



How within-person research can extend marketing knowledge

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Abstract

Much existing research in marketing examines theory using between-persons research designs, yet draws implications that are based on within-person causal logics. This mismatch is problematic in developing marketing knowledge, and in impacting marketing practice effectively. The present article discusses the importance of conducting within-person research in marketing, alongside suggesting marketing constructs that could benefit from within-person analyses. We provide details on how to conceptualize within-person theories, and compare them with the more common between-persons approach. Furthermore, a set of important methodological considerations and recommendations for designing within-person studies is elaborated on, and theoretical and empirical principles are applied to an empirical demonstration. The results show how theories and relationships can sometimes differ across levels, but in other instances can remain consistent. We draw out a set of important implications and directions for future marketing research, and encourage researchers to incorporate within-person approaches into their toolkit of theoretical and empirical methods.

Keywords Between-persons · Within-person · Longitudinal · Theory development

Introduction

Much marketing theory is concerned with the behaviors, attitudes, characteristics, decisions, and/or responses of individuals, such as consumers, or marketing employees (e.g.,

salespeople, service workers, and other front-line operatives). The modal design for such research is cross-sectional, and typically a survey (Hulland et al., 2018; Rindfleisch et al., 2008). Such work is primarily able to explain how individuals or groups differ from one another on various attributes. Thus, it is best conceptualized as the study of *between-persons* associations (Hoffman & Stawski, 2009).

Many relevant theories are however explicitly or implicitly dynamic, concerned with changes within individuals over time. Therefore, they are actually best described as being about within-person *processes*, rather than between-persons *differences* (Curran & Bauer, 2011). Unfortunately, the dominant cross-sectional approach into these topics is unable to address the within-person questions that can provide important managerial implications regarding what works for who, and when. While longitudinal research is not unusual in marketing (e.g., Bolander et al., 2017), approaches that specifically consider within-person variation (e.g., Habel et al., 2021) remain rare. Also of concern is the fact that scholars in marketing are often tempted to make claims about within-person processes using between-persons empirical evidence that is unable to support those claims.

Observing that individuals higher in variable x also exhibit higher levels of y when compared to those who are lower in x (i.e., a between-persons association) implies that managers should look to *select* employees that are high

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in x . However, it does not follow from this association that increases in x within an individual must also result in increases in y within these same individuals, and therefore that managers or firms should look to directly increase levels of x in their employees. Nevertheless, in marketing research it is common to see within-person implications drawn from between-persons empirical evidence. For example, it is often recommended that sales managers should enhance the self-efficacy of their salespeople in order to increase performance (e.g., Krishnan et al., 2002; Singh et al., 2017; Wang & Netemeyer, 2002), despite the empirical evidence for this within-person implication being drawn purely from between-persons associations.

The lack of within-person empirical research within marketing is surprising, and is likely due to the practical challenges of collecting the individual-level repeated-measures data needed to detect within-person variation, and a general lack of consideration of within-person variation within marketing. The present study therefore makes a number of significant contributions to marketing research. First, we explain the core principles of within-person research to a marketing audience, focusing mainly on the importance of incorporating a consideration of within-person variation in marketing theories, and how this can change the way scholars theorize for the better. Second, in the hope of inspiring researchers to incorporate these designs, we present advice to marketing scholars in relation to the key methodological and analytical decisions required when conducting within-person research. Third, by examining between- and within-person dynamics between self-efficacy, emotional exhaustion, effort, competitive intensity, anxiety and performance, we provide clear demonstrations of a within-person analysis, and the appropriate conclusions and implications which can be drawn from such research. Despite the specificity of this empirical example, our work is applicable to a plethora of marketing-relevant processes, unambiguously demonstrating how the underpinning mechanisms can differ across between- and within-person levels, and how these differences lead to substantially different implications.

Differentiating between- from within-person processes

A within-person process is simply one that happens within a given individual (Curran & Bauer, 2011). In the simplest example, an individual employee's levels of some attribute such as job satisfaction will fluctuate over time. Or, fluctuations may occur in response to changes in other attributes. For example, a service worker who experiences increased bullying from their manager may then experience increased psychological strain, or a salesperson who receives increased cash incentives for sales may then experience increased

extrinsic motivation: *changes* in an attribute occur, sometimes in response to changes in another attribute, and these changes occur *within the individual*. As such, within-person approaches study *intraindividual* variation over time. Between-persons approaches, on the other hand, study phenomena that occurs *across sets of individuals*, and are thus *interindividual* (Molenaar & Campbell, 2009). At the between-persons level, employees experiencing higher levels of bullying might *also* exhibit higher levels of stress; those salespeople receiving higher cash incentives might *also* exhibit higher levels of extrinsic motivation. Thus, between-persons variation describes how people within a group differ from each other on one or more shared attributes (Beck & Jackson, 2021).

The between- and within-person statements describe *different real-world phenomena*, even though they concern the same basic attributes (e.g., incentives, extrinsic motivation) and, typically, the same variable labels. The statements are also different in *meaning* (Hoffman & Stawski, 2009). First, consider that the between-persons statements describe the association at a single time point between two attributes, whereas within-person statements inherently describe time and change in the attribute(s). From this vantage point, compared to a between-persons statement, a within-person statement is not just a different way of stating a relationship between two variables. Rather, the relationships the statements describe are entirely different, even if the attributes being related (i.e., the *relata*) are the same.

As a result, between- and within-person theories often (although not always) infer different causal mechanisms. For instance, at the between-persons level, individuals receiving greater levels of positive feedback are likely to also exhibit higher levels of performance (Jaworski & Kohli, 1991). Observing this between-persons association could infer a causal mechanism whereby those who receive positive feedback understand more about their firm's expected behavior, and thus do more of it (Hawes & Rich, 1998). Equally it could infer that those who perform better (perhaps due to greater ability) receive more positive feedback *because* of their better performance. However, from a within-person perspective, *increasing* the amount of positive feedback an individual employee receives could potentially lead to a *negative* effect on their individual performance levels in certain situations, and for certain individuals. Specifically, increased positive feedback may lead to and/or exacerbate overconfidence (Meier & De Mello, 2020) reducing motivation to exert effort and so *lower* individual performance (Taylor et al., 2021).

Furthermore, even if between- and within-person approaches to a theory imply different relationships (e.g., opposite directionalities) between the same attributes, both can be true. For example, high-feedback employees may *on average* still exhibit higher performance levels than those

receiving low levels of feedback (a positive between-persons relationship). However, at the same time an *individual's own performance* may decrease over time with increasing positive feedback (i.e., a negative within-person relationship). Thus, it should be clear that while a between-persons association can be considered evidence in support of a causal effect in many circumstances (Pearl, 2009), it is a category error to suggest that an observed between-persons association necessarily equates to evidence in support of the equivalent within-person causal process (Molenaar & Campbell, 2009). So, between-persons theories and empirical evidence are not simply weaker forms of within-person theories and evidence, they are best assumed to refer to entirely different processes.

Of course, it is not the case that *all* relationships between attributes *must* differ in nature and effect across the between- and within-person levels. If an observed relationship is the same across different levels of analysis that relationship is said to be homologous across levels (Chen et al., 2005), while relationships that differ across different levels of analysis are heterologous. McCormick et al. (2020) applied this idea to a large number of management studies that reported both between- and within-person correlations. They found that there was a wide range of values of homology evident, ranging from a high of 60% significantly differing across levels (for correlations with surface acting) down to 0% (for coping), with the average being 24%.¹ It is, therefore, clearly inadvisable to assume that relationships will be homologous across between- and within-person levels in marketing. As such, using empirical evidence from one level to draw implications at a different level may lead to errors of inference, and it is essential that marketing scholars begin to examine the within-person dynamics of marketing phenomena.

