
The Relationship Between Engagement at Work and Organizational Outcomes

Q¹²® Meta-Analysis: 11th Edition

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Executive Summary

Objective

Business and work units in the same organization vary substantially in their levels of engagement and performance. The purpose of this study was to examine the:

- 1) true relationship between employee engagement and performance in 347 organizations
- 2) consistency or generalizability of the relationship between employee engagement and performance across organizations
- 3) practical meaning of the findings for executives and managers

Methods

We accumulated 736 research studies across 347 organizations in 53 industries, with employees in 90 countries. Within each study, we statistically calculated the business-/work-unit-level relationship between employee engagement and performance outcomes that the organizations supplied. In total, we studied 183,806 business and work units that included 3,354,784 employees. We studied 11 outcomes: customer loyalty/engagement, profitability, productivity, turnover, safety incidents, absenteeism, shrinkage, patient safety incidents, quality (defects), wellbeing and organizational citizenship.

Individual studies often contain small sample sizes and idiosyncrasies that distort the interpretation of results. Meta-analysis is a statistical technique that is useful in combining results of studies with seemingly disparate findings, correcting for sampling, measurement error and other study artifacts to understand the true relationship with greater precision. We applied Hunter-Schmidt meta-analysis methods to 736 research studies to estimate the true relationship between engagement and each performance measure and to test for generalizability. After conducting meta-analysis, we examined the practical meaning of the relationships by conducting utility analysis.

Results

Employee engagement is related to each of the 11 performance outcomes studied. Results indicate high generalizability, which means the correlations were consistent across different organizations. The true score correlation between employee engagement and composite performance is 0.49. Across companies, business/work units scoring in the top half on employee engagement more than double their odds of success compared with those in the bottom half. Those at the 99th percentile have nearly five times the success rate of those at the first percentile.

Median percent differences between top-quartile and bottom-quartile units were:

- 10% in customer loyalty/engagement
- 23% in profitability
- 18% in productivity (sales)
- 14% in productivity (production records and evaluations)
- 21% in turnover for high-turnover organizations (those with more than 40% annualized turnover)
- 51% in turnover for low-turnover organizations (those with 40% or lower annualized turnover)
- 63% in safety incidents (accidents)
- 78% in absenteeism
- 28% in shrinkage (theft)
- 58% in patient safety incidents (mortality and falls)
- 32% in quality (defects)
- 70% in wellbeing (thriving employees)
- 22% in organizational citizenship (participation)

Conclusion

The relationship between engagement and performance at the business/work unit level is substantial and highly generalizable across organizations. Employee engagement is related to each of the 11 performance outcomes. This means that practitioners can apply the Q¹² measure in a variety of situations with confidence that the measure captures important performance-related information.

Introduction

Foreword

In the 1930s, George Gallup began a worldwide study of human needs and satisfactions. He pioneered the development of scientific sampling processes to measure public opinion. In addition to his polling work, Dr. Gallup completed landmark research on wellbeing, studying the factors common among people who lived to be 95 and older (Gallup & Hill, 1959). Over the next several decades, Dr. Gallup and his colleagues conducted numerous polls throughout the world, covering many aspects of people's lives. His early world polls dealt with topics such as family, religion, politics, personal happiness, economics, health, education, safety and attitudes toward work. In the 1970s, Dr. Gallup reported that less than half of those employed in North America were highly satisfied with their work (Gallup, 1976). Work satisfaction was even lower in Western Europe, Latin America, Africa and the Far East.

Satisfaction at work has become a widespread focus for researchers. In addition to Dr. Gallup's early work, the topic of job satisfaction has become one of the most commonly studied job attitudes (Judge, Zhang, & Glerum, 2020).

Because most people spend a high percentage of their waking hours at work, studies of the workplace are of great interest to psychologists, sociologists, economists, anthropologists and physiologists. The process of managing and improving the workplace is crucial and presents great challenges to nearly every organization. So, it is vital that the instruments used to create change do, in fact, measure workplace dynamics that predict key outcomes — outcomes that a variety of organizational leaders would consider important. After all, organizational leaders are in the best position to create interest in and momentum for job satisfaction research.

Parallel to Dr. Gallup's early polling work, Don Clifton, a psychologist and professor at the University of Nebraska, began studying the causes of success in education and business. Dr. Clifton founded Selection Research, Inc. (SRI) in 1969. While most psychologists were busy studying dysfunction and the cause of disease, Dr. Clifton and his colleagues focused their careers on the science of strengths-based psychology, the study of what makes people flourish.

Their early discoveries led to hundreds of research studies focused on successful individuals and teams across a broad spectrum of industries and job types. In particular, research on successful learning and workplace environments led to numerous studies of successful teachers and managers. This work included extensive research on individual differences and the environments that best facilitate success. Early in their studies, the researchers discovered that simply measuring employees' satisfaction was insufficient to create sustainable change. Satisfaction needed to be specified in terms of its most important elements, and it needed to be measured and reported in a way that could be used by the people who could take action and create change.

Further research revealed that change happens most efficiently at a local level — at the level of the frontline, manager-led team. For executives, frontline teams are their direct reports, and for plant managers, frontline teams are the people they manage each day. Studying great managers, Gallup scientists learned that optimal decision-making happens when information regarding decisions is collected at a local level, close to the everyday action.

Dr. Clifton's work merged with Dr. Gallup's work in 1988, when Gallup and SRI combined, enabling the blending of progressive management science with top survey and polling science. Dr. Gallup and Dr. Clifton spent much of their lives studying people's opinions, attitudes, talents and behaviors. To do this, they wrote questions, recorded the responses and studied which questions elicited differential responses and related to meaningful outcomes. In the case of survey research, some questions are unbiased and elicit meaningful opinions, while others do not. In the case of management research, some questions elicit responses that predict future performance, while others do not.

Developing the right questions is an iterative process in which scientists write questions and conduct analysis. The research and questions are refined and rephrased. Additional analysis is conducted. The questions are refined and rephrased again. And the process is repeated. Gallup has followed the iterative process in devising the survey tool that is the subject of this report, Gallup's Q¹² instrument, which is designed to measure employee engagement conditions.

The next section provides an overview of the many decades of research that have gone into the development and validation of Gallup's Q¹² employee engagement instrument. Following this overview, we present a meta-analysis of 736 research studies, exploring the relationship between employee engagement and performance across 347 organizations and 183,806 business/work units that include 3,354,784 employees.

Development of the Q¹²

Beginning in the 1950s, Dr. Clifton started studying work and learning environments to determine the factors that contribute positively to those environments and that enable people to capitalize on their unique talents. It was through this early work that Dr. Clifton began using science and the study of strengths to research individuals' frames of reference and attitudes.

From the 1950s to the 1970s, Dr. Clifton continued his research of students, counselors, managers, teachers and employees. He used various rating scales and interview techniques to study individual differences, analyzing questions and factors that explain dissimilarities in people. The concepts he studied included "focusing on strengths versus weaknesses," "relationships," "personnel support," "friendships" and "learning." Various questions were written and tested, including many early versions of the Q¹² items. Ongoing feedback techniques were first developed with the intent of asking questions, collecting data and encouraging ongoing discussion of the results to provide feedback and potential improvement — a measurement-based feedback process. To learn causes of employee turnover, exit interviews were conducted with employees who left organizations. A common reason for leaving an organization focused on the quality of the manager.

In the 1980s, Gallup scientists continued the iterative process by studying high-performing individuals and teams. Studies involved assessments of individual talents and workplace attitudes. As a starting point for questionnaire design, numerous qualitative analyses were conducted, including interviews and focus groups. Gallup researchers asked top-performing individuals or teams to describe their work environments and their thoughts, feelings and behaviors related to success.

