

Article

An Empirical Examination of the Genesis of Psychological Ownership

Donald G. Gardner ^{1,*} , Jon L. Pierce ² and Feng Lv ³¹ Graduate School of Business Administration, University of Colorado, Colorado Springs, CO 80918, USA² Labovitz School of Business and Economics, University of Minnesota Duluth, Duluth, MN 55812-3002, USA³ School of Business, Nankai University, Tianjin 300350, China

* Correspondence: dgardner@uccs.edu

Abstract: While there are many empirical studies of psychological ownership, there are few that examine the origins of it. Why do people develop feelings of ownership over various entities in their lives? In this investigation we empirically explore the role played by basic psychological needs as motives for the development of job-based psychological ownership. Specifically, we hypothesize that person-job fit is positively related to job-based psychological ownership through three major routes (experienced control, intimate knowing, and/or investment of the self). Further, based on extant theory but not previously studied, we hypothesized that self-identity needs and effectance motivation act as first stage moderators of these mediated relationships. Based on data from 308 employees in China, and employing a time-lagged design, we observed a significant positive relationship between person-job fit and psychological ownership through the three routes. Most of these mediated relationships were moderated by the need for self-identity and effectance motivation, such that the positive effects became stronger as the motivational needs strengthened. Implications for theory and practice are discussed.

Keywords: psychological ownership; control; knowing; investment of the self; self-identity; effectance motivation



Citation: Gardner, D.G.; Pierce, J.L.; Lv, F. An Empirical Examination of the Genesis of Psychological Ownership. *Merits* **2023**, *3*, 37–50. <https://doi.org/10.3390/merits3010003>

Academic Editors: Wendy M. Purcell and Emanuele Cannizzaro

Received: 27 October 2022
Revised: 15 December 2022
Accepted: 23 December 2022
Published: 27 December 2022



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Pierce et al. [1,2] introduced theorizing on the construct *psychological ownership*, anchored at the individual level. In their work, Pierce et al. [1] (p. 299) defined psychological ownership as “that state where an individual feels as though a target of ownership (or a piece of that target) is theirs (i.e., ‘it is mine’).” Psychological ownership is based on feelings of possessiveness and being psychologically tied to the object of ownership, which may be material (e.g., a home) or immaterial (e.g., ideas) in nature. Targets of ownership are considered to be part of or a reflection of the self, as opposed to being “not self” [3–6]. In this study, we focus on job-based psychological ownership (JBPO) as the target of ownership, which Mayhew et al. defined as “... individuals’ feelings of possession toward their particular jobs” [7] (p. 478). This is in contrast to organization-based psychological ownership which Mayhew et al. defined as “... individual members’ feelings of possession and psychological connection to an organization as a whole” [7] (p. 478). The two forms of psychological ownership are highly correlated but do differentially relate to other organizational phenomena, at least at a theoretical level. For example, Mayhew et al. [7] hypothesized that job-based psychological ownership relates more strongly to other job-based measures (e.g., job autonomy, job satisfaction), while organization-based psychological ownership relates more strongly to organization-level measures (e.g., organization commitment). We believe that the individual will come to see the organization mostly through the lens of the job that they perform for the organization, in which they are engaged most of their time while at work.

Pierce et al. [1,2] also theorized that the most immediate antecedents of psychological ownership are: (1) experienced control over, (2) intimate knowing of, and/or (3) investment of the self, into the target of ownership. These three routes can be seen as the paths down which an individual travels that give rise to the feeling of ownership. Once developed, psychological ownership has been hypothesized and consistently found to be related to many important work-related outcomes like job satisfaction, organizational commitment, organization-based self-esteem, job engagement, organizational citizenship behavior, performance effectiveness, territoriality, quit intentions, territoriality, information exchange, and job performance (e.g., [8–14]).

Pierce et al. [1,2] also theorized that three basic human needs are the genesis or “roots” for psychological ownership. However, compared to research on outcomes of psychological ownership, there has been a paucity of research on the individual differences that directly give rise to psychological ownership, or which might moderate the relationships between work characteristics and the strength of the experienced routes to psychological ownership (e.g., control of target). Notable exceptions include Chen et al. [13] who examined approach and avoidance motivation as moderators of the job engagement to JBPO relationship, and McIntyre et al. [15], who examined locus of control and individualism as antecedents of organizational psychological ownership. However, even though the basic human needs that motivate the search for targets of ownership has been positioned within a comprehensive model of psychological ownership, the model itself has not been empirically tested. Dawkins et al. [16] (p. 177), after reviewing empirical and theoretical research on psychological ownership (PO), concluded that:

Research on how individual differences between employees predict PO towards different foci would also extend our understanding of the antecedents of PO. Previous studies examining the antecedents of PO have typically looked at group-level and organizational-level predictors, with little attention paid to the influence of personality traits and other key individual difference variables. This is in spite of the fact that Pierce et al. [2] highlight several key individual differences variables that may influence PO including the following: (1) the strength of one’s innate motives for the routes of PO (efficacy and effectance, self-identification, and belongingness), both within and between individuals . . .

Mayhew et al. [7] similarly called for more research “[t]o develop an integrative theory of psychological ownership, future researchers should address individual factors that may influence the development of psychological ownership” [7] (p. 496). Our objective in this study is to respond to this gap in research on psychological ownership by comprehensively examining the Pierce et al. [1,2] theoretical model, including both the three routes to ownership as well as its origins in two basic human needs (effectance motivation and self-identity need).

In this study we also empirically examine the relationships between the antecedent variable person-job fit (PJF), the mediating route variables (experienced control, intimate knowing, and investment of the self), and the dependent variable job-based psychological ownership (JBPO). We chose to study PJF as an antecedent to JBPO because of its theoretical relationships with the three routes to JBPO (discussed below). Further, we examine self-identity needs and effectance motivation as moderators of the relationship between PJF and JBPO. This is the first study to examine Pierce et al.’s [1,2] psychological ownership model inclusive of its three mediating route variables and two of its moderating root variables. See Figure 1 for the complete tested model.