Studying within-person processes in marketing

Within-person processes and marketing theory

Table 1 provides an illustration of the different ways in which within-person research can expand marketing theories, coupled with a non-exhaustive set of examples of existing marketing theories that may benefit from these advances. The scope of theories is deliberately wide in order to sensitize as wide a range of researchers as possible to the potential for within-person approaches. However, it is worth noting

that Table 1 is only aimed at giving an overview of specific examples, and in fact many of the topics covered would benefit from numerous different contributions from within-person research, as well as the addition of relevant moderators and mediators, beyond those within Table 1. Within-person processes may also vary substantially according to a variety of boundary conditions (e.g., Dalal et al., 2009; To et al., 2012), which provides ample opportunities for scholars to provide more detailed insights into marketing theory.

The first and most obvious way in which within-person research can deliver important marketing knowledge is in increasing our understanding of the within-person variability of important marketing constructs, and the causes and consequences of such. For example, marketing research has increasingly accounted for variation in job performance using fixed effects models, which essentially control for, or partial out, within-person variation in performance as a dependent variable. However, while this is an improvement over the previous complete lack of consideration of such variation, it still remains the case that the processes underlying that variation often remain obscured (Dalal et al., 2020). A recent example directly examining within-person performance variation can be found in Nahm et al. (2022), who demonstrated that individual sales performance appeared to track circadian rhythms across the day. This raises the issue of whether variables, or the relationships between them, are cyclical. Examples might include the effect of cycles of consumer mood on purchasing, or brand attitudes, or alternatively the dynamic influence of marketing activities on consumer attitudes or emotions.

Many other important variables in marketing theories look highly promising in this regard, including motivation, psychological strain, job attitudes such as satisfaction, and behavioral variables such as organizational citizenship behaviors. Further, combining the two levels of analysis allows researchers to determine between-persons differences in within-person processes. An illustration could be seen in the evolution of the performance, or job satisfaction, of employees over time, which may differ dependent upon individual differences such as personality, age, or individual perceptions of leadership style.

Another important task in numerous marketing research areas is unpacking the temporal order of processes, with an archetypal example being burnout. Burnout is often discussed in temporal terms, as a process consisting of multiple factors: emotional exhaustion, depersonalization, and diminished personal accomplishment (e.g., Babakus et al., 1999), which varies across job roles (Dormann & Zapf, 2004). However, the order of the process is impossible to conclusively determine without within-person research, which is a notable omission in the field at present. Directly modeling this temporal process also allows incorporation of additional

¹ McCormick et al. (2020) also specifically reanalyzed Sitzmann and Yeo's (2013) meta-analysis of self-efficacy and performance, finding that 68% of the correlations differed across the levels, according to their criteria, making it the construct with the lowest homology of all.

Table 1 Marketing theories and potential within-person contributions

Additional contribution of within-person research	Marketing topic	Example within-person questions	Potential contribution/impact of within-person research
Assessing within-person variability			
Do important constructs vary over time? What may cause this variation and how can it be managed?	Sales performance	How does sales performance vary over time? Do circadian rhythms have an impact, and how?	What are the best times of day or week to schedule sales calls for maximum chances of success?
	Motivation	How do intrinsic and extrinsic motivation vary over time for frontline workers? Do the motivations interact to shape performance? How are they influenced by incentives over time? Do increases in extrinsic motivation lead to reductions in intrinsic motivation? To what extent can they coexist in the short- and long-term?	What form of incentive is best used at different times? Should extrinsic motivators be avoided at different times for different roles? What motivators are most associated with different forms of performance over time?
	Employee stress	Do stress levels of service workers vary over the course of a day/week? How and what causes this variation?	How should service managers organize worker job tasks across different time periods? When should breaks be scheduled? Should employees be rotated around more or less client-facing roles over time periods?
Unpacking temporal processes			
Within-person research can help determine causal ordering of processes, and incorporate new mediators and moderators	Service quality	How do customer expectations versus customer experiences shape the development of service quality perceptions over time?	Should firms focus more on managing evolving customer expectations or on developing service performance?
	Burnout	What is the causal ordering of the components of the employee burnout process? Do burnout components have the same causal ordering across different frontline worker roles? Can burnout be mitigated as the process evolves?	At what point do managers need to take action to stop the development of burnout? Are different management strategies more useful at different times to mitigate burnout? Can burnt-out employees return to their original states over time?
	Service worker emotional labor	How does deep acting versus surface acting influence service worker mental health over time? Do customers find over-use of service worker deep acting intrusive over time? Do service workers tend to develop deep acting abilities over periods of time using surface acting, or does deep acting eventually become surface acting?	How should service managers manage subordinate acting over time? Should service workers evolve their usage of acting as customer relationships evolve? Should service organizations provide ongoing training to help maintain worker abilities over time?
	Sales incentives	What are the positive and negative effects of changes in performance incentives, and through what pathway do they influence individuals' changes in performance?	What performance incentives are most useful at what times, for what roles? Should individual employees alter individual incentive plans over time, and to what extent?
Increasing temporal precision			
Within-person research can help assess differential short- and long-term outcomes, points of inflexion or diminishing returns, and different shapes of relationships	Job satisfaction	Do different events lead to specific reductions in job satisfaction and then have differential effects on employee decisions to leave, and actual turnover? Are there 'break points' beyond which decisions are made? What is the shape of the relationship between job satisfaction and turnover over time? Does time passing bring job satisfaction back to its original level?	Is job satisfaction really of causal importance in turnover decisions and actions over time? Are there specific actions that managers must avoid at different times? How often should job satisfaction be measured in different roles? What responses should managers have to declining job satisfaction?

Table 1 (continued)

Additional contribution of within-person research	Marketing topic	Example within-person questions	Potential contribution/impact of within-person research
Within-person research can also help determine between-persons difference in within-person processes	Sales and/or service training	What are the short and long-term effects of sales training? Do different employees benefit from training in different ways at different times?	At what points should sales training be increased or reduced for different salespeople? Does long-term benefit outweigh short-term loss of time in the field?
	Customer satisfaction	How does customer satisfaction develop and evolve over time?	What are the most effective marketing tools at different points in the customer satisfaction process?
	Self-efficacy (this study)	Do increases in a salesperson's self-efficacy always lead to increases in salesperson performance?	Is it most important to focus on selecting highly self-efficacious salespeople, or on developing self-efficacy in all salespeople?

moderators and influences on the process, which together allow a considerably richer picture of the process to emerge.

Within-person analyses can also elucidate differences between short- and long-term outcomes of an event, intervention, or change. For example, training interventions may have detrimental short-term effects on performance (as frontline employees are taken out of their role to learn), but positive long-term effects on performance (as employees gain greater skills, outweighing their time taken out from their role). Within-person approaches can also uncover curvilinear effects such as diminishing returns. For example, job strain is shown to demonstrate negative short-term effects on employee well-being, but these effects may wear off over time (Burns et al., 2016).

Methodological considerations: Design, measurement, and analysis

In order to examine a within-person process, it is first necessary to collect repeated measures data on all of the variables for which change is a necessary feature of the process being examined. Importantly, while all within-person processes involve longitudinal assessment of change, not all longitudinal studies examine within-person processes. For example, a longitudinal study that collects data on *x* at time 1 and *y* at time 2 is not a study of within-person change: within-person research requires repeated measures of the relevant variables (Podsakoff et al., 2019).

As a further baseline consideration, it is also important to realize that designs only incorporating two measurement points are of limited use in studying intra-individual change. Although two-wave data may provide useful preliminary evidence (Henk & Castro-Schilo, 2016), three or more measurement occasions are required for real differences in change to be distinguished from error (Hoffman, 2015). Collecting at least three assessments of an outcome variable allows one to reliably detect within-person variation, while multiple assessments of more than one variable allows researchers to examine the impact of changes in *x* on changes in *y* (see Hoffman, 2015 for full overview).

