Journal of the Academy of Marketing Science (2022) 50:586–614
https://doi.org/10.1007/s11747-021-00827-6

ORIGINAL EMPIRICAL RESEARCH

A self-determination theory-based meta-analysis on the differential effects of intrinsic and extrinsic motivation on salesperson performance

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Received: 21 October 2020 / Accepted: 9 November 2021 / Published online: 4 February 2022

Abstract

While companies devote extensive resources to sales force monitoring and compensation, executives continue to puzzle over how to properly motivate their sales personnel to perform more effectively and efficiently. Which matters more for performance—extrinsic incentives or intrinsic motivators—and under what conditions? While motivation has been studied for decades, the phenomenon remains a chief concern facing many organizations today. Findings from 293 effect sizes nested within 127 studies (n = 77,560) demonstrate that motivation is significantly associated with salesperson performance (r = .245, 95% CI = .238 to .252). In addition, the meta-analytic findings indicate that intrinsic motivation is more significantly associated with performance (r = .298, 95% CI = .287 to .308) than extrinsic motivation (r = .176, 95% CI = .166 to .186). The multivariate analyses also confirm that intrinsic motivation has stronger effects than extrinsic motivation on salesperson performance after controlling for sample characteristics such as age, gender, and tenure. Moreover, we find that the relationship between intrinsic motivation and performance is greater than that of extrinsic motivation and performance for both younger and older salespeople, salespeople with longer job tenure and years of sales experience, female salespeople, salespeople selling in a B2B context, and salespeople located within the U.S. We discuss the theoretical importance of these findings, offer practical implications for sales managers, and suggest avenues for future scholarly research.

Keywords Intrinsic motivation · Extrinsic motivation · Personal selling · Sales management · Meta-analysis

> *"Salespeople are the most important people in any organization. Until a salesperson gets an order, nobody in the company has a job."* ~ Chris Gardner

Salesperson performance is undeniably important to organizations. Recent research has emphasized that measuring performance at the individual salesperson level is more complex than just transaction-based concepts such as the number of units sold or revenue generated (Zallocco, Pullins, and Mallin 2007; Bolander et al., 2021). Instead, sales performance is more broadly conceptualized as the evaluation of salespeople based on what they produce (e.g., outcomes such as profitability, market share, new accounts generated, units sold, or revenue generated) as well as what they do (e.g., behaviors such as adaptive selling, making sales

Mike Ahearne served as Area Editor for this article.

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presentations, relationship management, cross-/up-selling, effort, or controlling expenses) (Zallocco, Pullins, and Mallin 2007; Bolander et al., 2021). With performance being of utmost importance, managers continue to seek guidance on how to best motivate salespeople to improve both behavioral and output performance.

Salespeople typically have significant discretion in how they spend their time, including choosing which customers to call on any given day, how much effort to exert, which strategies and approaches are best for the situation, and how to meet goals within a deadline. Despite actively striving to make sales, distractions and interruptions can occur from both internal and external sources—for example, unexpected crises can arise, the economy can decline, competitors may shift pricing, a new technology may be introduced, or a customer may choose to churn unexpectedly. Likewise, the firm may choose to realign territories or push new products or services. As dynamic changes occur, salespeople must assess how to alter their strategy, which actions to pursue, and how much effort they are willing to expend in selling, all of which affect their performance (Dishop & Good, 2022). This process has been deemed "self-regulation" (Neal et al., 2017). Self-Determination Theory, which has been widely used in sales research, speaks to this process of self-regulation and provides a framework for studying motivation (e.g., Cadwallader et al., 2010; Hohenberg & Homburg, 2016; Khusainova et al., 2018).

Self Determination Theory (SDT, hereafter) differentiates between types of motivation and suggests that the type or quality of a salesperson's motivation may be more important than the amount of motivation for predicting behavior and performance outcomes (Deci & Ryan, 2008). The central premise of SDT distinguishes autonomous motivation from controlled motivation. When people are autonomously motivated, actions are self-determined based on *intrinsic* reasons, i.e., salespeople act because the task itself is inherently interesting or satisfying (Deci & Ryan, 1985; Deci et al., 2017). Controlled motivation, on the other hand, is when salespeople experience pressure to think, feel, or behave in particular ways based on *extrinsic* sources of motivation, such as rewards or incentives.

Although extrinsic and intrinsic motivation have been identified as critical drivers of behavior based on SDT, sales research has split extrinsic motivation into two components: cognitive (compensation-seeking) and affective (recognition-seeking) (Miao, Evans, and Zou 2007; Miao et al., 2009; Miao and Evans 2014). Prior academic research and managerial practice to date have largely focused on the compensation-seeking aspect of extrinsic motivation (Khusainova et al., 2018; Good et al., 2021). For example, studies in top tier marketing journals have examined the impacts of compensation structure (Chung & Narayandas, 2017), sales contests (Hossain et al., 2019), incentives (Li et al., 2020), and rewards (Miao et al., 2017). Likewise, from a practical perspective, managers most frequently turn to extrinsic rewards when trying to motivate salespeople (Chung, 2015). In fact, research shows that companies spend more than $800 billion each year on sales force compensation in the U.S. alone, hoping to incentivize salespeople to be increasingly productive (Steenburgh & Ahearne, 2012). Not only is extrinsic motivation expensive, but also past research has suggested "extrinsic rewards can be detrimental to performance and creativity and viewed as lower quality compared with intrinsic motivation" (Gerhart & Fang, 2015, p. 516). Moreover, the business press has implied that extrinsic motivation may have some inherent problems and has encouraged firms to "rethink" how they motivate their salespeople (Chung, 2015; Feintzeig, 2016).

Given the importance of salesperson motivation and performance, a large body of research has investigated the effects of both intrinsic and extrinsic motivation on various performance outcomes over the past half-century. Nevertheless, how to best motivate employee performance is a persisting problem for organizations today (Cerasoli et al., 2014). Specifically, "inconsistencies and ambiguities remain within the domain of salesperson motivation, exacerbated by a number of conflicting research findings; as a result, it is difficult to articulate a clear and unambiguous set of advice for managers as to what works, when, and why" (Khusainova et al., 2018, p. 2). For example, Gerhart and Fang (2015) suggest that conflicting evidence of pay-for-performance motivation in workplace settings exists. Moreover, although SDT places intrinsic and extrinsic motivation on opposite ends of a continuum, Rockmann and Ballinger (2017) argue that intrinsic and extrinsic motivations are independent, each with unique antecedents and outcomes: "in organizations, because financial incentives exist alongside interesting tasks, individuals can simultaneously experience extrinsic and intrinsic motivation for doing their work" (p. 11).

Despite their theoretical and practical relevance, prior literature in marketing lacks clarity in providing insights regarding the relative impact of intrinsic and extrinsic motivation in sales research. Our study provides a comparative assessment of the effects of intrinsic and extrinsic motivation on salesperson performance using meta-analytic techniques. Specifically, we attempt to address the following research questions: in a personal selling context when financial compensation is always present and salespeople are typically rewarded based on their performance, how important is intrinsic motivation? How do the two types of motivation—intrinsic vs. extrinsic—compare? And do boundary conditions exist between different types of motivation and salesperson performance?

Meta-analysis is well suited for investigating these critical issues because it is a powerful tool for synthesizing empirical research, enabling researchers to compare the findings of

studies in a more comprehensive and definitive way than any single study. In fact, two recently conducted meta-analyses provide an understanding of how motivation affects performance (Cerasoli et al., 2014; Verbeke et al., 2011). However, although these meta-analyses present useful empirical generalizations, our study provides unique insights in three main ways. First, while Cerasoli et al. (2014) offer valuable insights into the relationship between intrinsic motivation and performance in psychology, they used mixed samples of individuals from business and education contexts, including lab settings, as well as children and adolescents. Using mixed samples may mask the importance of different types of motivation—particularly extrinsic motivation—when trying to identify the effects of both types of motivation and make comparisons. In the business context, a profit motive should make the effects of extrinsic motivation on performance much more pronounced. Moreover, prior research suggests that motivation may best be studied in the "real world" since deeply ingrained motivation may not occur in a lab experiment (e.g., Pullins et al., 2017). Whereas extrinsic motivation can be completely removed in lab settings or an education context, some type of extrinsic motivation is always present in workplace settings by definition, as very few organizations solely rely on "volunteers" to continue their operations. Hence, from both a theoretical and practical perspective, studying salespeople in their work environments should provide a better understanding of the relative effects of extrinsic and intrinsic motivation on performance. It is also imperative to distinguish between adult sales professionals and children and adolescent samples to assess the effects of intrinsic and extrinsic motivation on performance because as people age, their thinking matures and their motivation can likewise develop. What motivates a child to complete an educational puzzle and what motivates an adult salesperson with bills to pay or a family to feed may be vastly different.

Second, Cerasoli et al. (2014) broadly coded extrinsic motivation as present or not (or no information provided) rather than coding correlations of extrinsic motivation with performance. This approach provides a limited understanding of the strength of the effects of intrinsic and extrinsic motivation on performance. Our meta-analysis builds upon their study to examine the comparative effects of intrinsic and extrinsic motivation on salesperson performance across a variety of boundary conditions using correlation coefficients to measure the strength of these relationships.

Third, using SDT as our theoretical foundation, our meta-analysis focuses on the comparative effects of extrinsic and intrinsic motivation on salesperson performance, rather than on the effects of a set of subcategories of motivation (i.e., goal orientation and work engagement) (c.f., Verbeke et al., 2011). While Verbeke et al. (2011) examined drivers of salesperson performance, their findings indicate that the overall main effect of motivation on performance is not significant with the confidence interval overlapping zero (p. 415), which suggests that moderators may help explain this relationship. In our meta-analysis, we examine the effects of several theoretically relevant moderators of the motivation-performance relationship based on SDT. This analysis provides valuable insights regarding the boundary conditions of extrinsic and intrinsic motivation on salesperson performance.

Overall, our meta-analysis makes the following contributions to the marketing literature. First, our findings reveal that intrinsic motivation has stronger effects on salesperson performance than does extrinsic motivation. Thus, our results indicate that intrinsic motivation is a critical strategic tool for managers to enhance salesperson performance. This is a crucial finding since managers most frequently turn to extrinsic rewards when trying to motivate salespeople, and such motivation can be extremely costly to companies while carrying other downsides. At some point once a salesperson has a stable income stream—no matter how configured—the salesperson can become less susceptible to increases (particularly modest increases, which is usually the case) in extrinsic rewards. Hence, incremental increases could become of less consequence, subject to size of the amount, need, and timing. Stimulating intrinsic motivation, on the other hand, may be not only less expensive but also more effective.