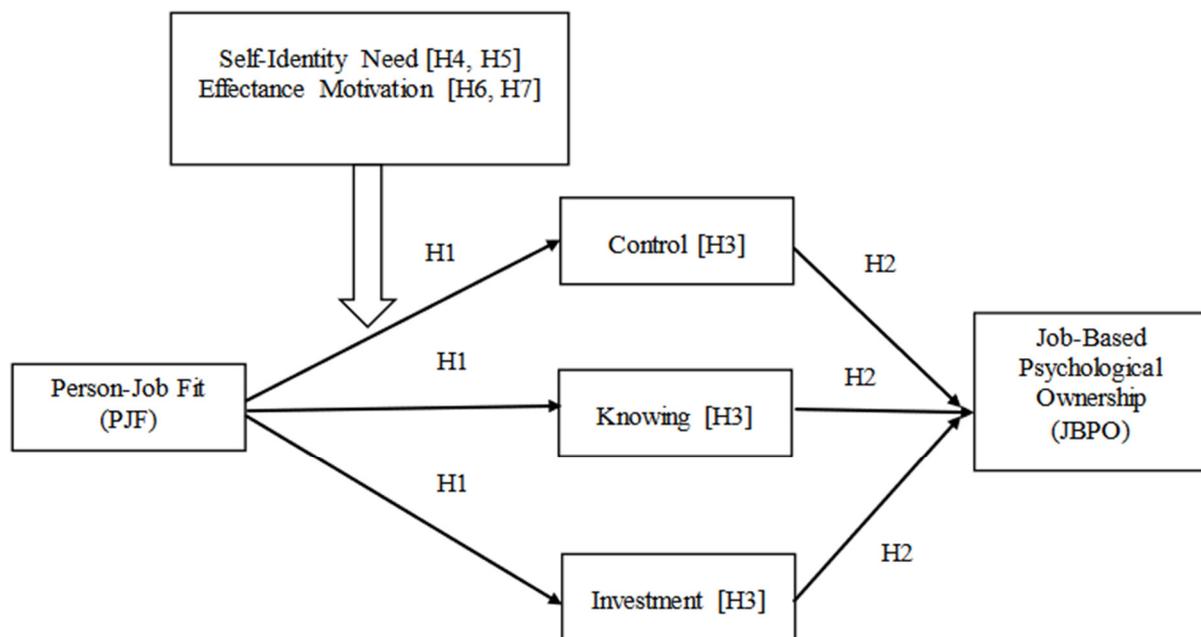


Figure 1. Illustration of hypothesized relationships between person-job fit, motivational needs, routes to and job-based psychological ownership.

2. The Origins of Psychological Ownership

Some writers view the genesis of possessive feelings as an innate condition [17], while others view it as the product of socialization practices [18–20]. Both views led Litwinsky [21] and Dittmar [4], among others, to suggest that psychological ownership is sociobiological in nature. The root variables in Pierce et al.'s [2] model were cast as the motives (needs) that give rise to people experiencing the emergence and existence of psychological ownership. In the absence of these needs people would not seek out the experiences that result in psychological ownership. These motives included: (1) the need for self-identity (i.e., coming to know the self-identity, expression of the self-identity to others, and maintaining the continuity of self-identity across time; cf. [4,22–24]), (2) effectance motivation, the motivation to explore and master one's environment [25], (3) the need for a place in which to dwell (home; [26,27]), and (4) the need for stimulation [28–30]. These variables were not only cast as motives for coming to a sense of ownership but also, at least in part, fulfilled as a result of coming to ownership feelings.

There has only been a limited exploration of the role played by the needs/motives that underpin the personal experiences that lead to the sense of ownership. McIntyre et al. [15] explored and found positive relationships between organizational psychological ownership and the motives of effectance, home, and self-identity. Walasek et al. [31] noted that there is insufficient empirical evidence to support the claim that there is a causal relationship between the social needs of self-identity, effectance motivation, the need for home, and feelings of ownership. In their experimental study they manipulated ostracism as a threat to the basic social needs of self-esteem, control, belonging, and meaningful existence. They failed to find a causal link between ostracism and feelings of ownership, or the valuation ascribed to their possessions. More recently, Wang et al. [32] employed the need for belongingness in lieu of and as a synonym for home. It was perceived to reflect a known, accepting, and comfortable place in which to dwell (to be). They observed a positive relationship between the feelings of belongingness (home) and psychological ownership. At this time, it appears that research has produced scarce but mixed results regarding the roots of psychological ownership, and is in need of further theorizing and empirical examination.

3. Person-Job Fit and Psychological Ownership

Han et al. [33] were first to examine relationships between person-job and person-organization fit, and organization-based psychological ownership. Han et al. also proposed that person-organization fit affects organization-based psychological ownership through the intervening variables of values alignment and having a place or home, but did not empirically study these mediated relationships. Han et al. also noted that few studies have explored the relationship between person-job fit and psychological ownership. They argued “that person-job fit allows employees to experience positive interactions with their working environment (experiencing the job as an extension of themselves) and feel competent to do jobs well (producing a feeling of efficacy and effectance). This, we propose, leads to the development of a feeling of PO” (p. 431). However, neither of these intervening variables were measured in their study. Han et al. found that person-organization fit was unrelated to organization-based psychological ownership, but that PJF was substantially related to it ($\beta = 0.52, p < 0.01$). Because of their findings, as well as for theoretical reasons, we focused on PJF in this empirical study, but also measured the three routes to JBPO as well as two of the basic need root variables first proposed by Pierce et al. [1,2].

Consistent with Cable and DeRue we define PJF as “judgments of congruence between an employee’s skills and the demands of a job” [34] (p. 875). When employees believe that there is a high degree of PJF, they sense that they have the personal resources (e.g., abilities, motivation) to manage the demands and challenges of their jobs, reflecting a self-perception of competence. In addition, because of this sense of competence, employees feel they have the autonomy to execute those behaviors that are necessary for them to successfully perform their jobs without the permission or coaching of others. That is, employees who perceive that they have a high level of PJF see themselves as having both the required abilities, and the autonomy to decide what needs to be done. Implicitly those employees who perceive high levels of PJF also believe that they have a high level of knowledge about their jobs; otherwise, they could not know how well their abilities and values match those of their jobs. Similarly, they would have had to invest themselves into their jobs to achieve a high level of PJF, because they could not know for sure if their abilities and values matched those of their jobs without putting forth the effort to apply them while at work.