The exact nature of the measurements required varies according to the theory invoked to explain the process in question. Researchers must consider *how* and *when* variables are expected to vary, in terms of the time frame required, the number of measurements required, and the spacing between measurements. Changes can occur in the short- or long-term (Hoffman & Stawski, 2009; Minbashian & Luppino, 2014), and within-person processes can exhibit both forms of change across different time periods. Thus, the onus is on the researcher to define the time period of interest in each case, and match it to the most appropriate research design. It is beyond the present scope to detail all the different design choices available to researchers and how they match various

theoretical conceptualizations of within-person process.² However, the decisions taken by researchers will place fundamental boundaries on the research questions that can be examined, and thus a very clear understanding of the latter is necessary before determining what, how, and when variables should be measured.

While the available resources are an obvious influence on the number of data collection waves that are possible, there are also other practical factors to consider. Of particular relevance is the likely increase in mortality (i.e., dropouts) as measurement waves increase. This may be exacerbated as the lag between measurements increases, and is of particular relevance to field-based research areas such as marketing (for example average salesperson tenure was recently suggested to be 18 months (Prater, 2021)). As such, to ensure an adequate sample size for all waves, researchers need to strongly consider the number of measurement waves, and how many participants they initially need to collect data from.

The next key decision concerns the time frame to be studied. In fact, this is actually two decisions; one concerning how long to collect data for in total, and a second concerning the time lag between measurement waves. For example, if a process takes a year to play out, or longer, then the data collection period needs to be long enough to capture the process (which may then conflict with decisions about the number of waves made earlier). Conversely, if the focus is on relatively short-term fluctuations in a variable or process, a shorter data collection period can be used. In addition, it is important to determine exactly what the most appropriate time lag between data collection waves is. Processes may be hypothesized to vary more frequently, necessitating more closely spaced data collection waves (e.g., for emotions or transient moods/states), or conversely may vary less frequently, allowing longer time lags (e.g., coping styles). More frequent data collection waves might however be more exhausting to participants, causing greater attrition, and/or lead to increased participant boredom which could alter response behaviors, for example by increasing biased response patterns like straight-lining (see Johnson, 2016). In addition, panel conditioning and/or learning effects may occur (see Kartsounidou et al., 2023). Finally, the researcher must consider whether lags should be spaced equally. While this is typically the case, it is not a necessity, and decisions in this regard should be justified theoretically (de Haan-Rietdijk et al., 2017). One way to gain some indication of these likely issues is to, where possible, conduct a small-scale pilot study.

There are multiple ways in which researchers can actually collect the repeated measures data necessary for testing

within-person models. For example, depending on the phenomenon under investigation, researchers could utilize diary-based studies (e.g., Garbinsky et al., 2021), or use apps or other technologies that automatically monitor physiological symptoms, location, activities, and behaviors (e.g., Maxian et al., 2013). However, considering that the most common research instrument used by marketing scholars to collect primary data is a survey (Hulland et al., 2018), we primarily focus here on issues concerning survey-type research in the within-person context. That said, much of what we say about measurement is highly relevant for many other research methods in a number of ways.

A key consideration is the length of the instrument. More demanding research instruments (e.g., longer questionnaires) have lower response rates (Deutskens et al., 2004), which is magnified in a repeated-measures situation. A potentially useful way to reduce participant load here is utilizing objective proxies for constructs of interest rather than directly collecting data from participants. Marketing scholars may already have such data available to them, which would provide an easily accessible option to begin examining important marketing constructs at the within-person level. Bolander et al. (2021) provides an excellent insight into potential salesperson performance proxies, while employee effort may also be measured by proxies such as the time spent undertaking the job, or by some a context-specific measure of effort allocation (e.g., number of calls initiated by salesperson and average call duration, as in Good et al., 2021). Similarly, users' previous purchase frequency of branded products has been utilized as a proxy for users' previous relationship with the brand (Langaro et al., 2018). That said, it is important to emphasize that the validity of proxy measures must be justified in light of the theoretical definition of the construct, so that any detection of change in the proxy can be taken to indicate actual change in the specific construct examined.

When considering *which measures* to include in a questionnaire, and on *how many occasions*, a useful heuristic is that any variables not expected to change over the duration of the study only require measurement on a single occasion (Bolander et al., 2017). In such cases static variables could be captured at any point within the study duration, which can help to ease respondent burden (Hoffman, 2015).³ Empirical evidence should be sought in order to make final decisions on whether variables are likely to be static, and considering how and why a variable is expected to change can aid decision-making in such cases (e.g., Brose et al., 2020). Where there is little evidence of a variable's stability, best practice should be to measure a variable on multiple occasions. Increasing evidence of

² There are a large number of excellent methodological primers available in the literature, which we refer interested readers to (e.g., Singer and Willet 2003; Little 2013; McArdle and Nesselrode 2014).

³ Although static variables can be captured at any time point, the researcher must consider the impact of attrition on any such decisions.

stability may then allow the researcher to simplify future data collection waves.

With regard to multi-item measures, Ohly et al. (2010) recommend that the number of items per scale be limited when collecting repeated measures of constructs, and there may be other benefits to this approach. For instance, McCormick et al. (2020) find that the amount of within-person scale variance captured is reduced when scales contain greater numbers of items. Of course, of primary concern is the validity of the measure (Hulland et al., 2018), and so care needs to be taken in the use of shortened measures, especially without empirical evidence for doing so. That said, each item of a multi-item reflective measure should “describe the same underlying construct, and [...] capture the construct in its entirety” (Edwards, 2011, p. 373), and thus it may be possible to assess repeatedly-measured conceptual variables in the model using single items. Hayduk and Littvay (2012, p. 1) argue, for example, that the most sophisticated model development occurs when researchers use “the few best indicators – possibly even the single best indicator of each latent” (see also Hayduk, 1996). One approach to these decisions may be to pretest single-item measures to determine the degree to which they covary with established multi-item measures. Although research on this front is in its infancy, it has been proposed that convergent validities in excess of 0.70 are evidence of acceptable validity (Allen et al., 2022).

Notwithstanding any required testing for the validity of single items, it is also important to assess a) longitudinal measurement invariance, and b) the potential for bias caused by any common method factors. Regarding the former, it is essential to be sure that the measures used across the different data collection waves perform equivalently, otherwise analysis across time periods is not meaningful. This can be done using likelihood tests within a confirmatory factor model, similar to the cross-national analogue (Hoffman, 2015). Further, when data on a dependent and independent variable are collected from the same source (e.g., an individual respondent), there is potential for common method variance (CMV) to bias the results. Techniques to evaluate CMV are well-covered in the literature (see Baumgartner et al., 2021; Steenkamp & Maydeu-Olivares, 2021), and ways to assess and remedy CMV (e.g., using Lindell and Whitney’s (2001) marker-item approach) may be required. Fortunately, temporal separation of measurement activity is a key method for reducing common method bias (Hulland et al., 2018), and is an inherent aspect of within-person research designs.

Finally, scales that may be valid for between-persons research must be examined to ensure they demonstrate adequate psychometric properties at the within-person level (see Mogle et al., 2014). For example, within-person measures must ensure temporal consistency across items to establish a harmonious temporal reference point (e.g., they should refer to the same time of day in all items). Not doing so increases

the chances of confounding factors. For example, the emotional exhaustion scale in the reduced Maslach burnout inventory includes items referring to both the beginning and end of the working day, alongside two items without any temporal reference point (Ambrose et al., 2014). In a within-person context, this by itself could cause intra-individual variation in scores across time, confounding other relationships.