The researchers used qualitative data to generate hypotheses and insights into the distinguishing factors leading to success. From these hypotheses, they wrote and tested questions. They also conducted numerous quantitative studies throughout the 1980s, including exit interviews, to continue to learn causes of employee turnover. Qualitative analyses such as focus groups and interviews formed the basis for lengthy and comprehensive employee surveys, called “Organizational Development Audits” or “Managing Attitudes for Excellence” surveys. Many of these surveys included 100 to 200 items. Quantitative analyses included factor analyses to assess the dimensionality of the survey data; regression analyses to identify uniqueness and redundancies in the data; and criterion-related validity analyses to identify questions that correlate with meaningful outcomes such as overall satisfaction, commitment and productivity. The scientists developed feedback protocols to facilitate the feedback of survey results to managers and employees. Such protocols and their use in practice helped researchers learn which items were most useful in creating dialogue and stimulating change.

One outgrowth of a management research practice that was focused on talent and environment was the theory of talent maximization in an organization:

$$\text{Per-Person Productivity} = \text{Talent} \times (\text{Relationship} + \text{Right Expectation} + \text{Recognition/Reward})$$

These concepts would later become embedded in the foundational elements of the Q¹².

Over time, SRI and Gallup researchers conducted numerous studies of manager success patterns that focused on the talents of the manager and the environments that best facilitated success. By integrating knowledge of managerial talent with survey data on employee attitudes, scientists had a unique perspective on what it takes to build a successful workplace environment. Themes such as “individualized perception,” “performance orientation,” “mission,” “recognition,” “learning and growing,” “expectations” and “the right fit” continued to emerge. In addition to studies of management, researchers conducted numerous studies with successful teachers, students and learning environments.

In the 1990s, the iterative process continued. During this time, Gallup researchers developed the first version of the Q¹² (“The Gallup Workplace Audit” or GWA) in an effort to efficiently capture the most important workplace attitudes. Qualitative and quantitative analyses continued. In that decade, more than 1,000 focus groups were conducted and hundreds of instruments were developed, many of them with several additional items. Scientists also continued to use exit interviews; these revealed the importance of the manager in retaining employees. Studies of the Q¹² and other survey items were conducted in various countries throughout the world, including the United States, Canada, Mexico, Great Britain, Japan and Germany. Gallup researchers obtained international

cross-cultural feedback on Gallup's core items, which provided context on the applicability of the items across different cultures. Various scale types were also tested, including variations of 5-point and dichotomous response options.

Quantitative analyses of survey data included descriptive statistics, factor analyses, discriminant analyses, criterion-related validity analyses, reliability analyses, regression analyses and other correlational analyses. Gallup scientists continued to study the core concepts that differentiated successful from less successful work units and the expressions that best captured those concepts. In 1997, the criterion-related studies were combined into a meta-analysis to study the relationship of employee satisfaction and engagement (as measured by the Q¹²) to business/work unit profitability, productivity, employee retention and customer satisfaction/loyalty across 1,135 business/work units (first edition; Harter & Creglow, 1997). Meta-analysis also enabled researchers to study the generalizability of the relationship between engagement and outcomes. Results of this confirmatory analysis revealed substantial criterion-related validity for each of the Q¹² items.

As criterion-related validity studies are ongoing, the meta-analysis was updated in 1998 (second edition; Harter & Creglow, 1998) and included 2,528 business/work units; in 2000 (third edition; Harter & Schmidt, 2000), when it included 7,939 business/work units; in 2002 (fourth edition; Harter & Schmidt, 2002), when it included 10,885 business/work units; in 2003 (fifth edition; Harter, Schmidt, & Killham, 2003), when it included 13,751 business/work units; in 2006 (sixth edition; Harter, Schmidt, Killham, & Asplund, 2006), when it included 23,910 business/work units; in 2009 (seventh edition; Harter, Schmidt, Killham, & Agrawal, 2009), when it included 32,394 business/work units; in 2013 (eighth edition; Harter, Schmidt, Agrawal, & Plowman, 2013), when it included 49,928 business/work units; in 2016 (ninth edition; Harter, Schmidt, Agrawal, Plowman, & Blue, 2016), when it included 82,248 business/work units; and in 2020 (10th edition; Harter, Schmidt, Agarwal, Blue, Plowman, Josh, & Asplund, 2020), when it included 112,312 business/work units. This report provides the 11th published iteration of Gallup's Q¹² meta-analysis of the relationship between employee engagement and performance.

Since its final wording and order were completed in 1998, the Q¹² has been administered to nearly 64 million employees in 228 different countries or territories and in 77 languages. Additionally, a series of studies was conducted to examine the cross-cultural properties of the instrument (Harter & Agrawal, 2011).

Introduction to the Study

The quality of an organization's human resources is perhaps the leading indicator of its growth and sustainability. The attainment of a workplace with high-caliber employees starts with the selection of the right people for the right jobs. Numerous studies have documented the utility of valid selection instruments and systems in the selection of the right people (Sackett, Zhang, Barry, & Lievens, 2023; Schmidt, Hunter, McKenzie, & Muldrow, 1979; Hunter & Schmidt, 1983; Huselid, 1995; Schmidt & Rader, 1999; Harter, Hayes, & Schmidt, 2004; Schmidt, Oh, & Shaffer, 2016).

After employees are hired, they make decisions and take actions every day that can affect the success of their organizations. Many of these decisions and actions are influenced by their own internal motivations and drives. One can also hypothesize that the way employees are treated and the way they treat one another can positively affect their actions — or can place their organizations at risk. For example, researchers have found positive relationships between general workplace attitudes and service intentions, customer perceptions (Schmit & Allscheid, 1995), and individual performance outcomes (Iaffaldano & Muchinsky, 1985). An updated meta-analysis has revealed a substantial relationship between individual job satisfaction and individual performance (Judge, Thoresen, Bono, & Patton, 2001). Additional and more recent research illustrates that individual job attitudes are a substantial predictor of individual employee effectiveness, defined by both performance and withdrawal behaviors and intentions (Harrison, Newman, & Roth, 2006; Mackay, Allen, & Landis, 2017). Both of these more recent studies found that employee engagement is best conceptualized as a higher order job attitudes construct. This is further reinforced by Newman, Harrison, Carpenter, & Rariden (2016).

There is also evidence at the business or work unit level that employee attitudes relate to various organizational outcomes. Organization-level research has focused primarily on cross-sectional studies. Independent studies found relationships between employee attitudes and performance outcomes such as safety (Zohar, 1980, 2000), customer experiences (Schneider, Parkington, & Buxton, 1980; Ulrich, Halbrook, Meder, Stuchlik, & Thorpe, 1991; Schneider & Bowen, 1993; Schneider, Ashworth, Higgs, & Carr, 1996; Schmit & Allscheid, 1995; Reynierse & Harker, 1992; Johnson, 1996; Wiley, 1991), financials (Denison, 1990; Schneider, 1991) and employee turnover (Ostroff, 1992). A study by Batt (2002) used multivariate analysis to examine the relationship between human resource practices (including employee participation in decision-making) and sales growth. Gallup has conducted large-scale meta-analyses — in the 10th edition studying 112,312 business and work units regarding the concurrent and predictive relationship of employee attitudes (satisfaction and engagement) with safety, customer attitudes, financials, employee retention, absenteeism, quality metrics and merchandise shrinkage (Harter et al., 2020; Harter et al., 2016; Harter et al., 2013; Harter et al., 2009; Harter et al., 2006; Harter et al., 2003; Harter, Schmidt, & Hayes, 2002; Harter & Schmidt, 2002; Harter & Schmidt, 2000; Harter & Creglow, 1998; Harter & Creglow, 1997). This meta-analysis, repeated across time, has found consistently that there are positive concurrent and predictive relationships between employee attitudes and various important business outcomes. It has also found that these relationships generalize across a wide range of situations (industries, business/work unit types and countries). Additional independent studies have found similar results (Whitman, Van Rooy, & Viswesvaran, 2010; Edmans, 2012). A recent meta-analysis of employee engagement data found somewhat stronger correlations between job attitudes and business performance during past economic recessions compared to nonrecession years (Harter, Schmidt, Agrawal, Plowman, & Blue, 2020). Like the studies of individual job attitudes, this study also found that the best predictor of overall business/work unit performance was a higher order job attitude-engagement construct.