Based on this, we hypothesize that PJF gives rise to each of the three route variables, thereby having a positive relationship with experienced control over, intimate knowing of, and investment of the self into, the target of ownership (viz., the job or work that one is called upon to perform). We reason that the more that employees experience PJF the more they will come to see themselves as being in a place where they have the freedom to decide when and which behaviors to execute. Further, because a high sense of PJF is comforting, employees should show greater willingness to invest more of themselves into that place in which they are comfortable. Accompanying this investment, and the embedding of the self into the job, one comes to a broader, deeper, and more thorough understanding of the target of ownership job (i.e., intimate knowing of the job). In addition, as more of the self is invested into the job the individual increasingly comes to experience themselves as the cause of what transpires in their job performance. Thus, we hypothesize (below) that PJF will positively relate to each of the three routes to JBPO.

H1. *There is a positive relationship between PJF and each of the three route variables.*

Prior scholarship [35,36] has demonstrated a predictive role played by each of the three route variables with JBPO positioned as the dependent variable. Control, knowing, and investment all reliably predict beliefs about ownership over one’s job. We propose that PJF is positively related to each of the three route variables, and prior research has demonstrated that each route variable has a positive relationship with JBPO.

H2. *There is a positive relationship between each of the three route variables and JBPO.*

This hypothesized first stage path and previously established second stage path leads us to further hypothesize that the PJF and JBPO relationship is mediated by the three route variables (control, knowing, and investment).

H3. *The three route variables mediate the relationships between PJF and JBPO.*

4. Self-Identity Needs and Effectance Motivation

There are several motivational forces that at various times surface as behaviors that satisfy basic needs [37]. Our reasoning here is that there are human conditions (motives/needs) that make people feel that there are certain targets that they are one with, or are a part of the extended self [3,38], and for which they feel a possessiveness and a sense of ownership. Two of those root conditions are the need for self-identity [22], and effectance motivation [25].

We speculate that those who have a strong and active need for self-identity (knowing the self and/or the expression of the self to others) will be driven under the right conditions to use the work that they perform to aid both self-identity understanding, and the expression of their identity to others. There have not been many published studies on self-identity needs within the work context, but it has garnered researchers' attention in recent years. For example, Schilpzand and Huang [38] found that collective and relational self-identity motivation moderated the effect of workplace incivility on subsequent perceptions of ostracism. People high in relational or collective self-identities are more sensitive to information salient to those identities than people who have low levels of social self-identities. Because incivility is inconsistent with a self-identity as a functional, valued member of a group, it negatively affects knowledge about acceptance or expression of the self as a well-liked social being, resulting in a perception of being ostracized. Yang et al. [39] positioned strong social self-identity needs as a personal resource, and found that it buffered the effects of interpersonal unfairness on counter-productive work behaviors. Jackson and Johnson [40] found that when there was a fit between leader and follower self-identities (which could be extrapolated to overall PJF), it enhanced perceptions of LMX, and subsequent job performance. We take the position that people who have stronger self-identity needs are more likely to seek out information from their work environments that enable them to affirm or learn about their identities as valuable human beings. We propose that the perception that one has a high level of PJF is more important to people with high needs for self-identity, and will strengthen their reactions to it. Thus, we hypothesize that self-identity needs strengthen the positive relationships between PJF and the routes to JBPO, and ultimately JBPO itself.

H4. *Need for self-identity moderates the relationships between PJF and the three route variables such that the relationships become more positive as self-identity needs increase in strength.*

H5. *Need for self-identity moderates the mediated relationships between PJF and JBPO through the route variables, such that the mediated relationships becomes more positive as self-identity needs strengthen.*

Furby [41] suggested that the motivation for and the meaning of ownership can be found in effectance or competence motivation [25], that human motivation to explore and to interact effectively with one's environment. People who are high in effectance motivation proactively interact with their environments to satisfy their needs for understanding and managing those environments. An environment in which a person perceives that they have both the personal resources (e.g., abilities) and freedom (e.g., autonomy) to explore and master it should lead to the perception that one has control over that environment. People high in effectance motivation should be especially sensitive to this type of environment, leading to stronger relationships between PJF and (at a minimum) the control pathway to JBPO, compared to people low in effectance motivation. We expect the relationships between PJF, and knowing and investment, to also be stronger for employees higher in effectance motivation, as they come to increasingly know about their work environment and invest themselves in exploration and management of it. Thus, people who experience

a strong effectance motivation will sense a high degree of control over their work, be motivated to continuously explore their jobs, and thereby come to intimately know and invest themselves into their jobs. Thus, we hypothesize that effectance motivation strengthens the positive relationships between PJF and the routes to JBPO, and ultimately JBPO itself.

H6. *Effectance motivation moderates the relationships between PJF and the three route variables such that the relationships become more positive as effectance motivation increases in strength.*

H7. *Effectance motivation moderates the mediated relationships between PJF and JBPO through the route variables, such that the mediated relationship becomes more positive as effectance motivation strengthens.*

5. Methods

5.1. Sample and Procedure

Participants were employed by six different companies with operations in China. Companies were recruited for participation through personal contacts of one of the authors, and thus were not randomly sampled from any population of companies in China (or elsewhere). Company managers previewed the surveys and solicited the employees for participation. The companies were in the following businesses/industries: (1) e-commerce, (2) pharmaceuticals, (3) engineering machinery manufacturing, (4) steel pipe manufacturing, (5) sanitation products manufacturing, and (6) steel manufacturing. At Time 1 demographic (sex, age, education) and motivational needs (self-identity need and effectance motivation) data were collected with online and paper questionnaire methods. In three companies (1, 4, and 5 above) all data were collected by completion of online surveys. In three other companies data were collected with paper questionnaires (2, 3, and 6). In one company (3) 20% of participants completed questionnaires, while the rest completed online surveys. For data privacy reasons, participants in companies 4 and 5 were provided a common link (URL) to the online survey, and their results were combined in analyses reported below.

Invitations to complete the survey were sent from human resources to the online participants using social media (WeChat). Paper questionnaires were distributed and collected by the researchers in company facilities. In all cases, participation was voluntary, and participants were told that their anonymous, individual responses would only be used by the research team. Participants were asked to provide a unique code (their initials followed by their birth month and date) that was used to match their Time 1 data to their Time 2 data. After elimination of surveys that were duplicates or missing data, a total of 556 participants completed the Time 1 survey.

Time 2 data collection occurred 3–4 months after Time 1 (i.e., not all participants completed surveys on the same day). All data at Time 2 were collected online. Participants completed surveys that measured person-job fit, the three route variables (control, knowing, investment) and job-based psychological ownership. A total of 308 participants provided usable data, after elimination of surveys that were duplicates or had missing responses, and were matched with Time 1 data. Results reported below are based on the raw data from these 308 participants.