Scales which compare against an external benchmark that itself has the capacity to change over time are also not appropriate when examining within-person change, since it would be unclear whether observed changes are due to the individual changing or to the external benchmark. For example, an item measuring subjective effort may ask salespeople to rate the amount of effort exerted ‘compared to other salespeople’ (e.g., Hughes, 2013), or a measure of their performance may assess the percentage of their sales quota achieved (e.g., Ahearne et al., 2005). While acceptable when measuring at a single time point, these external benchmarks (other salespeople, quotas) can be problematic in repeated-measures contexts. A salesperson’s effort may not change over time, but their *answer* may change due to change in *other* people’s effort. Likewise, a change in a ‘percentage’ or ‘share’ type measure may occur because of a change in the denominator, not the numerator, and so a change in the percentage of quota achieved may not indicate a change in performance per se (numerator) but may occur because of a change in the quota (denominator). Bolander et al. (2021) discuss such issues in the context of salesperson performance, but there are many other possible measures where this may be of concern. The use of the external benchmark can mean that *what* is being measured changes in itself. Key here then is that items must remain consistent in what they measure not only *across* people, but also *within* a single person over time.

When considering analysis methods for within-person research, it is important to realize that the within-person nature of a study is not defined by its analysis method, but by the employment of a research design incorporating repeated measurements of all relevant variables. There are many techniques that can be used to examine within-person questions, including specific latent growth models, cross-lag panel models, and fixed effects models (see Childs et al., 2019; Newsom et al., 2013). However, because of their frequent application in various areas of marketing research, multi-level models are a particularly useful point of departure when considering analysis options for within-person marketing research,⁴ especially when examining within-person variability (Podsakoff et al., 2019).

⁴ The various issues involved in the actual choice of analytic method are beyond our scope here. However, such information is readily available in many texts, and thus, we refer interested readers to the excellent analytical primers of Little (2013), McArdle and Nesselroade (2014), and Singer and Willet (2003).

Table 2 Overview of theoretical, methodological and considerations underpinning within-person research

Within-person consideration	Key literature	Empirical demonstration
Theoretical		
Understanding how and when to theorize at the within-person level	The present article	<i>Self-efficacy, effort, and performance</i> – The present article
Defining conceptual variables and interactions at the appropriate level	Aguinis et al. (2013); Hoffman (2007)	Leadership self-identity – Venus et al. (2019)
Establishing an appropriate time frame and measurement lag	Hoffman (2015)	<i>Stress–strain relationship</i> – Ford et al. (2014)
Methodological		
Choosing the appropriate research design for a within-person study	Charness et al. (2012); Podsakoff et al. (2019)	<i>Job performance</i> – Dalal et al. (2020)
Critically evaluating scale items to ensure within-person validity	The present article	<i>Emotional exhaustion</i> – The present article
Ensuring that items and scales are reliable and valid over time	Van de Schoot et al. (2012)	<i>Negative and positive affect</i> – Eisele et al. (2021)
Analytical		
Ensuring adequate separation of within-person effects	Curran and Bauer (2011); Wang and Maxwell (2015)	<i>Stress & mood</i> – Hoffman and Stawski (2009)
Understanding how to deal with various forms of missing data	Feng et al. (2013)	<i>Positive affect</i> – Silvia et al. (2014)
Ensuring the reliability of within-person findings	Neubauer et al. (2019); Nezelek (2017); Yang et al. (2022)	<i>Emotion</i> – Brose et al. (2020)
Utilizing the correct analysis tool for different within-person questions	Latent growth modelling – Curran et al. (2014); Multilevel SEM – Rush et al. (2019); Reciprocal relations – Usami et al. (2019); Analysis tool decision tree—Childs et al. (2019)	Latent growth modelling – <i>Burnout</i> – Lundkvist et al. (2018); Multilevel SEM – <i>Resilience</i> – Ong and Leger (2022); Reciprocal relationship – <i>Perceived leadership and employee well-being</i> – Rudolph et al. (2022)

Multiple data collection waves add the potential for bias due to panel mortality. To understand whether there are any significant systematic differences between the two groups, it is important therefore to compare the characteristics of the full sample with those who dropped out. Further discussion on dealing with attrition can be found in Schafer and Graham (2002). Table 2 presents an overview of some of the important considerations at the theoretical, methodological, and analytical levels. Example key literature and empirical papers are provided to demonstrate the relevant considerations.

In the following section, we demonstrate a number of key aspects of conducting within-person research in marketing, using a study of between- and within-person variability in self-efficacy, effort, emotional exhaustion, competitive intensity, anxiety and performance, which have heretofore been key variables of interest in marketing research. Although it is not possible to specifically demonstrate every form of within-person decision discussed above, our example highlights a number of key areas of importance and demonstrates the theoretical and empirical implications of taking a within-person approach to a topic of importance.

Empirical demonstration

The model

Marketing research has frequently reported that improvements in self-efficacy lead to improvements in performance, and it is often argued the routes by which self-efficacy operates on performance include direct and indirect mechanisms, for instance by boosting the effort that salespeople exert (e.g., Ahearne et al., 2005; Krishnan et al., 2002; Peterson, 2020). A practical recommendation to managers sometimes specified in the implications sections of this research stream is that managers should increase the self-efficacy of the sales force (e.g., Fu et al., 2010; Good et al., 2022). However, such recommendations are solely built upon between-persons empirical evidence (see Web Appendix 1).

To demonstrate the ways that the relationships and concepts in a model can shift in meaning when between-persons and within-person theory are considered (even while referring to the same real-world attributes), and how the hypotheses may thus differ in specification, we present a simple

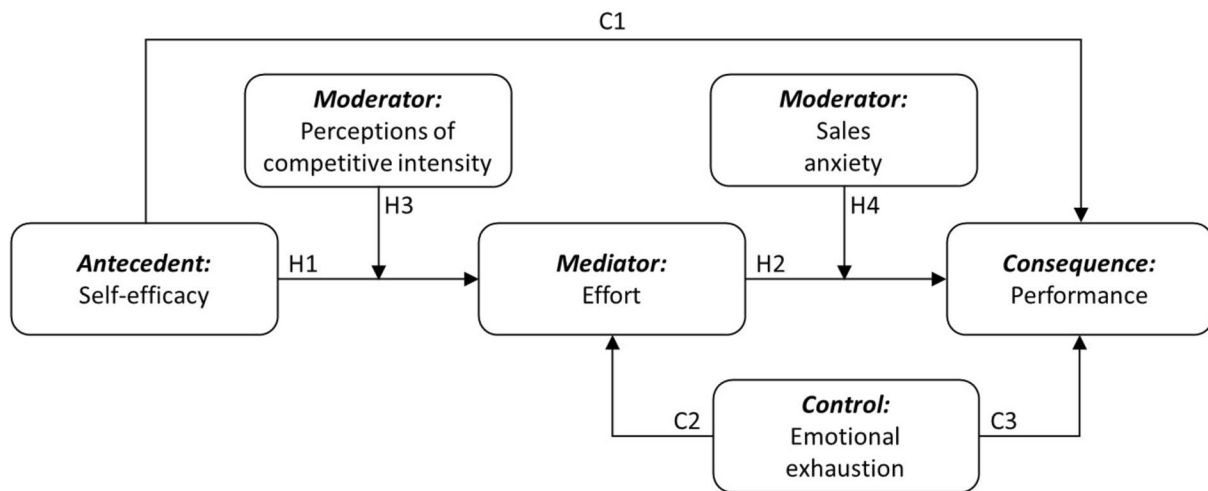


Fig. 1 Example of a moderated mediation model of self-efficacy's effect on performance

model (Fig. 1) in which salesperson self-efficacy is related to sales effort (H1). In turn, effort levels drive performance (H2). The relationship between self-efficacy and effort is conditional on salespeople's perceptions of the competitive environment in which they operate (H3), a factor that acts to shape their assessments of the effort required to succeed. Likewise, the outcome of effort is conditional on sales anxiety (H4), an emotion that can lead to poor customer connectiveness, which will reduce the effectiveness of any effort deployed (Belschak et al., 2006). Researchers typically also wish to control for various relationships that are supposedly well understood and established, and so in Fig. 1, self-efficacy has a direct relationship with performance (C1), and since it is argued that emotional exhaustion is related to effort (Kemp et al., 2013) and performance (Babakus et al., 1999; Lussier et al., 2021), these latter paths are modelled as controls too (C2 and C3, respectively).