Even though it has been much more common to study employee opinion data at the individual level, studying data at the business or work unit level is critical because that is where the data are typically reported (because of confidentiality concerns, employee surveys are reported at a broader business or work unit level). In addition,

business-unit-level research usually provides opportunities to establish links to outcomes that are directly relevant to most businesses — outcomes like customer loyalty, profitability, productivity, turnover, safety incidents, merchandise shrinkage and quality variables that are often aggregated and reported at the business/work unit level.

Another advantage to reporting and studying data at the business/work unit level is that instrument item scores are of similar reliability to dimension scores for individual-level analysis. This is because at the business or work unit level, each item score is an average of many individuals' scores. This means that employee surveys reported at a business or work unit level can be more efficient or parsimonious in length because item-level measurement error is less of a concern. See Harter and Schmidt (2006) for a more complete discussion of job satisfaction research and the advantages of conducting unit-level analyses.

One potential problem with such business-unit-level studies is limited data as a result of a limited number of business/work units (the number of business/work units becomes the sample size) or limited access to outcome measures that one can compare across business/work units. For this reason, many of these studies are limited in statistical power. As such, results from individual studies may appear to conflict with one another. Meta-analysis techniques provide the opportunity to pool such studies together to obtain more precise estimates of the strength of effects and their generalizability.

This paper's purpose is to present the results of an updated meta-analysis of the relationship between employee workplace perceptions and business/work unit outcomes based on currently available data collected with Gallup clients. The focus of this study is on Gallup's Q¹² instrument. The Q¹² items — which were selected because of their importance at the business or work unit level — measure employee perceptions of the quality of people-related management practices in their business/work units.

Description of the Q¹²

The development of the GWA (Q¹²) was based on more than 30 years of accumulated quantitative and qualitative research. Its reliability, convergent validity and criterion-related validity have been extensively studied. It is an instrument validated through prior psychometric studies as well as practical considerations regarding its usefulness for managers in creating change in the workplace.

In designing the items included in the Q¹², researchers took into account that, from an actionability standpoint, there are two broad categories of employee survey items: those that are reflective measures of attitudinal outcomes (satisfaction, loyalty, pride, customer service perceptions and intent to stay with the company) and those that are formative measures of actionable issues that drive these outcomes. The Q¹² measures the actionable issues for management — those predictive of attitudinal outcomes such as satisfaction, loyalty, pride and so on. On Gallup's standard Q¹² instrument, after an overall satisfaction item, are 12 items measuring issues we have found to be actionable (changeable) at the supervisor or manager level — items measuring perceptions of elements of the work situation, such as role clarity, resources, fit between abilities and requirements, receiving feedback, and feeling appreciated. The Q¹² is a formative measure of "engagement conditions," each of which is a contributor to engagement through the measure of its causes.

The Q¹² statements are:

Q00. (Overall Satisfaction) On a 5-point scale, where 5 means extremely satisfied and 1 means extremely dissatisfied, how satisfied are you with (your company) as a place to work?

Q01. I know what is expected of me at work.

Q02. I have the materials and equipment I need to do my work right.

Q03. At work, I have the opportunity to do what I do best every day.

Q04. In the last seven days, I have received recognition or praise for doing good work.

Q05. My supervisor, or someone at work, seems to care about me as a person.

Q06. There is someone at work who encourages my development.

Q07. At work, my opinions seem to count.

Q08. The mission or purpose of my company makes me feel my job is important.

Q09. My associates or fellow employees are committed to doing quality work.

Q10. I have a best friend at work.

Q11. In the last six months, someone at work has talked to me about my progress.

Q12. This last year, I have had opportunities at work to learn and grow.

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The current standard is to ask each employee (a census survey; median participation rate is 84%) to rate the Q¹² statements using six response options, from 5 = strongly agree to 1 = strongly disagree, and the sixth response option — don't know/does not apply — is unscored. Because it is a satisfaction item, the first item (Q00) is scored on a satisfaction scale rather than on an agreement scale. Regression analyses (Harter et al., 2002) indicate that employee engagement accounts for nearly all of the performance-related variance (composite performance) accounted for by the overall satisfaction measure. Therefore, the focus of this report is on employee engagement, as measured by statements Q01-Q12.

While these items measure issues that the manager or supervisor can influence, only one item contains the word “supervisor.” This is because it is realistic to assume that numerous people in the workplace can influence whether someone’s expectations are clear, whether the employee feels cared about and so on. The manager’s or supervisor’s position, though, allows them to take the lead in establishing a culture that values behaviors that support these perceptions.

The following is a brief discussion of the conceptual relevance of each of the 13 items:

Q00. Overall satisfaction

The first item on the survey measures affective satisfaction on a scale from “extremely dissatisfied” to “extremely satisfied.” It is an attitudinal outcome or direct reflective measure of how people feel about their organization. Given that it is a direct measure of affective satisfaction, on its own, it is difficult to act on the results of this item. Other issues, like those measured in the following 12 items, explain why people are satisfied and why they become engaged and produce outcomes.

Q01. Expectations

Defining and clarifying the outcomes that are to be achieved is perhaps the most basic of all employee needs and manager responsibilities. How these outcomes are defined and acted on will vary across business/work units, depending on the goals of the business/work unit.

Q02. Materials and equipment

Getting people what they need to do their work is important in maximizing efficiency, demonstrating to employees that their work is valued and showing that the company is supporting them in what they are asked to do. Great managers help employees see how their requests for materials and equipment connect to important organizational outcomes.

Q03. Opportunity to do what I do best

Helping people get into roles in which they can most fully use their inherent talents and strengths is the ongoing work of great managers. Learning about individual differences through experience and assessment can help the manager position people efficiently within and across roles and remove barriers to high performance.

Q04. Recognition for good work

Employees need constant feedback to know if what they are doing matters. Ongoing management challenges include understanding how each person prefers to be recognized, making recognition objective and real by basing it on performance, and recognizing employees frequently.

Q05. Someone at work cares about me

For each person, feeling cared about may mean something different. The best managers listen to individuals and respond to their unique needs. In addition, they find the connection between the needs of the individual and the needs of the organization.

Q06. Someone at work encourages my development

How employees are coached can influence how they perceive their future. If the manager is helping the employee improve as an individual by providing opportunities that are in sync with the employee’s talents, both the employee and the company will profit.

Q07. Opinions count

Asking for the employee's input and considering that input can often lead to better decision-making. This is because employees are often closer than the manager is to many factors that affect the overall system, whether that is the customer or the products they are producing every day. In addition, when employees feel they are involved in decisions, they take greater ownership for the outcomes.

Q08. Mission or purpose

Great managers help people see not only the purpose of their work, but also how each person's work influences and relates to the purpose of the organization and its outcomes. Reminding employees of the big-picture effect of what they do each day is important, whether it is how their work influences the customer, safety or the public.

Q09. Associates committed to quality

Managers can influence the extent to which employees respect one another by selecting conscientious employees, providing some common goals and metrics for quality, and increasing associates' frequency of opportunity for interaction.

Q10. Best friend at work

Managers vary in the extent to which they create opportunities for people at work to get to know one another and in how much they value close, trusting relationships at work. The best managers do not subscribe to the idea that there should be no close friendships at work; instead, they free people to get to know one another, which is a basic human need. This, then, can influence communication, trust and other outcomes.