More importantly, our investigation of the moderators of the motivation-salesperson performance relationship extends our understanding of SDT while explaining for whom, when, and in what contexts these predictions hold. Specifically, our findings reveal that the effects of intrinsic motivation on performance are stronger than the effects of extrinsic motivation on performance for both younger and older salespeople, salespeople with longer job tenure and more sales experience, female salespeople, salespeople selling in a B2B context, and salespeople located within the U.S. As such, our study not only has theoretical value but also provides specific suggestions for managers of when extrinsic motivation may be most useful or what contexts intrinsic motivation may be of greater value. To the best of our knowledge, our meta-analysis provides the most comprehensive, quantitative review of the prior literature in marketing on the relative effects of intrinsic and extrinsic motivation on salesperson performance in workplace settings.

Literature review and hypotheses development

Which type of motivation—intrinsic or extrinsic—matters more for salesperson performance?

Intrinsic motivation is defined as doing an activity for its inherent satisfaction rather than for some separable consequence (Ryan & Deci, 2000). Intrinsic motivation has been

called autonomous motivation or free choice, i.e., what people choose to do if they are not given a reward or verbal reinforcement to complete a specific task. Another operationalization of this measure has been self-reports of interest and enjoyment of the activity. When intrinsically motivated, a person is moved to act for the fun or challenge entailed rather than because of external prods, pressures, or rewards.

To develop a better understanding of intrinsic motivation, researchers have investigated what task characteristics make an activity interesting to create a pull to perform the task. Correspondingly, the original authors of SDT (Deci & Ryan, 1985) focused primarily on psychological needs—namely, the innate needs for autonomy, competence, and relatedness. SDT suggests intrinsic motivation results when people feel that they have control over the activities they perform (*autonomy*), feel competent performing them (*self-efficacy*), and feel a sense of belonging or relatedness as they perform them (*connection*) (Deci & Ryan, 1985; Ryan & Deci, 2000). Research in the personal selling and sales management context has highlighted the importance of all three of these, albeit separately, for salesperson performance (e.g., Wang & Netemeyer, 2002; Ahearne et al., 2005; Terho et al., 2017).

Controlled motivation, on the other hand, is when salespeople are compelled to think, feel, or behave in particular ways by external prods and pressures. Extrinsic motivation is defined as doing something because it leads to a separable outcome (Ryan & Deci, 2000). SDT suggests that "when externally regulated, individuals perceive their behavior as being directly controlled by others, often through contingent rewards" (Deci et al., 2017). This type of motivation has been called "controlled motivation" because workers are expected to act according to what is rewarded by a separate party that controls what performance gets recompensed (Deci & Ryan, 1985, 2008; Ryan & Deci, 2000). In our literature search, we include both the compensation-seeking aspect of extrinsic motivation—since a plethora of literature on salesperson motivation has focused on monetary rewards (e.g., Patil & Syam, 2018; Steenburgh & Ahearne, 2012; Viswanathan et al., 2018)—as well as the recognition-seeking aspect of extrinsic motivation, with rewards and feedback being mediated externally to the salesperson (Miao et al., 2007; Kohli, 1985).

Consistent with recent literature that emphasizes the importance of salesperson compensation, commission, and financial incentives, we expect a positive relationship between salesperson performance and extrinsic motivation (Rubel & Prasad, 2016; Bommaraju & Hohenberg, 2018; Li et al., 2020). Nonetheless, we predict that intrinsic motivation will be more positively associated with salesperson performance as intrinsic motivators meet higher-level needs in workers. SDT specifically suggests that both employees' performance and their well-being are affected by the type of motivation they have for their job activities (Deci et al., 2017). When individuals are intrinsically motivated, they feel ownership and are likely to become more autonomously motivated and reliably perform better, learn more efficiently, and adapt more easily. The experiences of interest and enjoyment entailed in the activity supply the "rewards" (Deci et al., 2017). In contrast, when motivation is controlled by contingent rewards/incentives or feedback, the extrinsic focus that results can narrow the range of employees' efforts, produce short-term gains on targeted outcomes, and have negative spillover effects on subsequent performance and work engagement. In fact, Deci et al. (2017) warn that while external regulation can powerfully motivate specific behaviors, it often comes with "collateral damage" in the form of long-term detriment to autonomous motivation and well-being, sometimes with organizational spillover effects (p. 21).

When working conditions and compensation are deemed 'good enough,' other needs become more salient and thus stronger motivators. Indeed, present day workers feel entitled to fair wages and decent working conditions, and thus these factors are only really noticed if they are missing or fall beyond an expected distribution (on either side— far greater or far less than expectations). Otherwise, they are considered hygiene factors (Herzberg, 1968). On the other hand, since SDT focuses on meeting the higher-level needs of workers (including the need to belong, the need for autonomy, and the need to feel competent), these factors should be more motivating and lead to greater salesperson performance. Moreover, we predict that intrinsic motivation will be more positively associated with salesperson performance regardless of the type of performance (i.e. self-report, manager-rated, or objective performance). More formally, we hypothesize,

H1 Intrinsic motivation is more positively associated with salesperson performance than is extrinsic motivation.

Are the effects of intrinsic and extrinsic motivation on salesperson performance consistent across contexts and salespeople?

SDT contains the underlying assumption that in an environment where basic needs are supported, individuals will endeavor toward meeting higher-level needs. That is, intrinsic sources of motivation should become more salient drivers of performance once lower-level needs become at least satisfactorily satiated. Hence, the theory would imply that intrinsic and extrinsic motivation may have divergent effects on performance based on salesperson characteristics, such as age, career stage, gender, industry, and country of origin. For example, one may argue that as a person gets older or has been in a job longer, it is more likely that he or she has had the opportunity to at least partially fulfill lower-level needs such as financial stability. Therefore, based on SDT, we identify age, experience in sales, tenure in the present

job, gender (percent female), industry type (B2B versus B2C), origin of study (inside or outside the United States), and publication year as theoretically relevant moderators for our meta-analysis (c.f., De Matos & Rossi, 2008; Nicklin, Cerasoli, and Ford 2014; You et al., 2015). We provide our theoretical arguments for these moderator effects next.

Age Peeters and van Emmerik (2008) emphasized the need for a future meta-analysis on age and motivation to determine actual effect sizes. Some authors have suggested that younger millennial salespeople are motivated significantly differently from earlier generations such as Baby Boomers and Generation X (Khusainova et al., 2018). Exploring these differences is also important given that the popular press has recently highlighted that millennials (approximated to be 75 million + in the U.S. alone) now comprise the largest proportion of the American workforce and will continue to be at the top for some time (Goleman, 2020).

Unfortunately, little research has investigated the relationship between salesperson age, motivation, and performance. In an international study conducted from multiple industries, Inceoglu et al. (2012) found a shift in people's motives rather than a general decline in motivation with age; older employees were motivated less by extrinsically- but more by intrinsically-rewarding job features. Likewise, in a meta-analysis on work-related motivation, age was positively related to self-reported work-related intrinsic motivation and negatively related to extrinsic motives (Kooij et al., 2011). On the other hand, according to Kanfer and Ackerman (2004), age's influence on work performance must be considered in light of both workers' abilities and motivation. As workers age, certain abilities and willingness to expend greater effort typically decrease while job knowledge and experience are often higher than in younger workers (Kanfer & Ackerman, 2004). Hence, motivating older workers through both intrinsic and extrinsic means may help spur older workers to continue to perform (Kanfer & Ackerman, 2004). To reconcile these divergent views, our meta-analysis examines how age (or generational differences) affects the relationship between the type of motivation and salesperson performance. Based on theory that higher-level needs become stronger motivators after lower-level needs have been met, we predict,

H2a The relationship between motivation and performance is stronger for intrinsic motivation than extrinsic motivation when age is higher.

H2b The relationship between motivation and performance is stronger for extrinsic motivation than intrinsic motivation when age is lower.

Career stage While salesperson age can be correlated with career stage, the two are not synonymous and should be investigated separately. For example, consider two salespeople the lead author interviewed. Salesman A dropped out of high school and began working in a sales position at the age of 16; by the time he was in his early 20s, he was entering the 'establishment' stage of his sales career with an established book of business and earnings significantly higher than his co-workers. Saleswoman B went to college and got married shortly after graduation; she chose to be a stay-at-home mom to the couple's four children and got her first job in sales in her late 30s when her youngest started school. At just shy of 40 years of age, she was in the 'exploration' stage of her sales career. As Cron and Slocum, Jr. (1986) succinctly stated, "Many circumstances influence the timing and transition from one career stage to another (e.g., marriage, health, economic circumstances, personal characteristics). Therefore, one must be cautious in assuming that people will be in similar career stages because they are of the same chronological age" (p. 120).

The career stage theory proposed that salespeople's valence for higher-order (intrinsic) rewards will be higher during earlier stages of careers than later stages (Cron and Slocum, Jr. 1986). However, later empirical evidence provided contradictory results (Cron et al., 1988; Flaherty & Pappas, 2002; Miao et al., 2009). According to the theory, at the exploration stage, salespeople are still discovering job-related qualifications and trying to develop and master necessary selling skills; during the establishment stage, the salesperson's performance increases dramatically and the primary career goal becomes achieving professional success by producing superior results. During the maintenance stage, the salesperson's concern has become holding onto what has been achieved rather than further improvement of their performance; during the disengagement stage, the salesperson begins to prepare for retirement and starts to psychologically disengage from work. Miao et al. (2009) discovered in their study that the compensation-seeking aspect of extrinsic motivation was higher during the exploration and establishment stages than during the maintenance or disengagement stages, as they had predicted. Their findings matched those of Flaherty and Pappas (2002), who demonstrated that earlier career stage salespeople prefer an environment that lends itself to a higher earning potential through incentive pay. Given the differences between these findings and those of earlier studies, we base our predictions on the most recent findings; specifically, we predict that intrinsic motivation will be more strongly correlated with salesperson performance for later career stages. To examine this relationship, we look at both salesperson overall sales experience and job tenure at their current job, as they both relate to career stages. We hypothesize,

H3a The relationship between motivation and performance is stronger for intrinsic motivation than extrinsic motivation when sales experience is higher.

H3b The relationship between motivation and performance is stronger for extrinsic motivation than intrinsic motivation when sales experience is lower.

H4a The relationship between motivation and performance is stronger for intrinsic motivation than extrinsic motivation when job tenure is higher.

H4b The relationship between motivation and performance is stronger for extrinsic motivation than intrinsic motivation when job tenure is lower.