5.2. Variables and Their Measurement

The majority of questionnaire scale items originated from previously validated measures of the constructs in this study. The English version of the questionnaire was assembled by two of the study's authors. This English version of the questionnaire was then translated into Chinese (i.e., Mandarin) by the third author who is fluent in both languages. The questionnaire was then back translated by two management studies scholars (not the authors) who are fluent in both languages. After several iterations of this forward-and-back translation procedure the questionnaire was administered to the sample described above.

The moderating root variable *Need for Self Identity* was assessed employing Lee's [42] six-item scale (e.g., "I want this organization to be an extension of me") using a five-point

scale anchored between “Does Not Describe Me” to “Describes Me Extremely Well.” The moderating root variable *Effectance Motivation* was developed by two of the current authors for another study (unrelated to the current study). The six-item scale (e.g., “I need to feel competent,” “I enjoy exploring new things”), explicitly based on Whyte’s [25] research, was assessed with a 7-point Likert-type scale anchored between Strongly Disagree and Strongly Agree.

We employed Cable and DeRue’s [43] three-item demands-abilities scale for the measurement of the independent variable, *Person-Job Fit* (PJF), as illustrated by the item “The match is very good between the demands of my job and my personal skills.” Participants responded on a seven-point Likert-type scale anchored Strongly Disagree to Strongly Agree.

Experienced control was measured with Tetrick and La Rocco’s [44] six-item scale (e.g., “To what extent do you have influence over the things that affect you on the job?”), anchored 1 = None to 7 = Completely. *Intimate knowing* of and *Investment of the Self* into the target of ownership was based on Brown et al.’s [35] study. *Intimate knowing* consisted of 6 items (e.g., “I am intimately familiar with what is going on with regard to my job”), and *investment of the self* was also measured with six items (e.g., “I have invested a great deal of psychological energy into this job.”). Both dimensions were assessed with a 7-point Likert-type scale anchored Strongly Disagree to Strongly Agree.

Brown et al.’s [35] six-item scale was used to assess the dependent variable *Job-based Psychological Ownership* (e.g., “I sense that this job is MINE”). Participants responded on 7-point Likert-type scales anchored Strongly Disagree to Strongly Agree.

5.3. Analyses

Hypotheses were tested with path analyses using maximum likelihood estimators of the structural parameters (the β ’s). Maximum likelihood estimation has a number of advantages over ordinary least squares regression when testing causal models, including the ability to over-identify models by freeing and fixing certain parameters, less bias in parameter estimates, greater consistency and efficiency of estimates, allowing for joint interdependencies between predictor variables, controlling for errors in both predictor and outcome variables, and generally facilitating complete and simultaneous tests of all hypothesized relationships [45–47]. We used Mplus (v8.4) to perform analyses [48], employing the cluster function to control for nesting of the participants within the different companies. We used only the measured (manifest) variables as indicators of the constructs we studied. Hypotheses were tested using structural equation modeling, adapting Mplus code created by Stride et al. [49], which is based on equations developed by Hayes [50] for moderated mediation (Model 7).

6. Results

Demographics of the final sample are as follows: 68.8% were male, 31.2% were female; 53.9% were aged 18–24, 42.5% were aged 25–34, 2.6% were aged 35–44 and 1.00% were aged 45–54; in terms of education, 7.1% had a high school degree, 1.0% had an associates degree or certificate, 46.6% had a bachelors degree, 44.7% had a masters degree and 0.3% had a doctorate degree. Descriptive statistics and intercorrelations of study variables are reported in Table 1. All sample coefficient alpha reliability estimates of the measures were high (above 0.84). Person-job fit correlated significantly ($p < 0.01$) with the route variables and psychological ownership, as expected. Psychological ownership correlated significantly ($p < 0.01$) with its theoretical route antecedents, as expected. The two theoretical moderators (self-identity need and effectance motivation) correlated significantly with each other ($p < 0.01$), but were unrelated to the other study variables, with two minor exceptions (self-identity and efficacy motivation were correlated weakly but significantly with control; $p < 0.05$). Unlike the McIntyre et al. [15] results, it does not appear that the root variables contribute directly to JBPO.

Table 1. Descriptive statistics and intercorrelations of study variables.

Variables	Mean	SD	1	2	3	4	5	6	7
1. Job-based Psychological Ownership	5.40	0.98	(0.89)						
2. Person-Job Fit	5.53	1.13	0.60 **	(0.85)					
3. Experienced Control	4.95	1.01	0.55 **	0.50 **	(0.87)				
4. Intimate Knowing	5.39	0.96	0.65 **	0.71 **	0.60 **	(0.93)			
5. Investment of Self	5.81	0.97	0.58 **	0.54 **	0.46 **	0.66 **	(0.90)		
6. Self-identity Motivation	3.75	0.82	0.07	0.06	0.15 *	0.05	−0.06	(0.89)	
7. Efficacy Motivation	5.82	0.95	0.05	0.04	0.13 *	0.07	0.09	0.41 **	(0.84)

* $p < 0.05$, ** $p < 0.01$ (two-tailed). Note: Sample coefficient alpha estimates are in parentheses on the diagonal.

The three routes were regressed on PJF, after controlling for the relationships between them. PJF was significantly related to control ($\beta = 0.14, p < 0.05$), knowing ($\beta = 0.66, p < 0.01$), and investment ($\beta = 0.14, p < 0.05$), in support of H1. Job-based psychological ownership was regressed on the three route variables and was significantly related to control ($\beta = 0.23$), knowing ($\beta = 0.37$), and investment ($\beta = 0.23$), after controlling for the relationships between the three routes. These results, all significant at $p < 0.01$, support H2.

The remaining hypotheses (H3–H7) state mediation, moderation, and moderated mediation relationships between the study variables. The relationships stated in these hypotheses were tested simultaneously, that is, for the complete moderated mediation model (see Figure 1). Doing so controls for correlations between variables that are incidental to the hypotheses, but which might otherwise bias results. Results from the tests of Hypotheses 4 and 6 are reported in Table 2. H4 was supported by statistically significant interactions of person-job fit and self-identity need on two of the route variables (knowing and investment of the self), while H6 was also supported by statistically significant interactions of person-job fit and effectance motivation on knowing and investment of the self ($p < 0.05$). When illustrated graphically, all four significant interactions demonstrated increasingly positive relationships between person-job fit and the route variables as both self-identity needs (H4) and effectance motivation (H6) increased in value. Figure 2 illustrates the nature of the interaction of person-job fit and self-identity need on the intimate knowing route variable (H4), as well as the person-job fit by effectance motivation interaction on the investment route variable (H6). The direction of the two other interactions was similar as the relationships between person-job fit and the route variables increased in magnitude as the motivational variables increased in strength. The two non-significant interactions suggest that controlling the target of ownership is not as important to satisfaction of self-identity need and effectance motivation as are intimate knowing and investment of the self.