Q11. Progress

Providing a structured time to discuss each employee's progress, achievements and goals is important for managers and employees. Great managers regularly meet with individuals, both to learn from them and to give them guidance. This give-and-take helps managers and employees make better decisions.

Q12. Opportunities to learn and grow

In addition to having a need to be recognized for doing good work, most employees need to know that they are improving and have opportunities to build their knowledge and skills. Great managers choose training that will benefit the individual and the organization.

More detailed discussion of the practical application of each of the Q¹² items is provided in Wagner and Harter (2006) and in various articles posted on [Gallup.com](https://www.gallup.com).

As a total instrument (sum or mean of items Q01-Q12), the Q¹² has a Cronbach's alpha of 0.91 at the business/work unit level. The meta-analytic convergent validity of the equally weighted mean (or sum) of items Q01-Q12 (GrandMean) to the equally weighted mean (or sum) of additional items in longer surveys (measuring all known facets of job satisfaction and engagement) is 0.91. This provides evidence that the Q¹², as a composite measure, captures the general factor in longer employee surveys. Individual items correlate to their broader dimension true-score values, on average, at approximately 0.70. While the Q¹² is a measure of actionable engagement conditions, its composite has high convergent validity with affective satisfaction and other direct measures of work engagement (see Harter and Schmidt, 2008, for further discussion of convergent and discriminant validity issues and the construct of "engagement").

As previously mentioned, this is the 11th published iteration of the Q¹² business-unit-level meta-analysis. Compared with the previous meta-analysis, the current meta-analysis includes:

- a larger number of studies and business/work units
- more than triple the number of business/work units with wellbeing data and double the number of business/work units with turnover data
- 4,880 more business/work units with productivity data, 2,851 more business/work units with profitability data, 2,093 more business/work units with safety incidents data, 1,768 more business/work units with absenteeism data, 1,236 more business/work units with organizational citizenship data, 1,195 more business/work units with customer loyalty/engagement data, and 281 more business/work units with quality/defects data

As such, this study provides a substantial update of new and recent data.

The coverage of research studies includes business/work units in 90 countries, including Australia and New Zealand, and countries in Asia, Europe, Post-Soviet Eurasia, Latin America, the Middle East, North America, Africa and the Caribbean. Sixty-eight companies included in the current meta-analysis operate exclusively in countries outside the U.S.

This meta-analysis includes all available Gallup studies (whether published or unpublished) and has no risk of publication bias.

Meta-Analysis, Hypothesis, Methods and Results

Meta-Analysis

A meta-analysis is a statistical integration of data accumulated across many different studies. As such, it provides uniquely powerful information because it controls for measurement and sampling errors and other idiosyncrasies that distort the results of individual studies. A meta-analysis eliminates biases and provides an estimate of true validity or true relationship between two or more variables. Statistics typically calculated during meta-analyses also allow the researcher to explore the presence, or lack, of moderators of relationships.

Thousands of meta-analyses have been conducted in the psychological, educational, behavioral, medical and personnel selection fields. The research literature in the behavioral and social sciences fields includes a multitude of individual studies with apparently conflicting conclusions. Meta-analysis, however, allows the researcher to estimate the mean relationship between variables and make corrections for artifactual sources of variation in findings across studies. It provides a method by which researchers can determine whether validities and relationships generalize across various situations (e.g., across firms or geographical locations).

This paper will not provide a full review of meta-analysis. Rather, the authors encourage readers to consult the following sources for background information and detailed descriptions of the more recent meta-analytic methods: Schmidt and Hunter (2015); Schmidt (1992); Hunter and Schmidt (1990, 2004); Lipsey and Wilson (1993); Bangert-Drowns (1986); and Schmidt, Hunter, Pearlman and Rothstein-Hirsh (1985).

Hypothesis and Study Characteristics

The hypotheses examined for this meta-analysis were as follows:

Hypothesis 1

Business-unit-level employee engagement will have positive average correlations with the business/work unit outcomes of customer loyalty/engagement, profitability, productivity, wellbeing and organizational citizenship, and negative correlations with turnover, safety incidents, absenteeism, shrinkage, patient safety incidents and quality (defects).

Hypothesis 2

The correlations between engagement and business/work unit outcomes will generalize across organizations for all business/work unit outcomes. That is, these correlations will not vary substantially across organizations. And in particular, there will be few, if any, organizations with zero correlations or those in the opposite direction from Hypothesis 1.

Gallup's inferential database includes 736 studies conducted as proprietary research for 347 independent organizations. In each Q¹² study, data were aggregated at the business/work unit level and correlated with the following aggregate business/work unit performance measures:

- customer metrics (referred to as customer loyalty/engagement)
- profitability
- productivity
- turnover
- safety incidents
- absenteeism
- shrinkage
- patient safety incidents
- quality (defects)
- wellbeing
- organizational citizenship

That is, in these analyses, the unit of analysis was the business or work unit, not the individual employee.

Correlations (*r* values) were calculated, estimating the relationship of business/work unit average measures of employee engagement (the mean of the Q¹² items) to each of these 11 general outcomes. Correlations were calculated across business/work units in each company, and these correlation coefficients were entered into a database. The researchers then calculated mean validities, standard deviations of validities and validity generalization statistics for each of the 11 business/work unit outcome measures.

As with previous meta-analyses, some of the studies were concurrent validity studies, where engagement and performance were measured in roughly the same time period or with engagement measurement slightly trailing behind the performance measurement (because engagement is relatively stable and a summation of the recent past, such studies are considered "concurrent"). Predictive validity studies involve measuring engagement at time 1 and performance at time 2. Predictive validity estimates were obtained for 51% of the organizations included in this meta-analysis.

This paper does not directly address issues of causality, which are best addressed with meta-analytic longitudinal data, consideration of multiple variables and path analysis. Issues of causality are discussed and examined extensively in other sources (Harter, Schmidt, Asplund, Killham, & Agrawal, 2010). Findings of causal studies suggest that engagement and financial performance are reciprocally related, but that engagement is a stronger predictor of financial outcomes than the reverse. The relationship between engagement and financial performance appears to be mediated by its causal relationship with other outcomes such as customer perceptions and employee retention. That is, financial performance is a downstream outcome that is influenced by the effect of engagement on shorter-term outcomes such as customer perceptions and employee retention.

Studies for the current meta-analysis were selected so that each organization was represented once in each analysis. For several organizations, multiple studies were conducted. To include the best possible information for each organization represented in the study, some basic rules were used. If two concurrent studies were conducted for the same client (where Q¹² and outcome data were collected concurrently [i.e., in the same year]), then the weighted average effect sizes across the multiple studies were entered as the value for that organization. If an organization had a concurrent *and* a predictive study (where the Q¹² was collected in year 1 and outcomes were tracked in year 2), then the effect sizes from the predictive study were entered. If an organization had multiple predictive studies, then the mean of the correlations in these studies was entered.¹ If sample sizes varied substantially in repeated studies for an organization, the study with the largest of the sample sizes was used.

There were instances in which we excluded correlations with 2020 outcome data because of the unusual effect of the COVID-19 pandemic. Research indicates that the initial onset of the pandemic created volatility in turnover, job openings, unemployment rates, productivity, profitability and absenteeism (Aped-Amah et al., 2020; Bloom, Bunn, Mizen, Smietanka, & Thwaites, 2023; Bureau of Labor Statistics, 2024; Fairlie & Fossen, 2021). In circumstances in which we observed substantial fluctuation in outcomes due to the initial onset of the pandemic, we considered whether these studies were accurate representations of the true performance of business units on a case-by-case basis. Exclusions were made in some situations because the atypical elements of the pandemic impacted different business units at different locations in a variety of ways, making comparisons between business units problematic.