Gender A recent call for more research on salesperson motivation noted that gender may be an important consideration that has been somewhat overlooked in past research (Khusainova et al., 2018). Most studies have simply controlled for the gender makeup of the sample rather than investigating the impact gender may have on motivation and performance. Early research found that salesmen and saleswomen have statistically comparable mean valences for pay, job security, promotion, recognition, liking and respect, personal growth, and feelings of accomplishment (Dubinsky et al., 1993). Since then, some authors have conjectured that women are more intrinsically motivated than men (Piercy et al., 2001) or discovered so in post-hoc empirical analysis (Jaramillo & Mulki, 2008; Mallin & Pullins, 2009).

To better understand the nuances of salesperson motivation related to gender, socialization theory provides a useful lens. Socialization theory suggests how males and females learn masculinity and femininity is in early childhood development through primary group interactions (families, peers, schools, and the media), which serve to socialize individuals into dichotomous "traditional" gender roles (Carter, 2014). According to the theory, social contexts both reflect and perpetuate gender roles and gender inequities in the larger society (Leaper & Friedman, 2007). Research shows that females are generally oriented toward communal activities and goals, whereas males are oriented toward achievement and individualistic goals (Sharma et al., 2012). Past studies on socialization suggest that men place more emphasis on power, independence, assertiveness, and individual rewards while women tend to display nurturance and compassion and value belongingness within a community (Leaper & Friedman, 2007). Hence, some evidence exists that men may be more oriented toward extrinsic rewards while women may be more oriented toward intrinsic motivators. However, few if any studies to date have systematically examined gender differences in salesperson motivation. Overall, based on socialization theory, we predict,

H5a The relationship between motivation and performance is stronger for intrinsic motivation than for extrinsic motivation when the percent of females in the sample is higher.

H5b The relationship between motivation and performance is stronger for extrinsic motivation than for intrinsic motivation when the percent of females in the sample is lower.

Industry Past research supports the notion that the type of business—i.e., whether salespeople are selling directly to consumers who will use the product or service (B2C) or salespeople are selling to another business (B2B)—may be a moderating condition in sales research (Homburg & Fürst, 2005). Surprisingly scant research has examined differences in motivation for salespeople selling B2C vs. B2B. One notable exception is Schmitz et al. (2014), who demonstrated in complex B2B contexts, stimulating salespeople's intrinsic motivation was positively related to sales performance while extrinsic incentives impeded performance because they reduced salespeople's freedom to act. A more recent study employing a grounded theory approach found through depth interviews that in B2B contexts, motivation stems from deep and meaningful intrinsic factors related to the salesperson's interpersonal identification with customers (St. Clair et al., 2018).

In examining differences between B2C and B2B contexts, it may be that a B2B selling environment is much more complex (Grewal et al., 2015; van der Borgh & Schepers, 2018). For example, past research has shown that salespeople in B2B environments must deal with technologically complex requirements, specialized customer personnel, extensive buying processes, multiple buying-center participants, long decision periods, heterogeneous purchasing needs, and highly customized offerings and selling processes (Schmitz et al., 2014). A B2B sales context also may be characterized by an emphasis on developing long-term business relationships with a smaller number of customers and a higher degree of interaction between two firms (Homburg & Fürst, 2005). Hence, in situations that require long-term consulting and strategic problem solving, having greater autonomy and competence may be considered extremely important. On the other hand, extrinsic rewards may provide some incentive to complete tasks that require less problem solving and are more routine. We therefore hypothesize,

H6a The relationship between motivation and performance is stronger for intrinsic motivation than for extrinsic motivation in the B2B industry.

H6b The relationship between motivation and performance is stronger for extrinsic motivation than for intrinsic motivation in the B2C industry.

Figure 1 summarizes the relationships investigated in our research.

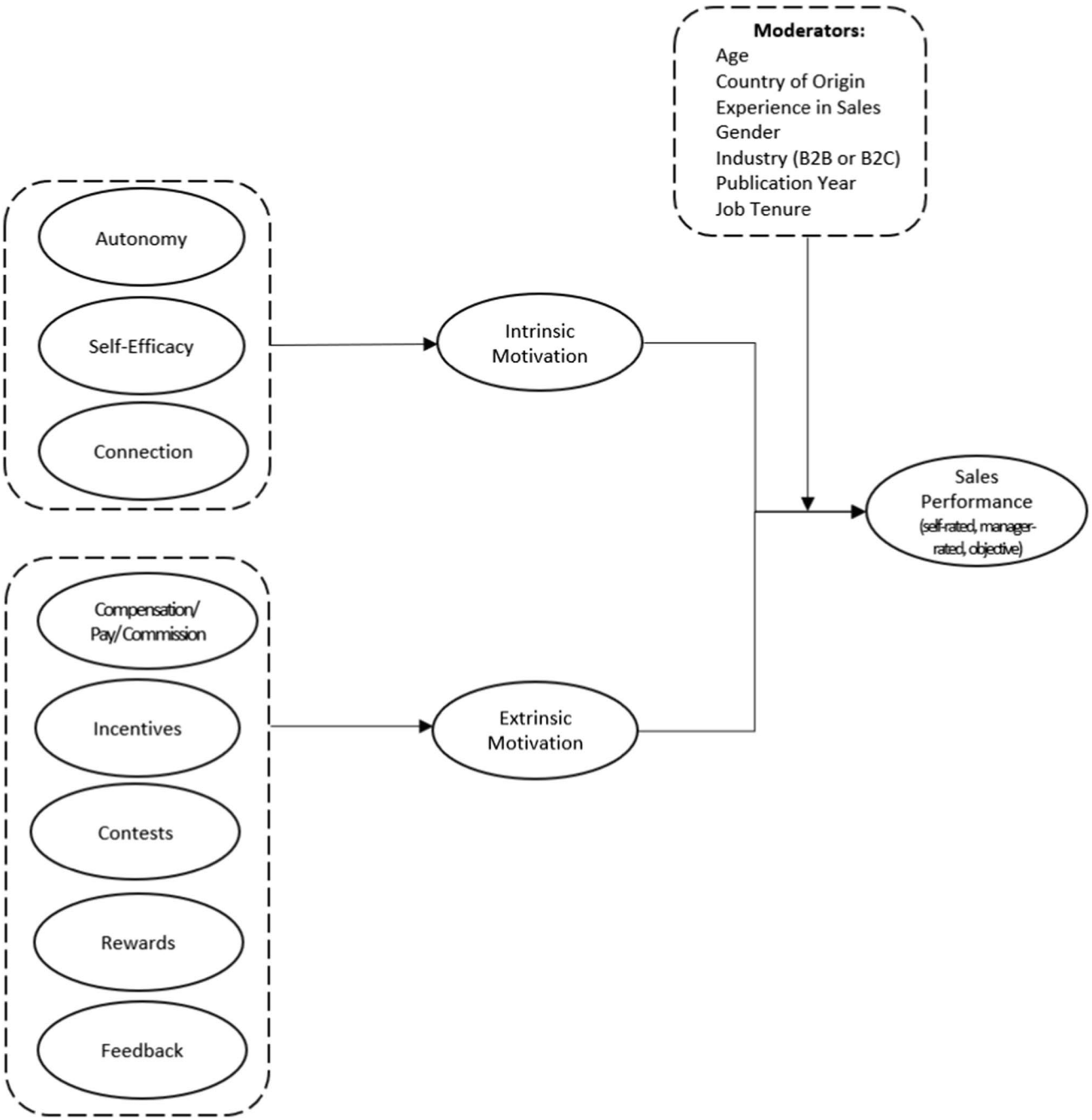

Fig. 1 Conceptual model

Method

Literature search

The first step in conducting a meta-analysis is the identification of relevant articles to test the hypotheses. Following the procedures of previously published meta-analyses (e.g., Geyskens et al., 2006; Rubera & Kirca, 2012), we collected data in four phases. In the first phase, we performed a Boolean search in the electronic databases ABI/Inform (PROQUEST) and EBSCO Business Source Complete using the following criteria. First, the abstract had to include the word "sales*" (the use of the asterisk signifies a stem that will pick up salesperson, salespeople, salesman, sales force, and other keywords related to sales) and the word "performance." Next, in addition to these criteria, the abstract had to include one of the following keywords: "motivation," "extrinsic," "incentives," "contests," "pay," "wages," "compensation," "reward," "feedback, "intrinsic," "task enjoyment," "autonom*," "connection," "competence" or

"self-efficacy." Definitions of the keywords are available in Table 1. We narrowed the search to articles published since January 1985 (because SDT was formally introduced into the literature in 1985). We also limited the search to only scholarly journal articles, dissertations, or working papers. In the second phase, we consulted the reference section of previously published meta-analyses on related topics (Vinchur et al., 1998; Verbeke et al., 2011; Cerasoli et al., 2014) to ensure no studies were missed in our first phase of data collection. In the third phase, we performed a manual search of leading marketing journals likely to publish quality articles on salesperson motivation and performance. For this purpose, we used the rankings found in Baumgartner and Pieters (2003). Our search included *Journal of Marketing*, *Journal of Marketing Research*, *Journal of the Academy of Marketing Science*, *Industrial Marketing Management,* and *Journal of Personal Selling and Sales Management*. We also examined the "abstracts" section of the *Journal of Personal Selling and Sales Management,* which twice yearly highlights any publications in the sales domain from other scholarly journals. In the fourth phase, we solicited unpublished empirical work to address the "file drawer problem" via a request on the electronic marketing list-server ELMAR. The total number of non-duplicate studies ascertained in this step was 1,002.

The next step after identifying studies for potential inclusion in the data set is the evaluation of the appropriateness of each study for the meta-analysis. We used the following decision rules to determine the articles that would be retained in our study (Lipsey & Wilson, 2001). First, we only included studies published in English; ten studies were excluded because of language criterion. Second, a copy of the article must be available via Google Scholar, ProQuest, EBSCO, via the online library system, or from the researchers themselves, which resulted in the exclusion of another 20 studies. Third, the research had to relate to the field of personal selling and sales management rather than firm-level sales metrics, which resulted in 334 articles being removed from the sample. Fourth, performance had to be at the individual and not group or firm level, and the sample had to include actual salespeople, which resulted in an additional combined exclusion of another 156 articles. Fifth, conceptual exposés and editorial overviews were excluded as they do not provide effect sizes, resulting in another 115 studies being dismissed. Sixth, the dependent variable had to be a type of individual salesperson performance or individual salesperson performance had to be part of the overall measurement model for correlation purposes, which eliminated another 82 articles. Finally, we excluded studies that did not provide a Pearson's Correlation Coefficient (r) or other statistics that can be converted to r (e.g., F-value, t-value, p-value, and x^2), eliminating another 158 articles. The final sample size was 1,242 total effect sizes nested within 127 studies. All included studies are available in the Appendix.