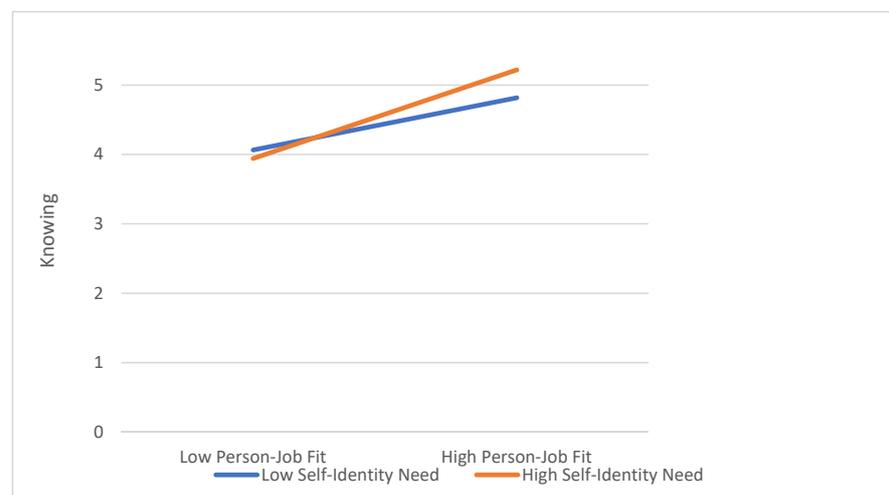


Figure 2. Cont.

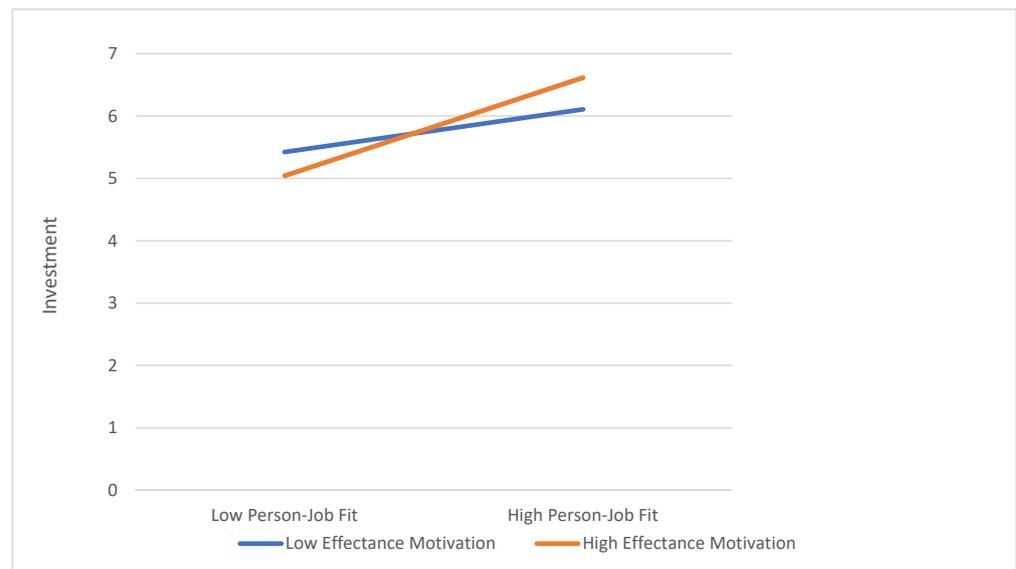


Figure 2. Illustration of interactions of person-job fit, and self-identity needs and effectance motivation, on perceptions of route variables.

Table 2. Results from tests of direct and interactive hypothesized relationships between person-job fit, routes to psychological ownership, and self-identity and effectance motivations.

Variables in Equation	B (Unstandardized Regression Coefficient)	95% Bootstrapped Confidence Interval
Control:		
Person-Job Fit (PJF)	−0.20	(−0.42, 0.20)
Self-identity Need (SLF)	−0.79	(−1.19, 0.38)
PJF X SLF	0.18	(−0.01, 0.24)
Knowing:		
Person-Job Fit (PJF)	0.08	(−0.43, 0.38)
Self-identity Need (SLF)	−0.69	(−1.34, −0.35)
PJF X SLF	0.14	(0.06, 0.26)
Investment:		
Person-Job Fit (PJF)	−0.21	(−0.37, 0.03)
Self-identity Need (SLF)	−1.10	(−1.26, −0.69)
PJF X SLF	0.19	(0.12, 0.22)
Control:		
Person-Job Fit (PJF)	−0.24	(−0.70, 0.58)
Effectance Motivation (EFF)	−0.54	(−1.09, 0.39)
PJF X EFF	0.12	(−0.05, 0.20)
Knowing:		
Person-Job Fit (PJF)	0.19	(−0.49, 0.39)
Effectance Motivation (EFF)	−0.33	(−0.56, 0.16)
PJF X EFF	0.07	(0.02, 0.11)
Investment:		
Person-Job Fit (PJF)	−0.84	(−1.45, −0.17)
Effectance Motivation (EFF)	−1.18	(−1.60, −0.26)
PJF X EFF	0.22	(0.15, 0.30)

Note: 95% confidence intervals are bias-corrected bootstrapped; intervals that exclude zero are statistically significant at $p < 0.05$. Unstandardized regression coefficients that are statistically significant are highlighted in **bold**.