- For 110 organizations, there were studies that examined the relationship between business/work unit employee perceptions and customer perceptions. Customer perceptions included customer metrics, patient metrics and student ratings of teachers. These metrics included measures of loyalty, satisfaction, service excellence, customer evaluation of quality of claims, net promoter scores and engagement. The largest representation of studies included loyalty metrics (e.g., likelihood to recommend/net promoter or repeat business), so we refer to customer metrics as customer loyalty/engagement in this study. Instruments varied from study to study. The general index of customer loyalty was an average score of the items included in each measure. A growing number of studies include “customer engagement” as the metric of choice, which measures the emotional connection between the customers and the organization that serves them. For more information on the interaction of employee and customer engagement, see Fleming, Coffman, and Harter (2005) and Harter, Asplund, and Fleming (2004).

¹ In one circumstance, we averaged a concurrent and predictive study of the relationship between engagement and quality/defects for the same organization. We did this because the sample size was large and had a substantial influence on the results and because there were external circumstances (i.e., implementation of stronger quality requirements) that account for a lower than typical correlation in one of the studies.

- Profitability studies were available for 94 organizations. The definition of profitability typically was a percentage profit of revenue (sales). In several companies, the researchers used — as the best measure of profit — a difference score from the prior year or a difference from a budgeted amount because it represented a more accurate measure of each unit's relative performance. As such, a control for opportunity (location) was used when profitability figures were deemed less comparable from one unit to the next. For example, a difference variable involved dividing profit by revenue for a business/work unit and then subtracting a budgeted percentage from this percentage. Or, more explicitly, in some cases, a partial correlation (*r* value) was calculated, controlling for location variables when they were deemed to be relevant to accurate comparison of business/work units. In every case, profitability variables were measures of margin, and productivity variables (which follow) were measures of amount produced.
- Productivity studies were available for 170 organizations. Measures of business/work unit productivity consisted of one of the following: financials (e.g., revenue/sales dollars per person or patient), quantity produced (production volume), enrollments in programs, hours/labor costs to budget, cross-sells, performance ratings or student achievement scores (for three education organizations). In a few cases, this was a dichotomous variable (top-performing business/work units = 2; less successful units = 1). The majority of variables included as "productivity" were financial measures of sales or revenue or growth in sales or revenue. As with profitability, in many cases, it was necessary for the researchers to compare financial results with a performance goal or prior-year figure to control for the differential business opportunity because of the location of business/work units, or to explicitly calculate a partial correlation (*r* value). Variables included in this category could best be summarized as financial metrics, evaluations or production records.
- Turnover data were available for 177 organizations. The turnover measure was the annualized percentage of employee turnover for each business/work unit. In most cases, voluntary turnover was reported and used in the analyses.
- Safety data were available for 62 organizations. Safety measures included lost workday/time incident rate, percentage of workdays lost as a result of incidents or workers' compensation claims (incidents and costs), number of incidents, or incident rates.
- Absenteeism data were included for 43 organizations. Absenteeism measures included the average number of days missed per person for each business/work unit divided by the total days available for work. This included either a measure of sick days or a measure of hours or total absenteeism.
- Eleven organizations provided measures of shrinkage. Shrinkage is defined as the dollar amount of unaccounted-for lost merchandise, which could be the result of employee theft, customer theft or lost merchandise. Given the varying size of locations, shrinkage was calculated as a percentage of total revenue or a difference from an expected target.
- Ten healthcare organizations provided measures of patient safety. Patient safety incident measures varied from patient fall counts (percentages of total patients), medical error and infection rates, and risk-adjusted mortality rates.

- Twenty organizations provided measures of quality. For most organizations, quality was measured through records of defects such as unsaleable/returned items/quality shutdowns/scrap/operational efficiency/rejections per inspection rate (in manufacturing), forced outages (in utilities), disciplinary actions, deposit accuracy (financial) and other quality scores. Because the majority of quality metrics were measures of defects (where higher figures meant worse performance), measures of efficiency and quality scores were reverse coded so that all variables carried the same inferential interpretation.
- Wellbeing measures were collected by 35 organizations. In all studies, the wellbeing measure was the Cantril Self-Anchoring Striving Scale. The scale measures respondents' life evaluation on the 0-10 ladder of life "at this time" and anticipated life evaluation "about five years from now." The scale is anchored from "best possible life" (10) to "worst possible life" (0).
- Organizational citizenship measures were available for four organizations. These measures consisted of the percentage of participation and enrollment in company-sponsored activities that are intended to benefit employees, such as conferences and programs. Wellness conferences, 401(k) enrollment and employee resource groups (ERGs) are examples from the four organizations that provided data.
- The overall study involved 3,354,784 independent employee responses to surveys and 183,806 independent business/work units in 347 organizations, with an average of 18 employees per business/work unit and 530 business/work units per organization. We conducted 736 research studies across the 347 organizations.
- Table 1 provides a summary of industries included in this meta-analysis. It is evident that there is considerable variation in the industry types represented, as organizations from 53 industries provided studies. Each of the general government industry classifications (via SIC codes) is represented, with the largest number of organizations represented in services, followed by finance, manufacturing and retail industries. The largest numbers of business/work units are in the services and finance industries. Specific subindustry frequencies are detailed in Table 1.

TABLE 1:
Summary of Industries

Industry Type	Number of Organizations	Number of Business/ Work Units	Number of Respondents
Finance			
Commercial Banking	18	9,558	64,990
Credit	2	59	581
Depository	17	15,201	168,091
Insurance	16	21,072	195,228
Mortgage	1	27	985
Non-depository	1	94	2,038
Security	5	1,018	29,958
Transactions	1	73	1,530
Manufacturing			
Aircraft	1	3,411	37,616
Apparel	1	16	111

Industry Type	Number of Organizations	Number of Business/ Work Units	Number of Respondents
Manufacturing <i>(continued)</i>			
Automobiles	4	364	13,553
Building Materials	2	62	7,356
Chemicals	6	2,862	32,763
Computers and Electronics	1	161	19,231
Consumer Goods	5	240	8,426
Food	6	9,555	96,070
Glass	2	96	17,070
Industrial Equipment	4	1,018	19,466
Instrument	9	727	6,847
Miscellaneous	8	6,045	73,533
Paper	1	60	17,243
Pharmaceutical	4	4,042	38,545
Plastics	2	293	2,553
Printing	2	35	716
Ship Building	2	719	132,130
Materials and Construction			
Materials and Construction	5	1,036	30,467
Retail			
Automotive	4	261	13,614
Building Materials	4	1,671	68,589
Clothes	4	1,055	28,937
Department Stores	2	503	6,594
Eating	8	1,296	62,362
Electronics	6	1,483	104,273
Entertainment	1	106	1,051
Food	7	7,276	351,178
Industrial Equipment	1	11	484
Miscellaneous	12	4,553	162,973
Pharmaceutical	2	8,288	171,463
Services			
Agricultural	4	100	1,299
Business	10	4,223	55,831
Education	14	3,482	49,596
Government	10	11,634	217,363
Health	77	20,751	405,583
Hospitality	13	2,877	205,825
Nursing Home	1	353	26,582
Personal Services	1	424	3,226
Real Estate	4	6,211	49,989
Recreation	1	14	288
Social Services	6	2,067	39,381

Industry Type	Number of Organizations	Number of Business/ Work Units	Number of Respondents
Transportation/Public Utilities			
Communications	13	20,305	176,648
Delivery Services	3	1,482	60,308
Electric, Gas and Sanitary Services	11	4,709	39,437
Non-hazardous Waste Disposal	1	727	28,600
Trucking	1	100	6,213
Total			
Finance	61	47,102	463,401
Manufacturing	60	29,706	523,229
Materials and Construction	5	1,036	30,467
Retail	51	26,503	971,518
Services	141	52,136	1,054,963
Transportation/Public Utilities	29	27,323	311,206
Total	347	183,806	3,354,784

Table 2 provides a summary of the business/work unit types included in this meta-analysis. There is considerable variation in the types of business/work units, ranging from stores to plants/mills to departments to schools. Overall, 22 different types of business/work units are represented; the largest number of organizations had studies of workgroups (teams), stores or bank branches. Likewise, workgroups, stores and bank branches have the highest proportional representation of business/work units.

