was provided in 39.43% of primary studies. The average age of participants across those primary studies was 34.60 years. Usable data on the gender of participants in the sample was provided in 72.87% of primary studies. The average percentage of male respondents across those primary studies was 24.26%. For 13.56% of effect sizes in the sample, industry was reported and included banking (6.98%), engineering construction (2.33%), financial services (9.30%), health care (3.49%), higher education (11.63%), hospitality (20.93%), management (6.98%), manufacturing (1.16%), police (3.49%), R&D (9.30%), sales (11.63%), service (8.14%), sports (2.33%), and transportation (2.33%). 0.32% of variables in primary studies could be unambiguously identified as other-rated. Future research should facilitate meta-analyses and increase transparency by reporting more detailed sample characteristics.

Fourth, only a few studies implemented longitudinal research designs (e.g., Peng & Pierce, 2015; Shukla, 2019). 27.92% of effect sizes were based on longitudinal data or multi-source data. 60.57% of effect sizes were associated with cross-sectional data. Hence, longitudinal effects could not be examined in this study. Future research should investigate more longitudinal relationships to support claims of causality (Cook & Campbell, 1979). Complex relationships between favorable and unfavorable attitudes, and constructive and destructive deviant behaviors could be disentangled.
REFERENCES


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