We hypothesized that the three route variables would mediate the relationships between person-job fit and job-based psychological ownership (H3), and that the mediation pathways would be moderated by self-identity need (H5) and effectance motivation (H7). Results for tests of these hypotheses are presented in Table 3. The test for all six mediation relationships is the significance of the mediation effect at the average level of the moderator. All six relationships are statistically significant at $p < 0.05$, in support of H3. The statistical test for moderated mediation is the index of moderated mediation (IMM; [50]), which is a multiplicative composite of the moderator and mediation pathways. The IMM simultaneously considers the joint mediation and moderation effects, and provides a test of significance. Like the parameter estimates for mediation, it is not normally distributed, and 95% bootstrapped confidence intervals are used to assess its statistical significance [50]. As may be seen in Table 3, all but one of the IMMs were statistically significant. The mediation effects are shown for very low (-2 SD), average (0 SD), and very high ($+2$ SD) levels of the two moderator variables (self-identity and effectance). Additionally, shown in Table 3, as hypothesized, the positive mediation relationships between person-job fit and job-based psychological ownership through the three routes strengthened as participants' self-identity and effectance motivations increased. Hypotheses 3, 6, and 7 were therefore supported by the data. The IMM for the PJF to knowing to JPBO pathway, moderated by effectance motivation, narrowly missed statistical significance ($p < 0.10$) even though the mediation effects at low, average, and high levels of effectance motivation were all significant and consistent with the other moderated mediation effects.

Table 3. Results from tests of moderated mediation hypotheses.

Mediation Relationship	Index of Moderated Mediation	95% Confidence Interval	Mediation Effect	95% Confidence Interval
PJF→Control→JPO	0.06	(0.01, 0.12)		
Low Self-identity Need			0.13	(0.03, 0.22)
Average Self-identity Need			0.16 *	(0.04, 0.27)
High Self-identity Need			0.20	(0.06, 0.22)
PJF→Knowing→JPO	0.07	(0.03, 0.12)		
Low Self-identity Need			0.27	(0.16, 0.47)
Average Self-identity Need			0.31 *	(0.19, 0.49)
High Self-identity Need			0.35	(0.21, 0.53)
PJF→Investment→JPO	0.07	(0.03, 0.12)		
Low Self-identity Need			0.14	(0.05, 0.29)
Average Self-identity Need			0.18 *	(0.07, 0.22)
High Self-identity Need			0.22	(0.09, 0.37)
PJF→Control→JPO	0.05	(0.01, 0.08)		
Low Effectance Motivation			0.16	(0.08, 0.27)
Average Effectance Motivation			0.18 *	(0.08, 0.29)
High Effectance Motivation			0.21	(0.07, 0.33)
PJF→Knowing→JPO	0.04	(−0.01, 0.06)		
Low Effectance Motivation			0.28	(0.16, 0.43)
Average Effectance Motivation			0.31 *	(0.18, 0.50)
High Effectance Motivation			0.34	(0.20, 0.53)

Table 3. Cont.

Mediation Relationship	Index of Moderated Mediation	95% Confidence Interval	Mediation Effect	95% Confidence Interval
PJF→Investment→JPO	0.09	(0.03, 0.11)		
Low Effectance Motivation			0.12	(0.01, 0.28)
Average Effectance Motivation			0.18 *	(0.06, 0.32)
High Effectance Motivation			0.25	(0.11, 0.39)

* Tests of mediation relationships. Note: 95% confidence intervals are bias-corrected bootstrapped; intervals that exclude zero are statistically significant at $p < 0.05$. All moderated mediation and mediation parameters are statistically significant (indicated by **bold**).

7. Discussion

Our study contributes to the growing knowledge base of psychological ownership. While many studies have identified specific antecedents and outcomes of psychological ownership (see [51], for a summary), very few have theoretically or empirically explored the question of *why* people are motivated to develop a sense of possession over material and abstract objects. Our study addresses the research question: What is the motivational basis of psychological ownership? In this investigation we confirmed that the emergence of job-based psychological ownership, at times, falls along a path where PJF is positively related to the three route variables (i.e., experienced control, intimate knowing, and investment of the self) antecedent to job-based psychological ownership. Importantly, we theorized and found that need for self-identity and effectance motivation play an important role in the person-job fit → job-based psychological ownership relationship. As both needs increased in strength the person-job fit → routes → psychological relationship increased in strength.

Our results diverge from Walasek et al. [31], who conducted an experiment with online samples (MTurk) that may not fully capture the strength of the workplace characteristics that employees experience while at work. On the other hand, our results are consistent with McIntyre et al.'s [15] observing positive relationships between effectance motivation, a place to live (home), the self-identity motive, and the dependent variable psychological ownership. We note however that McIntyre et al. employed measures of effectance motivation and self-identity needs that were developed by them and may have confounded their measures with other constructs. For example, several of their effectance motivation items (e.g., "I have the resources I need to perform my job") do not directly inquire about one's motivation to successfully master one's environment. Similarly, some of their self-identity need items (e.g., "When someone criticizes this organization, it does not feel like a personal insult" and "This organization's successes are not my successes") reflect consequences of self-identity needs (viz., organizational identification) as opposed to the strength of the desire for one's organization to reflect one's existing identity as a person. We believe that our measures better index the meaning of self-identity needs (e.g., "I want this organization to be an extension of me" and "I need to understand who I am as an employee of this organization") and effectance motivation (e.g., "I like being the cause of what happens" and "I need to have opportunities to show how capable I am"). Still, both studies provide support for the Pierce et al. [1,2] model of psychological ownership and its positioning of basic human needs as the motivating force that underlies the desire to possess "things", through at least two of the three pathways to JBPO. As suggested by Furby [41], Pierce et al. [1,2], and others, there appears, in part, to be an almost innate need for people to develop a sense of possession over certain targets within their experienced worlds.

The major limitation of our study is that the predictor (PJF), mediator (control, knowing, investment) and outcome (JBPO) variables were all measured at the same time. This limits what can be concluded about causality, though our results are consistent with what would be found with a stronger design. The moderators (self-identity and effectance motivations) were measured before the other variables, and ameliorate concerns about

them being affected by the other constructs that we studied. Another limitation is that data were collected in China, which has a culture different than those in western countries (e.g., higher in collectivism). Our results should be replicated in future research in different cultures, ideally with experimental, quasi-experimental, or longitudinal designs.

Building upon our results, we would suggest that psychological ownership researchers think about its potential workplace antecedents in terms of how it might satisfy needs for self-identity, or effectance motivation. As an example, the human resource practices of training and development facilitate person-job fit, but also address needs to know more about the self, and when successful, leads to situations where effectance motivations are satisfied. In addition, while we found support for self-identity needs and effectance motivation as roots of psychological ownership, other basic needs proposed by Pierce and colleagues have not been extensively studied (i.e., a place to dwell, need for stimulation), nor have the workplace “triggers” for those basic needs [51]. Much remains to be learned about the person-situation interactions that stimulate people to travel down the routes to psychological ownership.