Coding procedures

To develop the final database, we followed the procedures in recent meta-analyses in the marketing literature (e.g., Rubera & Kirca, 2012; Verbeke et al., 2011). Specifically, we prepared a coding form specifying the information to be extracted from each study to reduce coding error, and the first author was responsible for coding all articles.

Data analysis

To analyze the data, we followed Lipsey and Wilson's (2001) guidelines for conducting a meta-analysis, which has been previously used in marketing research (e.g., Kirca et al., 2005; Verbeke et al., 2011). Zero-order correlations between the keywords associated with intrinsic motivation and salesperson performance, as well as the keywords associated with extrinsic motivation and salesperson performance, were obtained or calculated from each study and corrected for measurement error. Specifically, we adjusted for measurement error by dividing the correlation coefficient by the product of the square root of the reliabilities of the two constructs and transformed those reliability-corrected correlations into Fisher's z-coefficients (Hunter & Schmidt, 2004). When relevant information (e.g., reliability of variables) was not available, we decided not to adjust for unreliability for comparison purposes (Lipsey & Wilson, 2001, pp. 108–109). Next, the z-coefficients were averaged and weighted by an estimate of the inverse of their variance (N – 3) to give more weight for precision to studies with higher sample sizes. Thereafter, we transformed the z-scores back to correlation coefficients and calculated 95% confidence intervals around the estimate as a measure of accuracy for the effect size (Lipsey & Wilson, 2001). We used the adjusted correlation coefficients calculated in our statistical models to test our hypotheses.

Next, we calculated the fail-safe sample size (N_{FS}) using Rosenthal's (1979) method to assess the possibility of publication bias or the file drawer problem, which refers to the number of unpublished studies with null results needed to reduce the cumulative effect across studies to the point of non-significance (Lipsey & Wilson, 2001).

Subgroup analyses In addition to testing the univariate relationship between motivation and performance as a whole, we analyzed the bivariate relationships between the different types of motivation and various types of performance using subgroup analyses for pairwise relationships to test our hypotheses. Following Joshi and Roh (2009), we examined each subgroup within the sample by testing the confidence intervals for statistical significance and by comparing the effect sizes across subgroups. Although sub-group analyses are bivariate in nature because they involve effect size

Table 1 Variables, definitions and examples

Variable	Definition	Coding examples
Motivation	The explanation for the direction, intensity and persistence of behavior	"Work motivation is the degree to which salespeople are willing to expend effort on the job." *Dubinsky and Hartley 1997*
Intrinsic Motivation	Behavior is driven by the task itself being inherently interesting or satisfying	Intrinsic motivation is "the motivation to perform an activity solely for the pleasure and satisfaction that are inherent in that activity." *Noble*, 2008 "Intrinsic motivation measures the extent to which salespeople are driven by a passionate interest and deep level of enjoyment in what they do." *Miao & Evans*, 2012 Intrinsic motivation is "a self-determined sense of being inherently interested in and enjoying the work itself." *Ramarajan, Rothbard, and Wilk 2017*
Autonomy	A sense of having control over activities performed	Autonomy is "the degree to which a job provides the salesperson discretion in carrying out the work assignment." *Singh*, 1998
Self-Efficacy or Competence	A perception of having the skills, know-how and ability to perform a job; judgments of how well one can execute courses of action required to deal with prospective situations	Self-efficacy is a salesperson's "confidence in ability." *Sujan, Kumar, and Weitz 1994* Self-efficacy "refers to an individual's judgments regarding his or her capabilities to organize and execute specific courses of action." *Frayne & Geringer*, 2000 Self-efficacy is "the judgments of what one can do with whatever skills one possesses." *Schmitz & Ganesan*, 2014 Self-efficacy is "an employee's beliefs in their task performance capabilities." *Panagopoulos & Ogilvie*, 2015
Connection	A willingness to do the job because the salesperson feels valued by significant others to whom they feel (or would like to feel) connected; a sense of belonging or relatedness	"By conveying support, identity, and acceptance, friendship networks made up of strong and interconnected ties will facilitate the development of social integration." *Menguc, Hang, and Auh 2007* Connection is "a salesperson's ability to develop and manage relationships with relevant members of his or her firm." *Terho et al.*, 2017
Feedback	Recognition or reprimand provided based on activities performed	Feedback is "the degree to which carrying out the work activities required by the job results in the individual obtaining direct and clear information about the effectiveness of his/her job performance." *Tyagi*, 1985 Feedback is "supervisors' positive evaluation of their salespersons' outcomes and behaviors." *Sujan, Kumar, and Weitz 1994*
Extrinsic Motivation	Behavior is driven by expectations of external consequences	Extrinsic motivation is "a person's tendency to engage in activities for reasons related solely to earning money." *Noble*, 2008 "Extrinsic motivation reflects the extent to which salespeople treat work as a means for obtaining external rewards (e.g., money, recognition, and promotion)." *Miao & Evans*, 2012
Contest	A company-sponsored event in which salespeople compete for prizes	"Contests are short-term incentives that managers use to raise sales effort." *Lim et al.*, 2009
Compensation or Pay	A payment, typically money, awarded to a salesperson as a recompense for working, which may include a combination of base pay and commission	"Income or self-report yearly gross salary (including monthly salary plus incentives)" *Sager & Johnston*, 1989 Compensations is how salespeople are "incentivized/ rewarded based on sales compared to base pay." *Stewart*, 1996
Incentives	Cash awards granted to salespeople for meeting interim performance goals within a quota period	Incentives were calculated as "the percent of incentive pay in the salesperson's total compensation." *Piercy et al.*, 2004a, 2004b Incentives were dummy coded as 1_yes or 0_no if they existed for cross-selling *Schmitz, Lee, and Lillien 2014*
Reward	Remuneration that reflects outcomes of performing a job well	Rewards include "whether employees perceive pay raises as directly linked to sales performance and how performance compares to the goals." *Ramaswami & Singh*, 2003 A reward system is "a set of processes through which behaviors are directed and motivated to achieve individual and organizational goals." *Román & Munuera*, 2005 Rewards are the "salesperson's own financial compensation and recognition received." *Miao et al.*, 2017

mean comparisons using confidence intervals, it is important to note that each test represents a three-way interaction (i.e., Motivation Type X Performance Type X Moderator interaction). As such, this parsimonious approach has been extensively used for theory testing purposes in several meta-analyses published in fields like medicine, psychology, and management (e.g., Joshi & Roh, 2009; Kirca et al., 2011; Ng et al., 2005).

We also tested the hypothesis of homogeneity of the population correlations using the Q-statistic [$Q = \Sigma\ (n_i - 3)\ (z_i - z)^2$] that has a chi-square distribution with (k-1) degrees of freedom (Hedges & Olkin, 2014) to determine whether we estimate a common population effect size for the relationships involving both types of motivation and performance. Since the Q-value was significant, we tested for potential moderators using both the aforementioned sub-group analyses as well as hierarchical linear modeling (HLM) on the Fisher z-transformed correlation, following the procedure of previously published meta-analyses in marketing (Edeling & Himme, 2018; Rubera & Kirca, 2012; You et al., 2015).

Multivariate analysis We also combined the bivariate analysis with a multivariate model that analyzes all associations, taking into account how intrinsic and extrinsic motivation affect salesperson performance simultaneously. To this end, we constructed an aggregated meta-analytic correlation matrix by calculating the mean correlations adjusted for sample size for each pair of constructs in our model (c.f., Rubera & Kirca, 2012). We analyzed only those relationships for which at least three intercorrelations were reported, consistent with previous meta-analyses (Verbeke et al., 2011; Palmatier et al., 2006).

We used the correlation matrix we developed, which is shown in Table 2, as the input for the structural equation modeling (SEM) analysis using the full-information maximum likelihood method in MPLUS 8.6. Specifically, we estimated the following equation:

$$Y = a_1X_1 + a_2X_2 + \cdots + a_jX_j + \varepsilon$$

where Y is salesperson performance, X_i are the types of motivation (intrinsic and extrinsic) as well as the control variables, and a_i are the parameter estimates. Following Rubera and Kirca (2012), we tested for the precision of parameter estimates through the harmonic mean (n = 6,618), which we determined using the sample sizes across effect size cells comprising each entry in the correlation matrix.

Hierarchical linear modeling In addition, since meta-analyses by nature include a nested data structure (effect sizes nested within studies), HLM is also an appropriate multivariate technique to account for study-level variance on the motivation-performance effect sizes. We used an iterative maximum likelihood estimation (MLE), permitting simultaneous estimation of relationships at multiple levels using a Bayesian estimation approach, which improves the accuracy of inferences compared to OLS regression (Raudenbush & Bryk, 2002). Before running the analyses in HLM, we estimated the intraclass correlation coefficient (ρ) by running an unconditional model on the motivation-performance effect size outcome to show the proportion of within-study variance to the total variance (Raudenbush & Bryk, 2002). The within-study variance was 0.054 ($p < 0.01$), while the between-study variance was 0.033 ($p < 0.01$). Thus, the intraclass correlation coefficient (ρ) is 0.38 (0.033/[0.033 + 0.054]), meaning 38% of the variance in effect sizes lies between studies while 62% of the variance remains within studies. This statistic further confirms our choice to explore between-study characteristics in our model estimation, or at the very least control for different study characteristics to determine a more accurate inference of the relationship between types of motivation and performance.

The between-study (level-2) variance we investigated included continuous variables such as the mean age of the respondents, the mean years of experience in sales, the mean tenure with the company, publication year, and the percentage of the sample that was female, as all of these characteristics "naturally occur on the same scale across studies" (You et al., 2015). We also tested for type of industry (B2B versus B2C) and the origin of the study sample (within or outside the United States). To be more precise, we tested our hypotheses using the following hierarchical linear model specification:

$$Level\ 1:\ Zij = \beta 0j + \beta 1jX1ij + \beta 2jX2ij + \varepsilon ij \quad (1)$$

$$Level\ 2:\ \beta_{nj} = \gamma_{n0} + \sum\nolimits_{k=1}^{k} \gamma_{nk} U_{kj} + u_{nj} \quad (2)$$

where Z_{ij} is the i^{th} effect size reported within j^{th} sample and β_{1j} and β_{2j} denote the parameter estimates (slopes) for the two categorical variables X_{1j} and X_{2j}, specifically:

X_{1ij} = Motivation Type (1 for Intrinsic Motivation; 0 for Extrinsic Motivation)
X_{2ij} = Performance Type (1 for Supervisor Ratings, 2 for Objective Performance; 0 for Self-Report.)