Critically, there are major differences in the theories and conceptual variables implied in the models emerging from Fig. 1 when a between-persons approach is driving theory development, versus when a within-person logic is used to create the theory. This is the case even if the real-world attributes are the same in the models at each level. Table 3 shows how these theories are homologous and heterologous across the two levels, and pinpoints how the variables involved in the hypotheses are conceptually different across the levels.

Exploring the model first with a between-persons logic, the theorist might argue that self-efficacy is closely tied to ability, in that self-efficacy's main cognitive purpose is to act as an indicator to the individual of their ability to perform a task (Vancouver & Kendall, 2006). Those lower in self-efficacy see themselves as being less able to perform, and are thus more likely to give up faster, persist less to achieve a

goal, and target lower goals (Bandura, 2012) relative to those higher in self-efficacy. These effects should result in greater (lesser) effort put forth from those who are higher (lower) in self-efficacy, as outlined in Table 3 (H1B).

However, at the within-person level, there are additional issues at play, and so heterologous effects may exist across the between-persons and within-person levels. Specifically, Vancouver and Purl (2017) suggest that, where goal progress is hard to determine, self-efficacy functions as a way for the individual to gauge the *effort required* to successfully perform, and the performance benefits achieved from a given level of effort. Thus, self-efficacy creates an expectation of the probability that the individual can achieve a given goal with a given level of effort (Peterson, 2020). Importantly, within the sales context, goal progress is often ambiguous (Bonney et al., 2014). Furthermore, salespeople commonly experience unjustifiably high levels of confidence (Bonney et al., 2020), and so may be more likely to miscalibrate (underestimate) the effort required to perform their individual tasks (Vancouver & Purl, 2017). Given this situation, increases in self-efficacy may lead to the development of even more unrealistic assumptions (underestimates) regarding the effort needed to achieve specific goals, and reduced reason to work as hard to achieve those outcomes (Vancouver et al., 2002). Accordingly, increases in self-efficacy may be negatively related to subsequent effort (Table 3, H1W). Indeed, experimental evidence outside marketing demonstrates potentially negative within-person effects of self-efficacy increases on performance (see Web Appendix 2 for an overview).

Examining the above hypotheses, it can be seen that the discussions concerning how self-efficacy impacts effort (and subsequently performance) differ across the levels of analysis. In brief, at the between-persons level higher

Table 3 Homologous/heterologous theories and meanings of conceptual variables at the between- within- and cross-levels

Hypothesis specifications and conceptual variables involved			
	Between-persons level (B)	Within-person level (W)	Cross-level (between-persons and within-person levels) (BW)
Main effects			
H1 Self-efficacy → Effort Expected relationship: <i>heterologous</i> across levels (both positive and negative relationships are expected)	H1B Level of self-efficacy across salespeople is positively related to subsequent effort. Positive coefficient expected.	H1W Change in self-efficacy is negatively related to subsequent effort. Negative coefficient expected.	
H2 Effort → Performance Expected relationship: <i>homologous</i> across levels (only positive relationships are expected)	H2B Level of effort across salespeople is positively related to performance. Positive coefficient expected.	H2W Change in effort is positively related to performance. Positive coefficient expected.	
Moderation			
H3 Self-efficacy x Perceptions of competitive intensity → Effort Expected moderator coefficient: <i>homologous</i> across levels (competitive intensity is expected to make the positive relationship more positive and the negative relationship less negative) ^{A1}	H3B The positive relationship between level of self-efficacy across salespeople and subsequent effort is stronger in magnitude (more positive) for salespeople who perceive competition to be higher. Positive coefficient expected.		H3BW The negative relationship between change in self-efficacy and subsequent effort is weaker in magnitude (less negative) for salespeople who perceive competition to be higher. Positive coefficient expected.
H4 Effort x Sales anxiety → Performance Expected moderator coefficient: <i>homologous</i> across levels (sales anxiety is expected to make the positive relationships weaker) ^{A2}	H4B The positive relationship between level of effort across salespeople and performance is weaker in magnitude (less positive) across salespeople who experience higher levels of sales anxiety. Negative coefficient expected.		H4BW The positive relationship between change in effort and performance is weaker in magnitude (less positive) for salespeople higher in sales anxiety. Negative coefficient expected.
Controls			
C1 Self-efficacy → Performance Expected relationship: <i>heterologous</i> across levels (both positive and negative relationships are expected)	C1B Level of self-efficacy across salespeople is positively related to subsequent performance. Positive coefficient expected.	C1W Change in self-efficacy is negatively related to subsequent performance. Negative coefficient expected.	
C2 Emotional exhaustion → Effort Expected relationship: <i>homologous</i> across levels (only negative relationships are expected)	C2B Level of emotional exhaustion across salespeople is negatively related to subsequent effort. Negative coefficient expected.	C2W Change in emotional exhaustion is negatively related to subsequent effort. Negative coefficient expected.	
C3 Emotional exhaustion → Performance Expected relationship: <i>homologous</i> across levels (only negative relationships are expected)	C3B Level of emotional exhaustion across salespeople is negatively related to subsequent level of performance. Negative coefficient expected.	C3W Change in emotional exhaustion is negatively related to subsequent performance. Negative coefficient expected.	

T: The 'Perceptions of competitive intensity x Self-efficacy' coefficient is expected to be positive for both the between-persons level and the cross-level situations

Z: The 'Sales anxiety x Effort' coefficient is expected to be negative for both the between-persons level and the cross-level situations

self-efficacy aids perseverance towards more difficult goals, whereas at the within-person level performance

ambiguity comes into play, and increasing self-efficacy can lead to overestimations of goal progress in such

situations, resulting in lesser effort being put forth. Such an effect would not be seen at the between-persons level, since salespeople higher in self-efficacy could still expect to be exerting greater effort compared to lower efficacious salespeople.

That said, just because one part of the model in Fig. 1 is expected to differ across levels, this does not mean all parts must. When underpinning casual mechanisms are similar, homology across levels should be expected. For example, the relationship between effort and performance could be expected to be consistent across levels. The between-persons effect (Table 3, H2B) is underpinned by the logic that individuals applying more effort towards a task will likely perform better in comparison to individuals applying minimal effort (Hughes, 2013). In a similar vein, the within-person effect (Table 3, H2W) is underpinned by the knowledge that, if an individual increases the effort they employ towards a task, this increased effort is expected to result in greater task performance (Fisher & Noble, 2004). There is no reason to expect here that the between- and within-person approaches will deliver different results.

These expected effects may vary across individuals, and accordingly attention must also be given to understanding potential moderators of these effects (e.g., Dalal et al., 2014). In the between-persons situation, where one might expect to see salespeople with higher levels of self-efficacy expend greater effort, in those cases where they *also* perceive higher levels of competitive intensity, the *magnitude* of that association may be even greater. Thus, salespeople low in self-efficacy may also exhibit reduced effort in more competitive environments compared to those in less competitive environments, simply due to their assessment of the reduced chances of success. On the other hand, salespeople higher in self-efficacy may redouble their efforts in competitive environments (Bonney et al., 2014) due to their belief in their own abilities to beat the competition (Table 3, H3B).