TABLE 2:**Summary of Business/Work Unit Types**

Business/Work Unit Type	Number of Organizations	Number of Business/ Work Units	Number of Respondents
Bank Branch	20	18,118	196,481
Call Center	7	1,240	22,076
Child Care Center	1	1,843	34,085
Cost Center	16	3,675	76,758
Country	1	26	2,618
Dealership	7	423	16,940
Department	12	1,444	38,385
Division	4	720	139,708
Facility	4	8,931	131,885
Hospital	7	800	69,028
Hotel	9	846	182,953
Location	14	11,414	269,829
Mall	2	216	3,790
Patient Care Unit	8	2,825	52,703
Plant/Mill	8	976	47,810
Region	2	113	13,520
Restaurant	6	588	34,866
Sales Division	6	391	21,722

Business/Work Unit Type	Number of Organizations	Number of Business/ Work Units	Number of Respondents
Sales Team	6	420	27,543
School	6	409	10,496
Store	37	24,063	889,794
Workgroup (Team)	164	104,325	1,071,794
Total	347	183,806	3,354,784

Meta-Analytic Methods Used

Analyses included weighted average estimates of true validity; estimates of standard deviation of validities; and corrections made for sampling error, measurement error in the dependent variables, and range variation and restriction in the independent variable (Q¹² GrandMean) for these validities. An additional analysis was conducted, correcting for independent-variable measurement error. The most basic form of meta-analysis corrects variance estimates only for sampling error. Other corrections recommended by Hunter and Schmidt (1990, 2004) and Schmidt and Hunter (2015) include correction for measurement and statistical artifacts such as range restriction and measurement error in the performance variables gathered. The sections that follow provide the definitions of the previously mentioned procedures.

Gallup researchers gathered performance-variable data for multiple time periods to calculate the reliabilities of the performance measures. Because these multiple measures were not available for each study, the researchers used frequency-weighted artifact distributions meta-analysis methods (Hunter & Schmidt, 1990, pp. 158–197; Hunter & Schmidt, 2004) to correct for measurement error in the performance variables. The artifact distributions developed were based on test-retest reliabilities, where they were available, from various studies. The procedure followed for calculation of business/work unit outcome-measure reliabilities was consistent with Scenario 23 in Schmidt and Hunter (1996). To take into account that some change in outcomes (stability) is a function of real change, test-retest reliabilities were calculated using the following formula:

$$(r_{12} \times r_{23})/r_{13}$$

Where r_{12} is the correlation of the outcome measured at time 1 with the same outcome measured at time 2, r_{23} is the correlation of the outcome measured at time 2 with the outcome measured at time 3, and r_{13} is the correlation of the outcome measured at time 1 with the outcome measured at time 3.

The above formula factors out real change (which is more likely to occur from time 1 to 3 than from time 1 to 2 or 2 to 3) from random changes in business/work unit results caused by measurement error, data collection errors, sampling errors (primarily in customer and quality measures) and uncontrollable fluctuations in outcome measures. Some estimates were available for quarterly data, some for semiannual data and others for annual data. The average time period in artifact distributions used for this meta-analysis was consistent with the average time period across studies for each criterion type. See Appendix A for a listing of the reliabilities used in the corrections for measurement error. Artifact distributions for reliability were collected for customer loyalty/engagement, profitability, productivity, turnover, safety incidents and quality (defects) measures. They were not collected for absenteeism, shrinkage, patient safety incidents, wellbeing and organizational citizenship because they were not available at the time of this study. Therefore, the assumed reliability for these outcomes was 1.00, resulting in downwardly biased true validity estimates (the estimates of validity reported here are lower than reality). Artifact distributions for these variables will be added as they become available in the future.

It could be argued that, because the independent variable (employee engagement as measured by the Q¹²) is used in practice to predict outcomes, the practitioner must live with the reliability of the instrument being used. However, correcting for measurement error in the independent variable answers the theoretical question of how the actual constructs (true scores) relate to each other. Therefore, we present analyses both before and after correcting for independent variable reliability. Appendix B presents the distributions of reliabilities for the GrandMean of Q¹². These values were computed in the same manner as were those for the performance outcomes.

In correcting for range variation and range restriction, there are fundamental theoretical questions that need to be considered relating to whether such correction is necessary. In personnel selection, validities are routinely corrected for range restriction because in selecting applicants for jobs, those scoring highest on the predictor are typically selected. This results in explicit range restriction that biases observed correlations downward (i.e., attenuation). But in the employee satisfaction and engagement arena, one could argue that there is no explicit range restriction because we are studying results as they exist in the workplace. Business/work units are not selected based on scores on the predictor (Q¹² scores).

However, we have observed that there is variation across companies in standard deviations of engagement. One hypothesis for why this variation occurs is that companies vary in how they encourage employee satisfaction and engagement initiatives and in how they have or have not developed a common set of values and a common culture. Therefore, the standard deviation of the population of business/work units across organizations studied will be greater than the standard deviation within the typical company. This variation in standard deviations across companies can be thought of as indirect range restriction (as opposed to direct range restriction). Improved indirect range restriction corrections have been incorporated into this meta-analysis (Hunter, Schmidt, & Le, 2006).

Indirect range restriction corrections were applied assuming that range restriction ratios were derived from ratios of true score standard deviations because the database of studies available is the largest of its kind and represents thousands of organizations globally. Range restriction ratios were also applied assuming that independent variable reliability estimations were from an unrestricted population, given the breadth of studies included. Some of the reliability estimates were obtained from organizations who had actively improved employee engagement in years prior, thus lowering the variability of engagement across business units. Our approach likely led to a more conservative estimate of the relationship between engagement and meaningful business outcomes than had we assumed the estimations were from a restricted population.

Since the development of the Q¹², Gallup has collected descriptive data on nearly 64 million respondents, 10.6 million business/work units, and 9,555 organizations. This accumulation of data indicates that the standard deviation within a given company is approximately four-fifths the standard deviation in the population of all business/work units. In addition, the ratio of standard deviation for a given organization relative to the population value varies from organization to organization. Therefore, if one goal is to estimate the effect size in the population of all business/work units (arguably a theoretically important issue), then correction should be made based on such available data. In the observed data, correlations are attenuated for organizations with less variability across business/work units than the population average and vice versa. As such, variability in standard deviations across organizations will create variability in observed correlations and is therefore an artifact that can be corrected for in interpreting the generalizability of validities. Appendixes in Harter and Schmidt (2000), the third edition of the meta-analysis, provide artifact distributions for range-restriction/variation corrections used for meta-analysis. These artifact distributions were updated substantially in the seventh edition as well as in the 10th edition, and have again been updated for this meta-analysis. We have included a randomly selected 100 organizations in our current range variation/range restriction artifact distributions. Because of the large size of these tables, they are not included in this report. They resemble those reported in the earlier study but include a larger number of entries. The following excerpt provides an overview of meta-analysis conducted using artifact distributions:

In any given meta-analysis, there may be several artifacts for which artifact information is only sporadically available. For example, suppose measurement error and range restriction are the only relevant artifacts beyond sampling error. In such a case, the typical artifact distribution-based meta-analysis is conducted in three stages:

- **First**, information is compiled on four distributions: the distribution of the observed correlations, the distribution of the reliability of the independent variable, the distribution of the reliability of the dependent variable and the distribution of the range departure. There are then four means and four variances compiled from the set of studies, with each study providing whatever information it contains.
- **Second**, the distribution of observed correlations is corrected for sampling error.
- **Third**, the distribution corrected for sampling error is then corrected for error of measurement and range variation (Hunter & Schmidt, 1990, pp. 158–159; Hunter & Schmidt, 2004).