The Level-1 Eq. (1) estimates the impacts of different types of motivation and performance, which vary within studies. The Level-2 equation estimates the effects of the various sample (i.e., age, gender tenure, experience) and study characteristics, which are listed below, on the intercept and slopes in the Level 1 equation:

U_{1j} = Publication Year

U_{2j} = Origin of Sample (1 for outside of United States, 0 for within)
U_{3j} = Industry Type (1 for B2C, 0 for B2B)
U_{4j} = Gender of sample (percent female)
U_{5j} = Average age of the sample
U_{6j} = Average tenure with the company (in years)
U_{7j} = Average experience in sales (in years)

Finally, γ_{n0} denotes the fixed effects in the intercept and slopes β_{nj}; and u_{nj} denotes the unexplained variance (between studies) in the intercept and slopes after we partition the effects of study and sample variables.

Results

Bivariate analyses results

First, we employed bivariate analyses to examine the correlations between motivation (both extrinsic and intrinsic) and salesperson performance. As shown in Table 3, our findings reveal

that intrinsic motivation (r = 0.298, 95% CI = 0.287 to 0.308) is more strongly associated with salesperson performance than is extrinsic motivation (r = 0.176, 95% CI = 0.166 to 0.186), as the confidence intervals around the mean effect size for both types of motivation do not overlap. Thus, our first hypothesis was supported. Importantly, for these relationships, the fail-safe sample sizes (publication bias) were 2,286 for extrinsic motivation and 3,769 for intrinsic motivation, indicating that the positive overall correlations found in the bivariate analyses are unlikely to be susceptible to a file-drawer problem (Rosenthal, 1979).

We likewise conducted a sub-group analysis on the types of performance studied, as shown in Table 3. The effect size between motivation and self-rated performance (r = 0.303, 95% CI = 0.294 to 0.311) was significantly higher than supervisor ratings or objective performance. Unexpectedly, the effect size for manager ratings (r = 0.114, 95% CI = 0.094 to 0.133) was significantly lower than that of objective performance (r = 0.173, 95% CI = 0.159 to 0.188), which we discuss below. The confidence intervals around the mean effect sizes for the different types of performance are once again non-overlapping, and the fail-safe sample size numbers—though lower for objective and manager-rated performance—reflect that publication bias is unlikely to be problematic.

Multivariate analyses

As Table 4 summarizes, the path analysis results were consistent with our predictions, as the path coefficient for intrinsic motivation ($b = 0.265$, $p < 0.001$) and extrinsic motivation ($b = 0.097$, $p < 0.001$) were significantly related to salesperson performance even when controlling for age, gender, and tenure in the path model. Moreover, the standardized path coefficient for intrinsic motivation ($\beta = 0.199$, $p < 0.01$) was larger than that of extrinsic motivation ($\beta = 0.073$, $p < 0.01$). Importantly, the statistics show acceptable model fit ($\chi^2 = 694.00$, $5_{\text{d.f.}}$; CFI 1.00; RMSEA 0.00; SRMR 0.00).

HLM analyses

To assess the simultaneous effects of contextual variables and sample characteristics on the variation in the effect sizes obtained for the motivation-performance relationship, we also conducted additional multivariate analyses. For this purpose, we ran the HLM analyses in two stages. In the first stage, we ran a model with all potential level-2 moderator variables (i.e., between-study characteristics) and the level-1 variables of motivation and performance on the corrected correlations. Because information on all study characteristics are not available in original studies, the sample size was reduced to 49 total effect sizes nested within 18 studies for this model, which is considered an insufficient level-2 sample size, with 50 being the minimum recommended (Maas & Hox, 2005).

Thus, consistent with previous meta-analyses in marketing (e.g., Kirca and Rubera 2012; Szymanski et al., 2007; Troy et al., 2008), in the second stage we used an imputation method of replacing missing values with variable means to test the full model with all possible control variables. As shown in Table 5, results demonstrate that the type of motivation (intrinsic vs. extrinsic) is significant ($\beta = 0.151$, $p < 0.01$)—i.e., the effect of intrinsic motivation seems to be stronger than that of extrinsic motivation on salesperson performance—even when controlling for the type of

Table 2 Meta-analytic correlation matrix

		1	2	3	4	5	6
1	Intrinsic motivation	1.00	32 (5982)	133 (25,142)	10 (2582)	10 (2476)	22 (5663)
2	Extrinsic motivation	0.20	1.00	143 (24,655)	10 (1967)	4 (2027)	14 (3104)
3	Performance	0.29	0.15	1.00	19 (5589)	14 (4291)	36 (8562)
4	Age	0.06	0.00	0.06	1.00	7 (1983)	12 (2522)
5	Gender	0.03	0.05	0.00	-0.04	1.00	10 (2732)
6	Tenure	0.07	0.01	0.10	0.51	0.01	1.00

performance and level-2 study characteristics (e.g., age, gender, country of origin, industry, publication year, tenure, and experience in sales). Thus, the HLM analysis also supports the first hypothesis, even when controlling for all variables, including type of performance and all possible moderators. Curiously, publication year was also significant, possibly indicating that the importance of intrinsic motivation may be becoming a trend or movement.

Subgroup analyses results for the moderator hypotheses

To examine the effects of contextual variables and sample characteristics on the motivation-performance relationship, we conducted a series of sub-group analyses. The results of these analyses are provided in Table 6. In this particular analysis, we only employed effect sizes obtained from studies that reported statistics for specific moderators to offer a more comprehensive analysis with available data.

First, while we were attempting to categorize age by generation, no samples could be categorized as Boomers, which makes sense given that this number is the mean age for the entire sample. Thus, for comparison, we had Generation X (those samples with the mean reported age ranging between 40 and 55) and Millennials (those samples with the mean reported age being 39 or lower). We find the overall motivation to salesperson performance relationship is stronger for older than younger samples. While the relationship between intrinsic motivation and performance was higher than extrinsic motivation for *both* age groups, the relationship was significantly stronger for older samples (r = 0.506, 95% CI = 0.468 to 0.544) than younger samples (r = 0.284, 95% CI = 0.269 to 0.298) while extrinsic motivation was significantly stronger for younger samples (r = 0.180, 95% CI = 0.163 to 0.197) than older samples (r = 0.102, 95% CI = 0.059 to 0.146).

Likewise, with regard to career stage, the overall motivation to salesperson performance relationship is stronger for those with more overall experience in sales. For those salespeople with 10 years of sales experience or more, the relationship between extrinsic motivation and performance (r = 0.161, 95% CI = 0.133 to 0.189) was weaker than that of intrinsic motivation and performance (r = 0.222, 95% CI = 0.203 to 0.243). Similarly, for those with longer tenure at their current sales job, the relationship between intrinsic motivation and performance (r = 0.350, 95% CI = 0.313 to 0.387) was much stronger than that of extrinsic motivation and performance (r = 0.242, 95% CI = 0.187 to 0.296).

Table 3 Meta-analysis motivation type by salesperson performance results

Relationships	No. of Effects[^]	Total Sample Size	Corrected Mean[a] *r*	S.E	95% Conf. Interval	Availability Bias[b]	Q-Statistic[c]
Overall Mot. – Performance	293	77,560	.245**	.004	.238 to .252	9,864	4,931
Extrinsic – Performance	143	36,264	.176**	.005	.166 to .186	2,286	1,279
Intrinsic – Performance	133	37,746	.298**	.005	.287 to .308	3,769	2,666
Overall Mot. – Objective Perf	56	18,719	.173**	.007	.159 to .188	619	603
Extrinsic – Objective Perf	19	4,438	.148**	.005	.118 to .177	76	114
Intrinsic – Objective Perf	33	13,371	.185**	.009	.168 to .202	326	463
Overall Mot. – Manager-rated Perf	40	10,616	.114**	.010	.094 to .133	198	264
Extrinsic – Manager-rated Perf	20	4,365	.114**	.016	.084 to .144	57	96
Intrinsic – Manager-rated Perf	19	6,135	.117**	.013	.091 to .142	70	164
Overall Mot. – Self-Rated Perf	197	48,225	.303**	.005	.294 to .311	6,439	3,631
Extrinsic – Self-rated Perf	104	27,461	.190**	.006	.178 to .202	1,559	1,827
Intrinsic – Self-rated Perf	81	18,240	.442**	.008	.427 to .456	2,368	1,298

[^] The motivation-salesperson performance number of effects are more than the sum of extrinsic and intrinsic motivation effects because some 'motivation' studies were not classifiable as either extrinsic or intrinsic.

[a] The corrected mean correlation coefficients (*r*) are the sample size weighted, reliability corrected estimates of the population correlation coefficients.

[b] Availability bias refers to the number of unpublished studies reporting null results needed to reduce the cumulative effect size across studies to the point of non-significance.

[c] Q-statistic provides a test of the homogeneity of the population correlations; significant Q-value suggests that study-level effect size estimates do not estimate a common population effect size, and the subsequent search for the moderating effects is warranted.

** $p < .01$

Table 4 Meta-analysis SEM results

Predictor	Regression Coefficient (S.E.)	T-Value	P-Value
Intrinsic Motivation	.265 (.012)	22.218	.000
Extrinsic Motivation	.097 (.012)	8.124	.000
Age	.003 (.014)	.246	.806
Gender	-.013 (.012)	-1.150	.250
Tenure	.079 (.014)	5.808	.000

Model fit statistics ($\chi^2 = 694.00$, $5_{d.f.;}$ CFI 1.00; RMSEA .00; SRMR .00). The harmonic mean (n = 6,618) was used for estimation (Viswesvaran & Ones, 1995)

Overall, the strength of relationship between motivation and performance was similar for men and women. Likewise, the relationship between intrinsic and extrinsic motivation and performance on average provided similar mean effect sizes for samples with more males than females. However, for samples that were skewed more toward females, the relationship between intrinsic motivation and performance (r = 0.338, 95% CI = 0.315 to 0.360) was significantly higher than extrinsic motivation and performance (r = 0.137, 95% CI = 0.104 to 0.169), as shown by the non-overlapping confidence intervals.