At the *within*-person level however, the negative relationship between self-efficacy and effort occurs due to a miscalibration in which goal progress is overestimated, and anything that can reduce this miscalibration has the potential to reduce the negative self-efficacy effect (Vancouver & Purl, 2017). Specifically, highly competitive environments may act to decrease salespeople's tendency to reduce effort as their self-efficacy increases, since they may be *less* likely to presume that smaller amounts of effort are needed to perform the sales job. Accordingly, the magnitude of the negative relationship between change in self-efficacy and subsequent effort may be smaller for salespeople operating under higher levels of competition relative to those operating under lower levels of competition. What is of interest here is that the theory invokes multiple conceptual variables, two of which (self-efficacy and effort) are considered

at the within-person level, and one (variance across salespeople with respect to perceived competitive intensity) is at the between-persons level. Accordingly, the logic of this hypothesis requires cross-level variables and hypotheses (see Table 3, H3BW). The moderating relationships are homologous across levels since in both H3B and H3BW the coefficient of the 'self-efficacy x perceptions of competitive intensity' variable on subsequent effort is expected to be positive.

The effect of effort on performance may also vary according to how effectively the effort is deployed (Alavi et al., 2022). In the sales context, salespeople who experience sales anxiety (Belschak et al., 2006) may find that negative emotions of this kind undercut their efforts to bond and form rapport with customers (Kidwell et al., 2021). In other words, at the between-persons level, all other things equal, more anxious salespeople will be less effective at deploying their efforts relative to less anxious salespeople, and so one would expect to see a weaker relationship between effort and performance in salespeople for whom sales anxiety is greater (Table 3, H4B). Such a logic is entirely homologous at the within-person level, where one would expect to see the performance benefits an individual obtains from increasing their effort being lower in salespeople experiencing more sales anxiety and higher in salespeople experiencing less sales anxiety (Table 3, H4BW). Note here that the latter again implies a cross-level mixture of conceptual variables and logics.

The researcher also needs to be careful when specifying control paths, since they may be homologous or heterologous when applied to the between- and within-person levels. Take the direct relationship between self-efficacy and performance. The latter is often included over and above mediated (indirect) paths to control for any unmeasured causal mechanisms by which self-efficacy might impact on performance. For instance, studies suggest salespeople with higher levels of self-efficacy might be more adaptable than those lower in self-efficacy (Ahearne et al., 2005), and better at working smart (Krishnan et al., 2002), so may also be better performers (Schrock et al., 2021) – see Table 3, C1_B. Yet, when examined through a within-person lens, the direct causal relationship between increases in self-efficacy and subsequent performance are less obvious. As hinted at in H1W, increases in self-efficacy in an already-confident salesperson may lead them to escalate commitment to misprioritized opportunities (Mayberry et al., 2018), ignore some (comparatively) low-hanging fruit, and pursue more challenging sales targets under the misguided belief that they have the ability to win those sales (cf. Kidwell et al., 2021). These kinds of logics point at the possibility that the direct relationship between within-person self-efficacy and subsequent performance may be negative (see H1W).

Lastly, the literature on sales performance also argues consistently for the detrimental impact of emotional exhaustion in

salespeople (e.g., Carballo-Penela et al., 2019; Darrat et al., 2016; Rutherford et al., 2011), and the core logic appears to be homologous across levels. Salespeople higher in emotional exhaustion are less capable of expending effort (Kemp et al., 2013) than their less emotionally exhausted colleagues (C2B) and those whose emotional exhaustion increases may also find that their effort levels are less as a consequence (C2W). Likewise, those higher in emotional exhaustion are likely to depersonalize (Lings et al., 2014) and interact poorly with customers (Darrat et al., 2016) relative to their less exhausted counterparts, and salespeople facing increasing feelings of emotional exhaustion are likely to experience similar outcomes, resulting in lower performance for those higher in (C3B), and those dealing with increases in (C3W), emotional exhaustion (Babakus et al., 1999; Lussier et al., 2021).

Methodological decisions

In this section we focus on the specific decisions that were made in order to generate data appropriate to test the models of self-efficacy detailed in Table 3 (full details of our data collection methodology are given in Web Appendix 3). Two smaller-scale pilot studies provided important guidance on the decisions taken for the full study.

The full study consisted of 4 data collection waves to maximize potential power, given the resources that were available, and in conjunction with the decisions made regarding the time period and time lag. Specifically, since we wished to model fluctuations in self-efficacy as our key predictor, we drew from Li et al. (2020) who demonstrated that levels of self-efficacy can vary from month to month, alongside our pilot studies, which provided empirical evidence that all the key model constructs (self-efficacy, effort, and performance) also varied across monthly time periods. Thus, we decided to cover a period of 4 months with monthly repeated measurements.

The minimum sample size that is recommended for within-person analysis of the type we wished to conduct is between 50–100 people at each wave (McNeish, 2017). From this point, we considered the likely panel mortality rates in order to determine (with a margin for error) the first-wave sample size. Our pilot studies had demonstrated that mortality rates of up to 90% were possible over the 4 waves, which could introduce substantial bias. Accordingly, we made a number of decisions with the intention to minimize panel mortality. In particular, because we employed a panel-data collection company, we were able to utilize an upward-ratcheting financial incentive, of \$2, \$3, and \$5 for completed questionnaires at waves 2, 3, and 4, with this clearly communicated to respondents in advance of each wave. This was successful in reducing attrition levels, with the final sample comprising 75 salespeople across all four

waves (from an original sample of 153 salespeople at wave 1).

Finally, since not all constructs were expected to vary across the 4-month time period of the study, we created two separate instruments in an effort to reduce burden on our respondents. In the first period, we measured our core constructs of self-efficacy, effort, and performance, as well as controls of emotional exhaustion, prior performance, and salesperson knowledge. We also measured our two moderators of competitive intensity and sales call anxiety. However, only self-efficacy, effort, performance, and emotional exhaustion were expected to fluctuate month-by-month (based on our model and pilot data), and as such only these measures were included in the subsequent 3 waves. To further reduce load on our respondents, effort, performance, and competitive intensity were measured using single items. This choice was based on the characteristics of the variables in question: they were all deemed to be relatively concrete compared to the more abstract construct of self-efficacy and anxiety. Full details of the measurement and assessment process are in Web Appendix 3.

Analysis decisions

As detailed earlier, there are a number of analytical issues specific to repeated-measures data. First, as well as a typical confirmatory factor analysis (CFA), the measures were scrutinized for invariance across waves (see Web Appendix 3 for full results). No major issues were discovered and the measures were considered suitable for further analysis.

Once measure purification was concluded, panel mortality was considered. Data were checked using t-test comparisons on all study variables and demographics, to ensure that there were no significant differences between those participants who had dropped out at wave 1, and those who completed the study. No significant differences were found, and the data revealed no underlying trends for attrition (see Web Appendix 4 for full modelling details).

To analyze the various between- and within-person effects hypothesized in our model (see Fig. 1), a multi-level model was employed, following the guidance of Podsakoff et al. (2019). In order to parsimoniously demonstrate the issues involved, we employ the MLMED macro for SPSS (Rockwood, 2017, 2019). Our model is a multi-level moderated mediation model, with Level 1 being the multiple measurement waves for each salesperson, and Level 2 being the individual salespeople in our sample. Further, we temporally separated salesperson effort and performance by one time period from self-efficacy, to help deal with potential common method bias (Hulland et al., 2018), and assist in causal interpretation of our results (Pulk, 2022). As such, the Level 1 (time varying) variables in our theoretical model are

Table 4 Overview of homology/heterology in findings across levels

		Findings regarding signs of relationships and degree of homology				
		Between-persons level	Within-person level	Cross-level	Homologous/Heterologous Expected	Found
Main effects						
H1	Self-efficacy → Effort	H1B = ns	H1W = -		Heterologous	Heterologous
H2	Effort → Performance	H2B = +	H2W = +		Homologous	Homologous
Moderation						
H3	Self-efficacy x Perceptions of competitive intensity → Effort	H3B = ns		H3BW = +	Homologous	Heterologous
H4	Effort x Sales anxiety → Performance	H4B = ns		H4BW = -	Homologous	Heterologous
Controls						
C1	Self-efficacy → Performance	C1B = +	C1W = ns		Heterologous	Heterologous
C2	Emotional exhaustion → Effort	C2B = +	C2W = -		Homologous	Heterologous
C3	Emotional exhaustion → Performance	C3B = ns	C3W = ns		Homologous	Homologous

+ : relationship is positive at 10% or better.
 - : relationship is negative at 10% or better.
 ns: relationship is not significant at 10% or better.
 shaded: no relationship hypothesized or sought.