In this study, statistics are calculated and reported at each level of analysis, starting with the observed correlations and then correcting for sampling error, measurement error and finally, range variation/restriction. Both within-organization range-variation corrections (to correct validity generalization estimates) and between-organization range-restriction corrections (to correct for differences in variation across organizations) were made. Between-organization range-restriction corrections are relevant in understanding how engagement relates to performance across the business/work units of all organizations. As alluded to, we have applied the indirect range-restriction correction procedure to this meta-analysis (Hunter et al., 2006).

The meta-analysis includes an estimate of the mean sample-size-weighted validity and the variance across the correlations — again weighting each validity by its sample size. The amount of variance predicted for weighted correlations based on sampling error was also computed. The following is the formula to calculate variance expected from sampling error in “bare bones” meta-analyses, using the Hunter et al. (2006) technique referred to previously:

$$s_e^2 = (1 - \bar{r}^2)^2 / (\bar{N} - 1)$$

Residual standard deviations were calculated by subtracting the amount of variance due to sampling error, the amount of variance due to study differences in measurement error in the dependent variable, and the amount of variance due to study differences in range variation from the observed variance. To estimate the true validity of standard deviations, the residual standard deviation was adjusted for bias due to mean unreliability and mean range restriction. The amount of variance due to sampling error, measurement error and range variation was divided by the observed variance to calculate the total percentage variance accounted for.²

Generalizability is generally assumed if a high percentage (such as 75%) of the variance in validities across studies is due to sampling error and other artifacts, or if the 90% credibility value (10th percentile of the distribution of true validities) is in the hypothesized direction. As in Harter et al. (2002), Harter et al. (2006), Harter et al. (2009), Harter et al. (2013) and Harter et al. (2016), we calculated the correlation of engagement to composite performance. This calculation assumes that managers are managing toward multiple outcomes simultaneously and that each outcome occupies some space in the overall evaluation of performance. To calculate the correlation to the composite index of performance (Schmidt & Hunter, 2015, p. 440, Formula 10.6), we used the Mosier (1943) formula to determine the reliability of the composite measure (as described in Harter et al., 2002), using reliability distributions and intercorrelations of the outcome measures. Patient safety was combined with the more general “safety” category because patient safety is an industry-specific variable. The reliability of safety was 0.60. Composite performance was measured as the equally weighted sum of customer loyalty/engagement, turnover (reverse scored as retention), safety (accidents and patient safety incidents reverse scored), absenteeism (reverse scored), shrinkage (reverse scored), financials (with profitability and productivity equally weighted), and quality (defects reverse scored). The reliability of

² Estimates of the percent of variance accounted for by sampling error and other artifacts were capped at 100% given that it would not be possible in practice to account for more than 100% of the variance in effect sizes.

this composite variable is 0.90. We did not include the newly added outcomes (wellbeing and organizational citizenship) to the composite performance estimates because we do not have estimates of their intercorrelation with the other outcome variables, and they can be considered somewhat different types of outcomes than the other business outcomes, having more to do with individual involvement in voluntary programs and personal wellbeing.

In our research, we used the Schmidt and Le (2004) meta-analysis package (the artifact distribution meta-analysis program with correction for indirect range restriction). The program package is described in Hunter and Schmidt (2004). The 2014 version of the program was used for the analyses described in this report. The primary difference between the 2014 version of the program and the 2009 version of the program, which was used to produce the results of the 10th edition of the Q¹² meta-analysis, is that the 2014 version includes an additional formula for the correction of bias in correlations of studies with small sample sizes.

Results

The focus of analyses for this report is on the relationship between overall employee engagement (defined by an equally weighted GrandMean of Q¹²) and a variety of outcomes. Table 3 provides the updated meta-analytic and validity generalization statistics for the relationship between employee engagement and performance for each of the 11 outcomes studied. Two forms of true validity estimation follow mean observed correlations and standard deviations. The first corrects for range variation within organizations and dependent-variable measurement error. This range-variation correction places all organizations on the same basis in terms of variability of employee engagement across business/work units. These results can be viewed as estimating the relationships across business/work units within the average organization. The second corrects for range restriction across the population of business/work units and dependent-variable measurement error. Estimates that include the latter range-restriction correction apply to interpretations of effects in business/work units across organizations, as opposed to effects expected within a given organization. Because there is more variation in engagement for business/work units across organizations than there is within the average organization, effect sizes are higher when true validity estimates are calculated for business/work units across organizations.

For instance, observe the estimates relative to the customer loyalty/engagement criteria. Without the between-organization range-restriction correction (which is relevant to the effect within the typical organization), the true validity value of employee engagement is 0.21 with a 90% credibility value (CV) of 0.13. With the between-organization range-restriction correction (which is relevant to business/work units across organizations), the true validity value of employee engagement is 0.28 with a 90% CV of 0.18.

As in the ten prior meta-analyses, findings here show high generalizability across organizations in the relationships between employee engagement and customer loyalty/engagement, profitability, productivity, turnover, safety incidents, shrinkage, quality (defects) and organizational citizenship outcomes. Of the 11 outcomes, the correlation between employee engagement and wellbeing is the strongest, with a mean observed correlation of 0.51 and true validity of 0.63.³ Across the 11 outcomes, most of the variability in correlations across organizations was the result of sampling error, measurement error or range restriction in individual studies. All of the 90% credibility values are in the hypothesized direction. The largest variability in correlations across organizations was observed for the absenteeism, wellbeing and patient safety outcomes. This was mainly because in each outcome category, there was a small number of large studies with correlations that differed substantially in strength from the correlations that were observed in other studies within each respective outcome category. For two of these outcomes (absenteeism and patient safety), the 90% CV was lower in magnitude than the true validity, but in each case, the 90% CV was clearly in the hypothesized direction. These data indicate wide generalizability in the direction of the relationship. The direction of the effect is predictable, but the size of effect across companies varies somewhat.

Artifacts do not explain all of the variance in correlations of employee engagement and most outcomes, but they explain a high percentage of the variance in nearly all outcomes. This means that the Q¹² measure of employee engagement effectively predicts these outcomes in the expected direction across organizations, including those in different industries and in different countries.

There are two notable differences between the results in this report and those in the 10th edition of the Q¹² meta-analysis, as well as one difference in the 11th edition's results based on the year of data collection, that are worthy of discussion. These differences pertain to the results for quality/defects, wellbeing and turnover.

The true validity for quality/defects dropped in magnitude from -0.29 in the 10th edition results to -0.23 in the most recent results. This follows an observed increase in the true validity from -0.22 to -0.29 from the 9th edition results to the 10th edition results due to the addition of data from one large organization. The decrease in the meta-analytic findings in the new edition results was due to substantial changes in the variability of the outcome as a result of the implementation of stronger quality requirements.

The true validity of wellbeing dropped in magnitude from 0.71 in the 10th edition results to 0.63 in the most recent results. While this is still a strong correlation, the change can largely be attributed to the large increase in the number of studies in this outcome category. We included correlations between engagement and wellbeing for the first time in the 10th edition and nearly three times as many correlations were included in this edition, which naturally led to a change in results. The drop can largely be attributed to one study with a large sample size with a somewhat smaller correlation, which also lowered the percentage of variance accounted for by sampling error. Still, the 90% credibility value was 0.51 for business units within companies and 0.63 for business units between companies.