With regard to industry, for salespeople selling directly to consumers, the strength of the relationship between intrinsic motivation and performance was approximately the same as extrinsic motivation and performance. For B2B, on the other hand, the relationship between intrinsic motivation and performance (r = 0.354, 95% CI = 0.337 to 0.370) was significantly higher than both extrinsic motivation and performance (r = 0.118, 95% CI = 0.101 to 0.136) and intrinsic motivation to performance in the B2C context (r = 0.204, 95% CI = 0.189 to 0.218), as demonstrated by the non-overlapping confidence intervals. Moreover, the relationship between extrinsic motivation and performance was significantly higher in the B2C context (r = 0.188, 95% CI = 0.175 to 0.201) than in the B2B context.

Finally, we investigated if the origin of the sample (based inside the U.S. or not) may provide insight into the relationship between motivation and performance. While we did not formally hypothesize for this relationship because of the small number of studies that report the origin of their sample, we found that the overall motivation to salesperson performance relationship is statistically significantly stronger for samples based within versus outside the U.S. Whereas the relationship between intrinsic motivation and extrinsic motivation and performance was similar for samples outside the U.S., for samples from within the U.S., the relationship between intrinsic motivation and performance (r = 0.362, 95% CI = 0.349 to 0.375) was significantly stronger than both extrinsic motivation and performance (r = 0.169, 95% CI = 0.157 to 0.182) and intrinsic motivation and performance in samples outside the U.S. (r = 0.194, 95% CI = 0.176 to 0.211), as demonstrated by the non-overlapping confidence intervals. On the other hand, the relationship between extrinsic motivation and performance was stronger for samples outside the U.S. (r = 0.208, 95% CI = 0.187 to 0.230) than inside the U.S.

Discussion

This meta-analysis presents a systematic investigation of a theory-driven framework that examines the relative effects of intrinsic and extrinsic motivation on salesperson performance as well as boundary conditions to these relationships. Importantly, our analyses reveal how intrinsic motivation compares to extrinsic motivation, the latter of which in

Table 5 Meta-analysis HLM results (all variables as controls with mean imputation)

	Variable	Hypotheses	Coefficient	Standard Error	t-ratio
Intercept			-14.167**	4.430	-3.198
Main Effects					
Predictor Variables					
	Motivation Type	**H 1 (+)**	.151***	0.032	4.691
	Performance Type		-.071**	0.024	-2.950
Study Characteristics					
	Publication Year		0.007**	0.002	3.200
	Origin		-0.017	0.053	-0.315
	Industry (B2B or B2C)		0.001	0.037	0.030
	Gender (Percent Female)		-0.001	0.001	-0.883
	Mean Age		0.003	0.005	0.538
	Mean Tenure with Firm (in Years)		-0.010	0.010	-1.039
	Mean Experience in Sales (in Years)		-0.071	0.024	0.301

B = unstandardized regression coefficient. The dependent variable corrected mean correlation coefficients (r) are the sample size weighted, reliability corrected estimates of the population correlation coefficients. **Level-1 N = 287, Level-2 N = 185.** ***$p < .01$; **$p < .05$

Table 6 Bivariate analyses motivation to salesperson performance moderator results

Moderators	No. of Effects^	Total Sample	Corrected Mean[a] r	S.E	95% Conf. Interval	Availability Bias[b]	Q-Statistic[c]
AGE *(Mean sample age did not exceed 55)*							
Millennials (ages 39 or younger)	139	35,162	.253**	.005	.242 to .263	3,220	3,002
Extrinsic Mot. – Performance	57	13,284	.180**	.009	.163 to .197	544	570
Intrinsic Mot. – Performance	66	37,812	.284**	.005	.269 to .298	1,240	1,790
Generation X (ages 40–55)	21	4,719	.332**	.015	.303 to .360	222	533
Extrinsic Mot. – Performance	8	2,037	.102**	.025	.059 to .146	11	16
Intrinsic Mot. – Performance	13	2,682	.506**	.021	.468 to .544	160	331
CAREER STAGE							
Low Experience in Sales	44	15,595	.204**	.008	.189 to .220	527	1,152
Extrinsic Mot. – Performance	18	5,000	.161**	.015	.133 to .189	87	150
Intrinsic Mot. – Performance	24	10,031	.222**	.010	.203 to .243	249	985
High Experience in Sales	38	9,860	.384**	.010	.364 to .404	702	1,092
Extrinsic Mot. – Performance	14	3,602	.181**	.018	.148 to .214	64	108
Intrinsic Mot. – Performance	22	5,853	.459**	.013	.433 to .485	370	505
Low Tenure at Job	101	22,647	.298**	.007	.284 to .311	2,191	1,798
Extrinsic Mot. – Performance	37	8,887	.181**	.011	.160 to .202	284	332
Intrinsic Mot. – Performance	54	12,071	.395**	.009	.377 to .413	1,134	1,136
High Tenure at Job	24	4,298	.309**	.016	.279 to .339	223	186
Extrinsic Mot. – Performance	8	1,312	.242**	.033	.187 to .296	28	37
Intrinsic Mot. – Performance	15	2,836	.350**	.020	.313 to .387	127	134
GENDER							
Higher percent female	46	12,432	.269**	.009	.251 to .287	655	918
Extrinsic Mot. – Performance	12	3,609	.137**	.018	.104 to .169	39	204
Intrinsic Mot. – Performance	30	7,743	.338**	.012	.315 to .360	423	564
Higher percent male	141	33,469	.265**	.006	.254 to .275	3,319	2,819
Extrinsic Mot. – Performance	59	13,311	.221**	.009	.204 to .238	704	516
Intrinsic Mot. – Performance	69	17,649	.268**	.008	.253 to .283	1,176	1,638
INDUSTRY (CUSTOMER TYPE)							
B2B	135	28,524	.241**	.006	.230 to .253	2,652	2,011
Extrinsic Mot. – Performance	63	13,070	.118**	.009	.101 to .136	369	405
Intrinsic Mot. – Performance	67	14,581	.354**	.008	.337 to .370	1,383	1,180
B2C	120	40,840	.198**	.005	.188 to .208	2,319	1,854
Extrinsic Mot. – Performance	67	22,223	.188**	.007	.175 to .201	867	674
Intrinsic Mot. – Performance	48	17,573	.204**	.008	.189 to .218	611	1,036
ORIGIN							
U.S.-based sample	191	50,172	.265**	.005	.256 to .274	5,566	3,213
Extrinsic Mot. – Performance	88	29,964	.169**	.006	.157 to .182	1,132	751
Intrinsic Mot. – Performance	95	22,423	.362**	.007	.349 to .375	2,518	1,479
Outside the U.S.-based sample	74	22,325	.201**	.007	.187 to .214	1,052	1,320
Extrinsic Mot. – Performance	42	8,456	.208**	.011	.187 to .230	366	459
Intrinsic Mot. – Performance	20	13,247	.194**	.009	.176 to .211	300	856

^ The motivation-salesperson performance number of effects are more than the sum of extrinsic and intrinsic motivation effects because some effects were coded based on the keyword 'motivation' that could not be classified as either extrinsic or intrinsic.

[a] The corrected mean correlation coefficients (r) are the sample size weighted, reliability corrected estimates of the population correlation coefficients.

[b] Availability bias refers to the number of unpublished studies reporting null results needed to reduce the cumulative effect size across studies to the point of non-significance.

[c] Q-statistic provides a test of the homogeneity of the population correlations; significant Q-value suggests that study-level effect size estimates do not estimate a common population effect size, and the subsequent search for the moderating effects is warranted.

** $p < .01$

particular has been historically touted as driving salesperson performance. While managers may intuitively try to motivate their workers with compensation packages, contests, and incentives (and our study does, in fact, provide evidence that these are indeed related to salesperson performance), this research provides strong evidence that other considerations are extremely critical. Namely, the salesperson's intrinsic motivation derived from feelings of competence, connection, and autonomy is more positively related to performance than extrinsic sources of motivation, including both compensation and recognition. As such, managerial practices that cultivate salesperson intrinsic motivation may be particularly effective. Our HLM analysis provides additional evidence that the positive impact of intrinsic motivation on salesperson performance is robust across various research characteristics and studies. In other words, even when we control for between-study characteristics and performance type, intrinsic motivation was more positively associated with salesperson performance.

These results do not mean that sales managers should neglect or dismiss extrinsic sources of motivation—after all, we find extrinsic motivation is positively related to performance. The earnings salespeople make become part of their expectations of the position, and violating expectations can be extremely demotivating, as SDT suggests. Hence, ignoring or removing extrinsic motivators could produce disastrous results. Rather, one overall takeaway may be that once extrinsic motivators are secured, intrinsic sources of motivation become more salient and more effective for driving performance.

Our sub-group analyses provide a more nuanced understanding of the effects of intrinsic and extrinsic motivation and salesperson performance. Specifically, we find that the effect of intrinsic motivation is significantly higher for not only self-rated performance but also objective-rated performance. Hence, there is some evidence that intrinsic motivation is more significantly related to both quantity of performance (objective) and quality of performance (ratings). However, the results between overall motivation and manager-rated performance were significantly lower than self-rated or objective performance, and the confidence intervals overlapped between intrinsic and extrinsic motivation and performance for this subgroup. These findings can be partially explained by prior research, which shows that managers might be out of touch with what really motivates their workers (DeVoe & Iyengar, 2004). In addition, past studies have highlighted that manager ratings of performance may be affected by perception biases (such as leniency or a "halo effect") which could incite "rating errors" (Tsui & Barry, 1986; Wayne and Linden 1995). On the other hand, manager-rated performance could be lower due to managers including concepts such as organizational citizenship behaviors as part of their ratings, which would not necessarily appear in the other two types of performance. Indeed, supervisors may have a greater perspective on the totality of what contributes to sales performance beyond just total sales dollars generated.

Theoretical contributions

Our first theoretical contribution includes demonstrating the value of SDT in studying the relationship between salesperson motivation and performance. Moreover, the findings show that SDT has value in studying extrinsic motivation as well as intrinsic motivation. In fact, the results of our meta-analysis show the need to consider both intrinsic and extrinsic motivation when investigating salesperson performance.

Second, our study provides insights on how the effects of intrinsic and extrinsic motivation on salesperson performance vary across contexts and types of salespeople, which extends our understanding of SDT. SDT researchers have discussed the tension between dispositional and contextual factors in determining motivation (intrinsic vs. extrinsic). The moderators explored in this meta-analysis have implications for that aspect of the theory, as they provide boundary conditions or contextual factors that help explain the ability of intrinsic and extrinsic motivation to drive performance. Moreover, as a result of this meta-analysis, it seems important to include moderators like B2B/B2C and gender within the theory that have remained unexplored heretofore.