+ : relationship is positive at 10% or better
 - : relationship is negative at 10% or better
 ns: relationship is not significant at 10% or better
 shaded: no relationship hypothesized or sought

self-efficacy, effort, and performance, as well as the control variable emotional exhaustion. The Level 2 (time invariant) variables are the two moderators competitive intensity and anxiety, as well as a set of Level 2 controls that are not depicted in Fig. 1: salesperson knowledge, role duration, and average prior performance.

Following common practice in multi-level modelling, all multi-item measures were parceled after assessment of their validity (Williams et al., 2009). Since the data was nested and unbalanced, maximum likelihood estimation was utilized (Heck et al., 2013; Maas & Hox, 2005). To separate between- from within-person effects, Level 1 variables were person-mean centered (Curran & Bauer, 2011). The latter transformation provided the required within-person variation for model testing.

Results

The detailed results of the model testing are presented in Web Appendix 4. However, for the purposes of providing empirical evidence on the potential for heterologous and homologous relationships to exist when one theorizes at the between-persons level, the within-person level, or at the cross-level, we focus on whether our expectations regarding

the degree of homology in the relationships modeled (as specified in Table 3) are supported. Table 4 provides an overview of these results.

For H1, we expected heterologous relationships, with between-persons self-efficacy being positively related to subsequent effort (H1B), but salespeople experiencing increases in self-efficacy over time also reporting less subsequent effort (H1W). Interestingly, the effect of between-persons self-efficacy on effort (H1B) was non-significant (rather than significantly positive). Nonetheless, the findings for H1 are heterologous since the relationship between change in self-efficacy and subsequent effort (H1W) was negative, as expected. Regarding H2, we expected homologous relationships such that between-persons (H2B) and within-person (H2W) effort would be positively related to performance. The results were consistent with this expectation, with the sign of both relationships being positive.

Both H3 and H4 involve between-persons and cross-level relationships. While for the between-persons hypotheses (H3B and H4B) the causal forces at play emerge only from differences between individuals, for the cross-level hypotheses (H3BW and H4BW), the causal forces assumed to be at work exist both between salespeople and within salespeople. In both H3 and H4 it was expected that

the relationships would be homologous across the levels. For H3B, the expectation was that the anticipated positive direct relationship between salespeople's self-efficacy and effort would be positively moderated by a salesperson's perceptions of competitive intensity, resulting in an overall stronger (more positive) relationship between self-efficacy and effort among those salespeople who perceive competition to be more intense. However, the between-persons self-efficacy-effort relationship was not significant (as reported for H1B), and levels of perceptions of competition did not change that (H3B coefficient was not significant). In terms of H3BW, a homologous moderator effect was expected such that the negative effect of within-person self-efficacy would also be positively moderated by perceptions of competitive intensity. The findings support H3BW (the coefficient was positive and significant), implying that the within-person negative relationship between salespeople's self-efficacy and subsequent effort is less negative for those perceiving competition to be higher. However, because of the lack of support for H3B, rather than being homologous across levels, the moderating role of perceptions of competition is heterologous.

A similar situation of unanticipated heterologous relationships exists for H4. Here, it was expected that the assumed positive relationships involving between-persons levels of effort and performance (H4B), and the positive relationship between within-person increases in effort and performance (H4BW), would be weaker (i.e., less positive) among salespeople higher in sales anxiety. Yet, although the expected moderation was observed for H4BW, a non-significant relationship was returned for H4B. Again, instead of the anticipated homology across the relationships, the empirical findings indicate that the moderating role of sales anxiety is heterologous.

Several control paths were included. The first was a direct relationship between self-efficacy and performance. C1B anticipated a positive relationship (those higher in self-efficacy will also perform better), and the results were consistent with this. The within-person relationship (C1W) was expected to be negative (increasing self-efficacy should result in reduced performance), but the result for C1W indicated a non-significant relationship. Despite the C1W relationship not being entirely as expected, overall, the relationships were heterologous as anticipated.

Lastly, emotional exhaustion was modelled as a control for both effort (C2) and performance (C3). In both instances, the relationships were projected to be homologous across the between-persons and within-person levels. However, against expectations, in the case of C2B, between-persons emotional exhaustion was positively related to relative effort, whereas for C2W, changes in emotional exhaustion were negatively related to subsequent effort. Accordingly, once again, the relationships were heterologous across levels.

For C3, neither of the relationships with emotional exhaustion and subsequent performance were significant at either the between- (C3B) or within-person (C3W) levels, and so while the relationships are homologous as anticipated, neither behaved as predicted.

Discussion and implications

In this paper we present the case for greater attention to be paid to within-person theories, arguing that researchers have an opportunity to develop new marketing knowledge by building theory at the within-person level. Between-persons approaches to research have dominated a number of sub-fields of marketing research for many years, and have driven major advances in our knowledge of core marketing phenomena. As such, it is important to be clear that we do not suggest that these approaches have no value, nor that they should be replaced wholesale by within-person approaches. Between-persons theories are appropriately tested by between-persons research, and these should drive appropriate between-persons implications and recommendations. In the present paper, we demonstrate that adding a within-person approach to marketing research has much to offer, greatly enhancing the ability of marketing research to present richer theoretical insights and practitioner implications.

Conceptually-speaking, there is nothing especially unique about the individual versus other marketing-relevant units of analysis such as firms, stores, teams, or brands. In this sense, it might be more inclusive to term the approach 'within-unit'. However, we maintained a focus on the level of the individual, using the term 'within-person'. We did this, a) to maintain consistency with the relevant literature, and also b) because the most significant gap in marketing knowledge at present concerns the lack of consideration of individual-level within-person change. Indeed, longitudinal variation in other units has received some attention in marketing over the last quarter-century (e.g., Feng et al., 2015; Libai et al., 2009; Sleep et al., 2015). However, within-person approaches are considerably rarer, perhaps due to the aforementioned difficulties concerning data collection.

We also empirically demonstrate that problems can occur when either, a) within-person theoretical mechanisms are proposed (either explicitly or implicitly) but testing is undertaken using between-persons empirical designs, or b) between-persons empirical evidence is used to drive (again, either explicitly or implicitly) within-person practical implications. Using self-efficacy as an example, when we develop theory for self-efficacy's outcomes that accommodates aspects of both between-persons and within-person logics, we find that critical hypotheses emerge as candidates for heterologous relationships. The results of our empirical testing also demonstrate the

Table 5 Contrasting between- and within-person theories

Characteristics of between-persons theory	Characteristics of within-person theory	Disconnect between between-persons and within-person implications
The group is the unit of analysis	Individuals are the unit of analyses	General change between groups of people is not necessarily identical to changes within each individual. Thus, there is strong potential for inappropriate generalization from solely between-persons findings to within-person processes and changes
Time is not incorporated	Temporal progression is central to theoretical development	Between-persons theory presents implications that are not necessarily generalizable beyond the period examined, thus not allowing for a full understanding of how effects evolve over time. Conversely, within-person theory can consider both short- and long-term changes in causes and effects
Dynamics in phenomena are not considered	Phenomena are considered to be dynamic	Ignoring the dynamics of a process when they exist in reality is a simplification which can lead to inaccurate conclusions and implications when the findings of a static model are transferred back to the real dynamic process without consideration of this difference
Examines differences /associations	Examines changes/ fluctuations	An observed association between x and y does not imply that changes in x will result in equivalent changes in y. Assuming automatic translation of observed associations between variables into implications for changes leads to possible incorrect implications for theory and practice. Implications should not be transferred across levels
Examines average effects at the group level, individual differences in these effects are treated as error	Examines effects within the individual. Variability in individual-level effects may be incorporated in the theory	High individual-level variability in between-persons effects is considered problematic, and indicative of a null result. However, in within-person theory, variability in individual-level effects can help explain how effects may differ between different individuals, enabling more granular implications

complexity that comes hand-in-hand with the building and testing of theories that straddle the between- and within-person domains. If anything, the results point to the possibility that there are *greater* levels of heterology across the domains than we suspected, such that heterologous relationships may exist across simple bivariate relationships, simple interactive relationships taking place within the between- and within-person domains, and more complex cross-level interactive relationships which are built on mechanisms that simultaneously span both levels.