From a managerial perspective we encourage the taking of steps to increase employee feelings of psychological ownership for the work that they are called on to perform. Prior scholarship suggests that this can in large part be achieved through those job conditions where the employee is permitted to exercise autonomy and experience job-related control and intimate knowing of the job. This most likely stems from one’s involvement in major portions of the job and its associated activities, and the opportunity to make personal investments of the self (time, skill, knowledge, effort) into job performance. Much of this comes from the careful placement of employees on jobs for which where there is person-job fit in terms of skills and abilities, as well as values [15], because we observed a positive relationship between fit and experiences of job-based psychological ownership.

8. Conclusions

We tested the comprehensive model of psychological ownership first proposed by Pierce et al. [1,2], which proposes that basic psychological needs are the roots of psychological ownership, and that one comes to develop it when one experiences at least one of the three pathways to psychological ownership. We hypothesized that high levels of person-job fit would propel employees down those three routes, and that self-identity need and effectance motivation would moderate their impact on job-based psychological ownership. Overall, we found support for the model, but the results for basic needs moderating the relationships between person-job fit and experienced control were non-significant, and require further study.

Author Contributions: Conceptualization, D.G.G. and J.L.P.; methodology, D.G.G., J.L.P. and F.L.; formal analysis, D.G.G.; investigation, F.L.; resources, F.L.; data curation, D.G.G. and F.L.; writing—original draft preparation, D.G.G. and J.L.P.; writing—review and editing, D.G.G., J.L.P. and F.L.; visualization, D.G.G.; project administration, F.L.; funding acquisition, F.L. All authors have read and agreed to the published version of the manuscript.

Funding: Feng Lv’s research was supported by The National Social Science Fund of China (2019-19BGL118).

Institutional Review Board Statement: The research design used in this study was approved by The National Social Science Fund of China (2019-19BGL118) as well as Nankai University.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: To preserve participant and host organization anonymity, data will be provided only upon legitimate research request.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Pierce, J.L.; Kostova, T.; Dirks, K.T. Toward a Theory of Psychological Ownership in Organizations. *Acad. Manag. Rev.* **2001**, *26*, 298–310. [[CrossRef](#)]
2. Pierce, J.L.; Kostova, T.; Dirks, K.T. The State of Psychological Ownership: Integrating and Extending a Century of Research. *Rev. Gen. Psychol.* **2003**, *7*, 84–107. [[CrossRef](#)]
3. Belk, R.W. Possessions and the Extended Self. *J. Consum. Res.* **1988**, *15*, 139–168. [[CrossRef](#)]
4. Dittmar, H. *The Social Psychology of Material Possessions: To Have is to Be*; St. Marten's Press: New York, NY, USA, 1992.
5. James, W. *The Principles of Psychology*; Henry Holt and Company: New York, NY, USA, 1890.
6. Prelinger, E. Extension and Structure of the Self. *J. Psychol.* **1959**, *47*, 13–23. [[CrossRef](#)]
7. Mayhew, M.G.; Ashkanasy, N.M.; Bramble, T.; Gardner, J. A Study of the Antecedents and Consequences of Psychological Ownership in Organizational Settings. *J. Soc. Psychol.* **2007**, *147*, 477–500. [[CrossRef](#)]
8. Pierce, J.L.; Jussila, I. Collective psychological ownership within the work and organizational context: Construct introduction and elaboration. *J. Organ. Behav.* **2009**, *31*, 810–834. [[CrossRef](#)]
9. Pierce, J.L.; Jussila, I.; Li, D. Development and validation of an instrument for assessing collective psychological ownership in organizational field settings. *J. Manag. Organ.* **2017**, *24*, 776–792. [[CrossRef](#)]
10. Avey, J.B.; Avolio, B.J.; Crossley, C.D.; Luthans, F. Psychological ownership: Theoretical extensions, measurement and relation to work outcomes. *J. Organ. Behav.* **2009**, *30*, 173–191. [[CrossRef](#)]
11. Liu, J.; Wang, H.; Hui, C.; Lee, C. Psychological Ownership: How Having Control Matters. *J. Manag. Stud.* **2011**, *49*, 869–895. [[CrossRef](#)]
12. Zhang, Y.; Liu, G.; Zhang, L.; Xu, S.; Cheung, M. Psychological Ownership: A Meta-Analysis and Comparison of Multiple Forms of Attachment in the Workplace. *J. Manag.* **2020**, *47*, 745–770. [[CrossRef](#)]
13. Chen, X.; Lee, C.; Hui, C.; Lin, W.; Brown, G.; Liu, J. Feeling possessive, performing well? Effects of job-based psychological ownership on territoriality, information exchange, and job performance. *J. Appl. Psychol.* **2022**. [[CrossRef](#)] [[PubMed](#)]
14. Wang, L.; Law, K.S.; Zhang, M.J.; Li, Y.N.; Liang, Y. It's mine! Psychological ownership of one's job explains positive and negative workplace outcomes of job engagement. *J. Appl. Psychol.* **2019**, *104*, 229–246. [[CrossRef](#)] [[PubMed](#)]
15. McIntyre, N.; Srivastava, A.; Fuller, J.A. The relationship of locus of control and motives with psychological ownership in organizations. *J. Manag. Issues* **2009**, *21*, 383–401.
16. Dawkins, S.; Tian, A.W.; Newman, A.; Martin, A. Psychological ownership: A review and research agenda. *J. Organ. Behav.* **2015**, *38*, 163–183. [[CrossRef](#)]
17. Ellis, L. On the rudiments of possessions and property. *Soc. Sci. Inf.* **1985**, *24*, 113–143. [[CrossRef](#)]
18. Beaglehole, E. *Property: A Study in Social Psychology*; Macmillan: New York, NY, USA, 1932.
19. Furby, L. Possessions: Toward a theory of their meaning and function throughout the life cycle. In *Life Span Development and Behavior*; Bates, P.B., Ed.; Academic Press: Cambridge, MA, USA, 1978; pp. 297–336.
20. Seligman, M.E.P. *Helplessness*; Freeman: New York, NY, USA, 1975.
21. Litwinski, L. Is there an instinct of possession? *Br. J. Psychol.* **1942**, *23*, 28–39. [[CrossRef](#)]
22. Mead, G.H. *Mind, Self, and Society*; University of Chicago Press: Chicago, IL, USA, 1934.
23. Porteous, J.D. Home: The Territorial Core. *Geogr. Rev.* **1976**, *66*, 383. [[CrossRef](#)]
24. Rudman, F.W. The economic psychology of Leon Litwinski: A program of cognitive research on possession and property. *J. Econ. Psychol.* **1990**, *11*, 307–339.
25. White, R.W. Motivation reconsidered: The concept of competence. *Psychol. Rev.* **1959**, *66*, 297–330. [[CrossRef](#)]
26. Heidegger, M. *Being and Time*; Macquarie, J.; Robinson, E., Translators; Basil Blackwell: Oxford, UK, 1967; original work published 1927.
27. Dreyfus, H.L. *Being-in-the-World: A Commentary on Heidegger's Being and Time*; MIT Press: Cambridge, MA, USA, 1991.
28. Gardner, D.G. Activation theory and task design: An empirical test of several new predictions. *J. Appl. Psychol.* **1986**, *71*, 411–418. [[CrossRef](#)]
29. Gardner, D.G. Task complexity effects on non-task-related movements: A test of activation theory. *Organ. Behav. Hum. Decis. Process.* **1990**, *45*, 209–231. [[CrossRef](#)]
30. Scott, W.E. Activation theory and task design. In *Readings in Organizational Behavior and Human Performance*; Scott, W.E., Cummings, L.L., Eds.; R. D. Irwin: Chicago, IL, USA, 1966; pp. 188–202.
31. Walasek, L.; Matthews, W.J.; Rakow, T. The need to belong and the value of belongings: Does ostracism change the subjective value of personal possessions? *J. Behav. Exp. Econ.* **2015**, *58*, 195–204. [[CrossRef](#)]
32. Wang, W.; Pierce, J.L.; Li, D.; Wang, G.; Li, J.; Niu, X. Eliciting Psychological Ownership of Object by Marking Organizational Name: The Role of Belongingness. *Front. Psychol.* **2021**, *12*, 1–11. [[CrossRef](#)] [[PubMed](#)]
33. Han, T.-S.; Chiang, H.-H.; McConville, D.; Chiang, C.-L. A Longitudinal Investigation of Person–Organization Fit, Person–Job Fit, and Contextual Performance: The Mediating Role of Psychological Ownership. *Hum. Perform.* **2015**, *28*, 425–439. [[CrossRef](#)]
34. Edwards, J.R. An examination of competing versions of the person-environment fit approach to stress. *Acad. Manag. J.* **1996**, *39*, 292–339. [[CrossRef](#)]
35. Brown, G.; Pierce, J.L.; Crossley, C. Toward an Understanding of the Development of Ownership Feelings. *J. Organ. Behav.* **2013**, *35*, 318–338. [[CrossRef](#)]