Third, while prior research has lamented that inconsistencies and ambiguities within the domain of salesperson motivation make it difficult to articulate definitive and unambiguous advice for managers as to what works, when, and why (Khusainova et al., 2018), our meta-analysis helps bring clarity to this critical issue. Specifically, our investigation of the comparative effects of intrinsic and extrinsic motivation on salesperson performance and boundary conditions of these relationships extends our understanding of SDT as our findings explain for whom, when, and in what contexts these predictions hold.

Somewhat surprisingly, our findings demonstrate that the effect of intrinsic motivation is more strongly correlated with salesperson performance than extrinsic motivation for not only older salespeople but also younger salespeople. The finding that intrinsic motivation is important for younger generations (e.g., Generation X, Millennials) may be considered critical, given recent demographic research that emphasizes that millennials have become the largest generation in the U.S. labor force and now account for over one-third of the entire labor force (Buckley & Bachman, 2017; Catalyst, 2021). Some authors hint that millennials may be motivated differently than Baby Boomers or Generation Xers; our study offers some empirical support for this conclusion as well as some opposition. We find that both older and younger samples were more motivated by intrinsic motivation; however, the relationship between extrinsic

motivation and performance was significantly higher for younger samples than for older samples (whereas the overall motivation to performance relationship was higher in older samples). Hence, for younger generations, organizations may want to employ a combination of tactics to draw salespeople to higher performance whereas financial rewards may not be as appealing to older salespeople. In fact, our findings seem to indicate that the influence of financial incentives or recognition may diminish as people mature and have had time to build a foundation of these lower-level needs. While we categorize this finding as a generational phenomenon, one could argue this result is also related to life stage.

That said, the relationship between intrinsic motivation and performance is also significantly higher for those with greater experience in sales and a longer tenure in their current position. While we had predicted that extrinsic motivation may be more significantly related to performance for salespeople in earlier stages of their career, our findings reveal the opposite. Even for those with fewer years of sales experience or fewer years on the job, the effect sizes for intrinsic motivation and performance were larger than extrinsic motivation. Hence, we find some evidence that trying to control the behavior of new employees through incentives may be less advantageous than focusing on meeting their higher-level needs.

While studies have shown that salespeople in the U.S. are more attuned to financial rewards (i.e., Dubinsky et al., 1994) and that research in salesperson motivation in the U.S. has trended toward "compensation" (i.e., Schrock et al., 2018), our findings reveal counter evidence that intrinsic motivation is actually more strongly correlated with salesperson performance than is extrinsic motivation for samples located within the U.S. Hence, without ignoring extrinsic rewards, both practitioners and scholars should pay special attention to intrinsic sources of motivation given the tendency to focus on the former and given the latter's demonstrated effectiveness.

Also, with regard to industry, the effects of extrinsic motivation on salesperson performance seem to be stronger in B2C vs. B2B selling contexts. Hence, if the salesperson is selling directly to a consumer, financial incentives and feedback may help drive greater performance. However, in B2B contexts in which salespeople often develop longer-term relationships with potentially fewer customers and buying 'centers'—i.e., where sales is part of a larger service-dominant ecosystem (Hartmann et al., 2018)—intrinsic motivators such as self-efficacy, autonomy, and connection may lead to better results.

Managerial implications

The findings of this study support the notion that extrinsic incentives provided to salespeople are associated with enhanced salesperson performance. Therefore, aligning contests, compensation packages, and incentives with organizational goals remains a worthwhile endeavor. Nonetheless, our analyses also show that meeting the internal needs of workers—namely the need to feel competent, connected, and autonomous—may be even more effective in stimulating salesperson performance than extrinsic sources of motivation given intrinsic motivation's stronger effect on salesperson performance. It is possible that a significant part of total sales force compensation is a hygiene factor (e.g., Herzberg, 1968) for salespeople as opposed to a growth motivator; in other words, some compensation is necessary to secure a sales employee but not necessarily an incentive to perform better per se. Thus, without neglecting extrinsic motivators, managers should consider how to activate these drivers of intrinsic motivation.

Practically speaking, while managers are external to the salesperson, they can indeed influence or inspire his or her intrinsic motivation. The components of intrinsic motivation identified in SDT provide a starting point for managers. For example, building stronger self-efficacy in salespeople can stem from training opportunities, ongoing coaching, positive feedback highlighting the salesperson's competence, and empowering the salesperson to make important decisions. Likewise, offering autonomy when possible in areas like scheduling, key account management, decision making in resolving customers' problems, and so forth can develop a deep passion for performing well on the job that translates to a stronger bottom line for the firm.

In addition, advancing a company culture that fosters the salesperson's identification with the organization and/or team and the corresponding sense of belonging and acceptance should help the salesperson thrive and perform better. Even when work is not fascinating on its own, often individuals are willing to do the job because they feel valued by significant others to whom they feel connected. Hence, building a 'family' culture through celebrating one another's milestones and successes and disseminating a company goal that salespeople can rally around may help build that important sense of connection for salespeople with their peers. Moreover, developing a relationship where salespeople feel valued and trusted by managers through leader-member exchange can also help build a sense of belonging within the company. Beyond feeling a sense of relatedness internally to the company, establishing long-term professional relationships with external customers can be another path to establishing connectedness for salespeople, which may be even more important to their performance. So, the extent to which managers facilitate such relationship-building may be helpful.

Importantly, we do not advocate that managers ignore extrinsic motivation devices. They are indeed useful in directing certain behaviors and accomplishing certain objectives, and our meta-analysis corroborates their value. Rather we suggest that an overreliance on them may lead to suboptimal performance given evidence we reveal of the stronger impact of intrinsic motivation. Indeed, controlling salesperson behaviors need not be the primary goal of managers.

Allowing salespeople the freedom to self-determine the behaviors needed to achieve higher performance may be more advantageous. Relatedly, some evidence exists that when incentives are self-selected (less controlled and more autonomous), they can become more internalized and reinforce the self-efficacy of the salesperson (Bommaraju and Hohenburg, 2018). Overall, developing a relationship with the salesperson to inspire greater performance, building feelings of competence within the salesperson, and allowing the salesperson the freedom to take the appropriate action with customers may be more helpful than incentives, contests, or financial rewards that companies design and implement without salesperson input.

Finally, managers should recognize that different types of motivation may be more important to their employees depending on contextual factors. For example, depending on the type of industry the selling firm is in, attending to intrinsic motivation among salespeople may drive greater success than would focusing largely on extrinsic incentives. Within a B2C context, the importance of financial rewards may be amplified whereas meeting the internal needs of workers in B2B contexts may be particularly effective. Likewise, age and career stage of the individual salesperson may influence the type of motivation that is most meaningful to the salesperson. Moreover, our results suggest that culture and background may play an important factor in what is truly motivating to the salesperson. Thus, a "one size fits all" approach to motivation within the context of sales may not produce the highest performance outcomes.

Limitations and future research

Our meta-analysis has some limitations that could also provide potential future research opportunities. First, we had data limitations that affected the power of our analyses for our HLM analyses since not all authors provide the necessary statistics to be included. However, in future studies, probing the differences between countries, industries, gender differences, or generational stages on the relationship between motivation and performance may be fruitful avenues for investigation. For example, could cultural influences in salesperson motivation be diminishing due to the interconnectedness of the global community? Future research may want to investigate the importance of country and culture in the current interconnected global economy. Moreover, as technology continues to evolve and information systems play an even more pivotal role in transforming both the selling and buying process, how does the relationship between salesperson motivation and performance change?

Another interesting future study could examine whether extrinsic motivators may actually detract from intrinsic motivation when used together. This notion is consistent with the SDT premise of intrinsic and extrinsic motivation; and moderators, such as situational and dispositional factors, to these relationships may likewise exist. Moreover, future studies may wish to investigate if all types of external rewards are created equally or if they vary in their informativeness for salespeople. For example, incentives may affect a salesperson's motivation differently than their base salary. That is, when external rewards provide feedback in and of themselves, they may increase feelings of self-efficacy and autonomy versus rewards that are perceived to be controlling. This notion deserves further attention, and primary studies may be best suited to investigate these critical issues.

Next, the results we offer are based on SDT and choices made in the coding process. For example, performance had to be at the individual salesperson level, and the searches included specific keywords related to intrinsic and extrinsic sources of motivation. We did not include specific leadership behaviors or types in this study, but this would be an interesting avenue for future research. We also followed current literature that breaks down extrinsic motivation into a cognitive orientation called "compensation-seeking" and affective orientation called "recognition-seeking" (c.f. Miao et al., 2007); however, the latter has been questioned as partially belonging to intrinsic motivation since recognition and esteem are higher-level needs that lie *within* a person. Deci (1972) explains, "…verbal rewards may not be phenomenologically distinguishable from the feelings of satisfaction which the person gets for doing the activity. Hence, the verbal reinforcements strengthen his intrinsic motivation because they provide additional positive value which becomes associated with the activity…by strengthening the person's sense of competence and self-determination." (p. 224). Thus, depending on how the salesperson receives feedback and interprets it, the draw could be due to the source and desire to please others (extrinsic) or from the perception of how good he or she is at the task and feelings of esteem (intrinsic). Nonetheless, we intentionally chose to code feedback as a source of extrinsic motivation for two reasons: (1) to give extrinsic motivation as much 'power' as possible and demonstrate the importance of intrinsic motivation even without this construct and (2) to follow with current trends in sales literature (e.g., Miao et al., 2009; Miao and Evans 2014). To help alleviate potential concerns from our approach, we made all our coding decisions transparent and provided the database of studies for review.

Overall, this meta-analysis provides a comprehensive synthesis of the motivation literature corresponding to Self-Determination Theory, specifically within the context of personal selling and sales management. Our study provides evidence for the importance of stimulating intrinsic motivation in salespeople rather than focusing only on external incentives and pressures to perform better. Moreover, we empirically demonstrate important boundary conditions to the relationships between types of motivation and performance to inform both future research and practice.