Accordingly, arguably the most important theoretical insight emerging from our work is that marketing researchers must ensure that they are not inadvertently mixing between- and within-person conceptualizations, or deriving implications without evidence at the required level. Table 5 contrasts a set of exemplar features of a within-person theory with those of a between-persons theory, and highlights the potential disconnects between the implications which can justifiably be drawn. Using this, researchers can check the consistency of their theoretical explanations and models.

In particular, when developing theory about the relationships between variables in their models, researchers must be especially careful not to invoke, either directly or inadvertently, mechanisms which imply effects existing at a different level to that which they are theorizing about. Yet it is potentially an easy trap to fall into. Just because variable *names* are used interchangeably across between- and within-person levels of theory, referring to the same real-world attribute, does not mean that the underlying conceptual logic for causes and effects is identical. Take self-efficacy as an example. At the between-persons level, causality emerges as a feature of different people possessing different quantities of self-efficacy, and so the causal forces emerging from variance in self-efficacy at the between-persons level are grounded in the *relative quantities of self-efficacy that people within a group possess*. At the within-person level, the causal force of self-efficacy is bound up in the fact that a person experiences a *change in self-efficacy within themselves*. At a purely within-person level, then, the causal potency of self-efficacy is orthogonal to the absolute amount of self-efficacy a person possesses, or a person's ranking in terms of their relative amount of self-efficacy; causality is entirely

Table 6 Opportunities for within-person research contributions

Theoretical Contribution	Managerial Implications
Validation of the within-person psychometric properties of existing measurement scales	Provides reliable tools that managers can use to assess their employees over time
Understanding the antecedents to short-term variability in marketing variables/phenomena	Provides insights for managers concerning how to optimize different marketing phenomena over the short-term, and how specific marketing phenomena varies over time in response to other marketing phenomena
Understanding the consequences of short-term variability in marketing variables/phenomena	Informs managers of how specific marketing phenomena varies over time, and the resulting consequences of such variability
Understanding the antecedents to long-term change in marketing variables/phenomena	Provides developmental insights for managers that can aid in management of employees over time
Understanding the consequences of long-term change in marketing variables/phenomena	Informs managers of how change evolves over time, and the longer-term impact of such changes
Understand how marketing processes evolve over time	Provides managers with a greater understanding of the evolution of marketing process occurring with their employees, which allows them to identify early signs of a process initiating

a matter of how much *change* occurs in self-efficacy, and of the direction of change (increases or decreases). It can be seen that the essence of *what is varying* is very different across the between- and within-person levels, despite the fact that the *concept* may be referring to the same real-world-attribute (i.e., self-efficacy).

It is not surprising, then, that in our development of self-efficacy theory, we found that in some situations, different causal mechanisms are likely to be at play across different levels. The results of our empirical analysis support this, and suggest that long-standing assumptions in sales and marketing research concerning the beneficial outcomes of developing self-efficacy may need to be rethought.

	Within-person explanations are given: why change in <i>x</i> should cause individuals to change in <i>y</i>	Between-person explanations are given: why those who have different levels of <i>x</i> should have different levels of <i>y</i>
Repeated measures over time are taken for <i>x</i> and <i>y</i>	Managerial interventions to change <i>x</i> are supported as a cause of change in <i>y</i> .	Focus on choices between individuals at different levels of <i>x</i> . Interventions to change <i>x</i> are supported when pre-existing evidence shows change in <i>x</i> should cause change in <i>y</i> , or that mechanisms are homologous across levels.
<i>x</i> and/or <i>y</i> are only measured at a single time point	Interventions to change <i>x</i> are supported to the extent that there is pre-existing or additional evidence that within- and between-persons mechanisms are homologous. Stronger evidence for homologous mechanisms leads to stronger support for interventions, and vice versa.	Focus only on choices between individuals at different levels of <i>x</i> , unless strong evidence of homology across levels is available.

Fig. 2 Managerial decision matrix. Note: Managers should use this tool to help decide what managerial actions are justified from the results of empirical research which reports a relationship between *x* and *y*. Other versions of this tool could be created for other specific research results

It may still be tempting for researchers to overlook within-person research designs in favor of between-persons designs if their conceptual model predicts that the between-persons relationships are exactly homologous with the expected within-person relationships. However, model testing might show that expected homologous relationships are, instead, heterologous. For example, we anticipated several homologous relationships across the levels, but demonstrated that these predictions may not hold. Furthermore, even if the relationships being tested are homologous, it seems likely that by using within-person designs, the researcher will be able to detect within-person relationships that exist more directly—and likely with greater power and accuracy, opening up new ways to explore key relationships and their boundary conditions.

The types of implications that can be justifiably drawn from research at different levels are also substantively different. Between-persons research is primarily able to drive managerial implications regarding the selection of individuals; recruitment, task allocation, consumer segmentation, and the like (McCormick et al., 2020), alongside providing initial evidence that having high levels of a variable may be more beneficial/harmful compared to low levels. What between-persons research *cannot* justify is the implication that actual *changes* in the variable will result in changes in some consequence. This is where within-person research holds significant value, by understanding *what* will work for *who*, and *when*.

That said, while implications from within-person research can be powerful, scholars should not overstate the generalizability of their findings. Within-person studies typically examine either short-term variability or long-term change, rarely both. Studies examining one form of change should not propose implications concerning another form. Short-term variability provides implications concerning the optimization of variables across a small time period, whereas long term change is more concerned with development over longer periods of time. Our empirical demonstration, for example, is limited in the sense that we focus on short-term fluctuation. It is plausible that longer-term development of self-efficacy could reveal other substantive performance benefits or desirable outcomes. Context is important in within-person research, and marketing scholars should be transparent regarding the limitations to their provided implications. Table 6 provides several suggestions for the ways in which marketing scholars can contribute to theory and practice by conducting within-person research. Similarly, Table 1 was presented earlier to outline a set of exemplar theories which could benefit from within-person research, and in combining the opportunities presented in Table 6 with the marketing theories identified in Table 1 we provide numerous avenues for marketing scholars to begin within-person research programs.

Finally, we encourage managers themselves to use our work to evaluate actionable implications from marketing research. It is not required that managers know the fine details of methodological approaches, or cross-level homology, in order to make judgements in this regard. Instead, managers only need to make a few simple judgements about a study in order to derive the type of actionable implications they can draw, and with what level of confidence. In Fig. 2, we present a simple tool that managers can use for this task.

Our work contributes to an emerging discussion in marketing research around how, in an effort to create more meaningful managerial recommendations, researchers can better design studies and interpret results (e.g., Hulland & Houston, 2021; Pappas et al., 2023). Here, we provide both a roadmap for how marketing researchers can incorporate within-person theories and empirical approaches, as well as a demonstration of what these approaches have to offer. Within-person research undeniably presents a number of challenges to field-based research disciplines like marketing. However, we strongly believe that if we are able to rise to this challenge, we can add significantly to our contribution to knowledge, challenge long-standing assumptions about core marketing phenomena. In addition, by providing evidence-based, context-specific recommendations for managerial interventions, we are able to derive more impactful and actionable managerial implications.

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Declarations

Conflict of Interest The authors declare that they have no conflicts of interests.

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