36. Cocieru, O.C.; Lyle, M.C.B.; McDonald, M.A. An Exploration of the Dynamic Nature of Psychological Ownership in a Classroom-as-Organization. *J. Exp. Educ.* **2020**, *44*, 293–307. [[CrossRef](#)]
37. Sheldon, K.M. Integrating behavioral-motive and experiential-requirement perspectives on psychological needs: A two process model. *Psychol. Rev.* **2011**, *118*, 552–569. [[CrossRef](#)]
38. Schilpzand, P.; Huang, L. When and how experienced incivility dissuades proactive performance: An integration of sociometer and self-identity orientation perspectives. *J. Appl. Psychol.* **2018**, *103*, 828–841. [[CrossRef](#)]
39. Yang, L.-Q.; Johnson, R.E.; Zhang, X.; Spector, P.E.; Xu, S. Relations of Interpersonal Unfairness with Counterproductive Work Behavior: The Moderating Role of Employee Self-Identity. *J. Bus. Psychol.* **2012**, *28*, 189–202. [[CrossRef](#)]
40. Jackson, E.M.; Johnson, R.E. When opposites do (and do not) attract: Interplay of leader and follower self-identities and its consequences for leader–member exchange. *Leadersh. Q.* **2012**, *23*, 488–501. [[CrossRef](#)]
41. Furby, L. Understanding the psychology of possession and ownership: A personal memoir and an appraisal of our progress. *J. Soc. Behav. Psychol.* **1991**, *6*, 457–462.
42. Lee, A. Development and Empirical Evaluation of an Exploratory Psychological Ownership Model. Unpublished Master’s Thesis, Stellenbosch University, Stellenbosch, South Africa, 2017.
43. Cable, D.M.; DeRue, D.S. The convergent and discriminant validity of subjective fit perceptions. *J. Appl. Psychol.* **2002**, *87*, 875–884. [[CrossRef](#)] [[PubMed](#)]
44. Tetrik, L.E.; LaRocco, J.M. Understanding, prediction, and control as moderators of the relationship between perceived stress, satisfaction, and psychological well-being. *J. Appl. Psychol.* **1987**, *72*, 538–543. [[CrossRef](#)]
45. Kelloway, E.K. *Using Mplus for Structural Equation Modeling: A Researchers Guide*, 2nd ed.; SAGE Publishing: New York, NY, USA, 2015.
46. Kline, T.J.B.; Klammer, J.D. Path Model Analyzed With Ordinary Least Squares Multiple Regression Versus LISREL. *J. Psychol.* **2001**, *135*, 213–225. [[CrossRef](#)] [[PubMed](#)]
47. Maroco, J. Consistency and efficiency of ordinary least squares, maximum likelihood, and three Type II linear regression models: A Monte-Carlo simulation study. *Methodology* **2007**, *3*, 81–88. [[CrossRef](#)]
48. Muthén, L.K.; Muthén, B.O. *Mplus User’s Guide*, 8th ed.; Muthén & Muthén: Los Angeles, CA, USA, 2017.
49. Stride, C.B.; Gardner, S.; Catley, N.; Thomas, F. *Mplus Code for Mediation, Moderation, and Moderated Mediation Models 2015*. Available online: <http://www.offbeat.group.shef.ac.uk/FIO/mplusmedmod.htm> (accessed on 4 November 2021).
50. Hayes, A.P. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*, 2nd ed.; The Guilford Press: New York, NY, USA, 2018.
51. Pierce, J.L.; Jussila, I. *Psychological Ownership and the Organizational Context: Theory, Research Evidence, and Application*; Edward Elgar Publishing Inc.: Cheltenham, UK, 2011.

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.