Appendix

Included studies

Authors	Journal	Year	Category	Autonomy	Competence/Self-Efficacy	Connection	Feedback	Contests	Incentives	Pay/Income Compensation/Commission	Reward	Motivation	Intrinsic Motivation	Extrinsic Motivation	PERF
Ahearne et al	*JAP*	2005	IM		X										Objective
Akinyele	*JCMR*	2009	IM, EM										X	X	Manager-rated
Apasu et al	*JPSSM*	1987	EM							X					Self-rated, Manager-rated
Arndt et al	*JR*	2011	IM, EM			X					X				Objective
Banerjee et al	*AJBA*	2017	IM										X		Self-rated
Beltramini & Evans	*JPSSM*	1988	EM					X							Self-rated
Bompar et al	*JBIM*	2018	IM			X									Self-rated
Bottger & Woods	*AJM*	1988	BOTH									X			Self-rated
Brief & Hollenbeck	*JOB*	1985	EM				X								Objective
Brown et al	*JM*	1997	IM		X										Objective
Chakrabarty et al	*IMM*	2008	EM				X								Self-rated
Chen et al	*EJM*	2015	IM		X										Self-rated
Cho & Chang	*IMM*	2008	IM		X										Self-rated
Chowdhury	*IJAMT*	2008	IM, EM										X	X	Manager-rated
Cravens et al	*JM*	1993	IM										X		Self-rated
DeCarlo et al	*JPSSM*	2013	IM		X										Self-rated
Di Mascio	*JM*	2010	IM		X										Objective
Domingues et al	*ML*	2017	EM				X								Self-rated, Objective
Donassolo & de Matos	*RBM*	2014	IM, EM		X		X								Self-rated
Dubinsky & Hartley	*JAMS*	1986a	BOTH									X			Objective
Dubinsky & Hartley	*JBR*	1986b	BOTH									X			Objective
Dubinsky & Yammarino	*JRI*	1985	IM, BOTH	X								X			Manager-rated

Authors	Journal	Year	Category	Autonomy	Competence/Self-Efficacy	Connection	Feedback	Contests	Incentives	Pay/Income Compensation/Commission	Reward	Motivation	Intrinsic Motivation	Extrinsic Motivation	PERF
Dubinsky et al	*JBR*	1997	EM							X					Self-rated
Erez & Judge	*JAP*	2001	IM		X										Objective, Manager-rated
Evans et al	*JMTP*	2002	IM, EM	X			X								Self-rated
Fallah et al	*JRM*	2018	IM		X										Self-rated
Frayne & Geringer	*JAP*	2000	IM		X										Objective, Manager-rated
Fu et al	*JM*	2010	IM		X										Objective
Gammoh et al	*JPBM*	2014	IM, EM		X								X	X	Self-rated
Gillespie et al	*JAMS*	2016	EM											X	Manager-rated
Goebel et al	*JMDC*	2013	IM, EM		X		X								Self-rated
Gong et al	*AMJ*	2009	IM		X										Objective, Manager-rated
Gopalakrishna et al	*ML*	2016	EM					X							Objective
Grant et al	*JAMS*	2001	IM										X		Self-rated
Greenberg	*HRMR*	2003	EM							X					Objective
Groza & Groza	*JBR*	2018	IM		X										Self-rated
Guidice & Mero	*JPSSM*	2012	IM			X									Objective, Manager-rated
Gupta et al	*JAP*	2013	IM		X										Objective, Manager-rated
Hampton et al	*JAMS*	1986	BOTH									X			Self-rated
Hartmann & Rutherford	*IMM*	2015	IM, EM	X			X								Self-rated
Herried et al	*JSBM*	1985	IM			X									Self-rated
Hohenberg & Homburg	*JM*	2016	IM, EM	X						X					Self-rated
Huggins et al	*IJSRM*	2016	BOTH									X			Self-rated
Ingram et al	*JPSSM*	1989	IM, EM										X	X	Self-rated, Manager-rated
Iyer & Johlke	*JSM*	2015	IM, BOTH	X								X			Self-rated
Jaramillo & Mulki	*JPSSM*	2008	IM, EM										X	X	Self-rated

Authors	Journal	Year	Category	Autonomy	Competence/Self-Efficacy	Connection	Feedback	Contests	Incentives	Pay/Income Compensation/Commission	Reward	Motivation	Intrinsic Motivation	Extrinsic Motivation	PERF
Jaramillo et al	*JPSSM*	2007	IM, EM										X	X	Objective
Johlke & Iyer	*JRCS*	2013	IM, EM	X			X								Self-rated
Johnson et al	*JBR*	2016	EM							X					Self-rated
Klein & Verbeke	*JAP*	1999	EM				X								Self-rated
Kohli & Jaworski	*JM*	1994	EM				X								Self-rated
Krishnan et al	*JPSSM*	2002	IM		X										Self-rated
Lee & Gillen	*JOB*	1989	IM		X										Objective
Levin et al	*JPSSM*	2012	IM, EM										X	X	Self-rated, Manager-rated
Lin	*JBIM*	2017	EM				X								Manager-rated
Livingstone et al	*JPSSM*	1995	EM							X					Self-rated
Low et al	*EJM*	2001	IM										X		Self-rated
Mallin & Ragland	*JB2BM*	2017	IM, EM										X	X	Self-rated
Mallin et al	*JMTP*	2017	IM, EM		X								X	X	Self-rated
Mayo and Mallin	*JBIM*	2014	BOTH									X			Self-rated
Menguc et al	*JPSSM*	2007	IM, EM			X	X								Self-rated
Miao & Evans	*JPSSM*	2007	IM, EM										X	X	Self-rated
Miao & Evans	*IJRM*	2012	IM, EM										X	X	Manager-rated
Miao & Evans	*JBR*	2014	IM, EM										X	X	Self-rated
Miao et al	*JPSSM*	2017	EM								X				Self-rated
Miao et al	*JBR*	2007	IM, EM										X	X	Self-rated
Monteiro & Vieira	*BAR*	2016	IM		X										Self-rated
Noble	*JPSSM*	2008	IM, EM	X									X	X	Self-rated
Nygaard & Dahlstrom	*JM*	2002	IM		X										Self-rated
Panagopoulos & Olgilve	*IMM*	2015	IM		X										Self-rated
Patterson et al	*JBR*	2014	IM		X										Manager-rated
Peterson & Byron	*JOB*	2008	IM		X										Objective

Authors	Journal	Year	Category	Autonomy	Competence/Self-Efficacy	Connection	Feedback	Contests	Incentives	Pay/Income Compensation/Commission	Reward	Motivation	Intrinsic Motivation	Extrinsic Motivation	PERF
Pettijohn et al	*AMS*	2014	IM	X	X										Self-rated
Piercy et al	*JPSSM*	2001	IM										X		Self-rated
Piercy et al	*JWB*	2004a	EM						X						Self-rated
Piercy et al	*JIM*	2004b	EM							X					Self-rated
Plouffe et al	*JPSSM*	2017	IM		X										Objective
Porath & Bateman	*JAP*	2006	IM, EM		X		X								Objective
Rai et al	*MRR*	2018	EM								X				Self-rated
Rajabi et al	*JBIM*	2018	IM, BOTH		X							X			Self-rated
Ramarajan et al	*AMJ*	2017	IM										X		Objective
Ramaswami & Singh	*JM*	2003	EM								X				Manager-rated
Rapp et al	*JR*	2015a	IM		X										Manager-rated
Renn & Fedor	*JOM*	2001	IM		X										Objective, Manager-rated
Rich	*JMTP*	1999	EM				X								Self-rated
Rigopoulou et al	*JBR*	2012	IM										X		Self-rated
Robie et al	*IJSA*	2005	IM			X									Objective
Román & Iacobucci	*JAMS*	2010	IM										X		Self-rated
Román & Munuera	*EJM*	2005	EM								X				Self-rated
Rouziès et al	*JPSSM*	2017	IM	X											Objective, Manager-rated
Rouziou et al	*JPSSM*	2018	IM			X									Self-rated
Sager	*IMM*	1990	EM							X					Manager-rated
Sager & Johnston	*JPSSM*	1989	EM							X					Manager-rated
Sager et al	*P&M*	2006	IM		X										Objective
Schmitz	*JAMS*	2013	BOTH										X		Self-rated
Schmitz & Ganesan	*JM*	2014	IM		X										Self-rated

Authors	Journal	Year	Category	Autonomy	Competence/Self-Efficacy	Connection	Feedback	Contests	Incentives	Pay/Income Compensation/Commission	Reward	Motivation	Intrinsic Motivation	Extrinsic Motivation	PERF
Schmitz et al	*JM*	2014	EM						X						Self-rated, Manager-rated
Schwepker & Ingram	*JMTP*	1994	EM							X					Self-rated
Singh	*JM*	1998	IM, EM	X			X								Self-rated
Singh et al	*JBIM*	2017	IM		X										Self-rated
Singh et al	*JBIM*	2018	IM										X		Self-rated
Sleep et al	*JPSSM*	2018	EM								X				Self-rated
Smith & Futrell	*MMJ*	2014	BOTH									X			Self-rated
Smith et al	*JPSSM*	2000	BOTH									X			Self-rated
Soyer et al	*JBP*	1999	BOTH									X			Self-rated
Spiro & Weitz	*JMR*	1990	IM										X		Self-rated
Stewart	*JAP*	1996	EM							X					Objective
Stokes et al	*HRMR*	1999	BOTH									X			Manager-rated
Sujan et al	*JM*	1994	IM, EM		X		X								Self-rated
Tanner et al	*JPSSM*	2015	IM, EM		X					X					Self-rated
Terho et al	*IMM*	2017	IM			X									Self-rated
Titze et al	*IJSA*	2017	BOTH									X			Objective
Tsai et al	*JAP*	2007	IM		X										Self-rated, Manager-rated
Tyagi	*JM*	1985	IM, EM, BOTH	X			X						X	X	Self-rated
Valle et al	*AC*	2015	EM							X					Objective
Van der Borgh et al	*BJM*	2017	EM								X				Objective
Van der Borgh & Schepers	*JPIM*	2014	IM, EM	X			X								Self-rated
Van der Borgh & Schepers	*JAMS*	2018	EM								X				Objective, Manager-rated
Verbeke et al	*JM*	2008	IM		X										Objective
Wang & Netemeyer	*JAMS*	2002	IM	X	X										Self-rated
Wieseke et al	*JM*	2012	IM			X									Objective
Yang et al	*JPSSM*	2011	IM		X										Objective

Authors	Journal	Year	Category	Autonomy	Compe-tence/Self-Efficacy	Con-nection	Feedback	Con-tests	Incen-tives	Pay/ Income Compen-sation/ Commis-sion	Reward	Motivation	Intrinsic Motivation	Extrinsic Motiva-tion	PERF
Yen	*JOMO*	2015	BOTH									X			Self-rated
Yilmaz	*EJM*	2002	IM, EM										X	X	Self-rated
Yu et al	*JOOP*	2016	IM, EM				X						X		Objective

IM = intrinsic motivation, EM = extrinsic motivation, BOTH = motivation (without the IM or EM distinction)

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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