Additionally, when we split out our effect sizes capturing the relationship between engagement and turnover by year of data collection (pre-2020 vs. 2020 or later), we found that the post-COVID effect sizes (true validity = -0.20, 90% CV = -0.13) were somewhat stronger than the pre-COVID effect sizes (true validity = -0.17, 90% CV = -0.08). These findings are in line with past evidence that the relationship between engagement and meaningful business outcomes is stronger in recession years than in non-recession years (Harter et al., 2020). We had far more business units with post-COVID turnover data (N = 60,527) than we did for other outcomes. However, we are currently investigating differences in other outcomes with data from a smaller number of business units post-COVID and those differences will be reported in a future paper.

3 Unless otherwise noted, true validities and credibility values mentioned throughout the remainder of the section correspond to true validity 2 (correction for range restriction across business/work units and for dependent-variable measurement error).

In summary, for the composite measure of engagement shown in Table 3, the strongest effects were found for wellbeing, patient safety, absenteeism and customer loyalty/engagement. Correlations were lowest but results were still generalizable for organizational citizenship, shrinkage and profitability. We address the practical utility of these effects in the next section.

TABLE 3:

Meta-Analysis of Relationship Between Employee Engagement and Business/Work Unit Performance

	Customer Loyalty/Engagement	Profitability	Productivity	Turnover	Safety Incidents	Absenteeism	Shrinkage	Patient Safety Incidents	Quality (Defects)	Wellbeing	Organizational Citizenship
Number of Business/Work Units	26,586	35,149	58,108	127,055	12,984	25,867	4,514	1,464	4,431	8,686	2,929
Number of r's	110	94	170	177	62	43	11	10	20	35	4
Mean Observed r	0.16	0.10	0.14	-0.10	-0.11	-0.26	-0.09	-0.43	-0.16	0.51	0.08
Observed SD	0.10	0.07	0.08	0.06	0.09	0.13	0.06	0.13	0.09	0.12	0.03
True Validity ¹	0.21	0.10	0.15	-0.14	-0.15	-0.26	-0.09	-0.43	-0.17	0.51	0.08
True Validity SD ¹	0.06	0.03	0.04	0.05	0.05	0.10	0.03	0.05	0.04	0	0
True Validity ²	0.28	0.14	0.20	-0.19	-0.20	-0.35	-0.12	-0.54	-0.23	0.63	0.11
True Validity SD ²	0.08	0.04	0.05	0.06	0.06	0.12	0.04	0.04	0.05	0	0
% Variance Accounted For — Sampling Error	45	59	47	35	61	9	60	27	53	16	100
% Variance Accounted For ¹	74	78	76	71	82	39	76	86	78	100	100
% Variance Accounted For ²	76	79	78	73	83	41	77	90	80	100	100
90% CV ¹	0.13	0.06	0.10	-0.08	-0.09	-0.14	-0.05	-0.37	-0.11	0.51	0.08
90% CV ²	0.18	0.09	0.13	-0.12	-0.12	-0.19	-0.07	-0.49	-0.16	0.63	0.11

r = correlation

SD = standard deviation

CV = credibility value

¹ Includes correction for range variation within organizations and dependent-variable measurement error

² Includes correction for range restriction across population of business/work units and dependent-variable measurement error

Estimates of the percent of variance accounted for by sampling error and other artifacts were capped at 100% given that it would not be possible in practice to account for more than 100% of the variance in effect sizes.

In the case of profitability, it is likely influenced indirectly by employee engagement and more directly by variables such as customer loyalty/engagement, productivity, turnover, safety, absenteeism, shrinkage, patient safety and quality. Remember, the productivity variable includes various measures of business/work unit productivity, the majority of which are sales data. Of the two financial variables included in the meta-analysis (sales and profit), engagement is more highly correlated with sales. This is probably because day-to-day employee engagement has an impact on customer perceptions, turnover, quality and other variables that relate to sales. In fact, this is what we have found empirically in our causal analyses (Harter et al., 2010). In the case of shrinkage, correlations may be somewhat lower because many factors influence merchandise shrinkage, including theft, attentiveness to inventory and damaged merchandise. The next section will explore the practical utility of the observed relationships.

As in Harter et al. (2002), we calculated the correlation of employee engagement to composite performance. As defined earlier, Table 4 provides the correlations and d-values for four analyses: the observed correlations; correction for dependent-variable measurement error; correction for dependent-variable measurement error and range restriction across companies; and correction for dependent-variable measurement error, range restriction and independent-variable measurement error (true score correlation).

As with previous meta-analyses, the effect sizes presented in Table 4 indicate substantial relationships between engagement and composite performance.

Business/work units in the top half on engagement within companies have 0.63 standard deviation units' higher composite performance compared with those in the bottom half on engagement.

Across companies, business/work units in the top half on engagement have 0.85 standard deviation units' higher composite performance compared with those in the bottom half on engagement.

After correcting for all available study artifacts (examining the true score relationship), business/work units in the top half on employee engagement have 1.12 standard deviation units' higher composite performance compared with those in the bottom half on engagement. This is the true score effect expected over time across all business/work units.

TABLE 4:
Correlation of Employee Engagement to Composite Business/Work Unit Performance — All Outcomes

Analysis	Correlation of Engagement to Performance
Observed r	0.28
d	0.58
r corrected for dependent-variable measurement error	0.30
d	0.63
r corrected for dependent-variable measurement error and range restriction across companies	0.39
d	0.85
ρ corrected for dependent-variable measurement error, range restriction and independent-variable measurement error	0.49
δ	1.12

r = correlation
d = difference in standard deviation units
ρ = true score correlation
δ = true score difference in standard deviation units

Utility Analysis: Practicality of the Effects

Utility Analysis

In the past, studies of job satisfaction's relationship to performance have had limited analysis of the utility of the reported relationships. Correlations have often been discounted as trivial without an effort to understand the potential utility, in practice, of the relationships. The Q¹² includes items that Gallup researchers have found to be changeable by the local manager and others within the business/work unit. As such, understanding the practical utility of potential changes is crucial.

The research literature includes a great deal of evidence that numerically small or moderate effects often translate into large practical effects (Abelson, 1985; Carver, 1975; Lipsey, 1990; Rosenthal & Rubin, 1982; Sechrest & Yeaton, 1982). As shown in Table 5, this is, in fact, the case here. Effect sizes referenced in this study are consistent with or above other practical effect sizes referenced in other reviews (Lipsey & Wilson, 1993).

A more intuitive method of displaying the practical value of an effect is that of binomial effect size displays, or BESDs (Rosenthal & Rubin, 1982; Grissom, 1994). BESDs typically depict the success rate of a treatment versus a control group as a percentage above the median on the outcome variable of interest.

BESDs can be applied to the results of this study. Table 5 shows the percentage of business/work units above the median on composite performance for high- and low-scoring business/work units on the employee engagement (Q¹²) composite measure. True validity estimates (correcting for measurement error only in the dependent variable) were used for analysis of business/work units both within and across organizations.

One can see from Table 5 that there are meaningful differences between the top and bottom halves. The top half is defined as the average of business/work units scoring in the higher 50% on the Q¹², and business/work units scoring in the lower 50% constitute the bottom half. It is clear from Table 5 that management would learn a great deal more about success if it studied what was going on in top-half business/work units rather than bottom-half units.

With regard to composite business/work unit performance, business/work units in the top half on employee engagement have an 86% higher success rate in their own organization and a 133% higher success rate across business/work units in all companies studied. In other words, business/work units with high employee engagement nearly double their odds of above-average composite performance in their own organizations and increase their odds for above-average success across business/work units in all organizations by 2.33 times.

TABLE 5:
BESDs for Employee Engagement and Outcomes

Employee Engagement	Business/Work Units Within Company	Business/Work Units Across Companies
	% Above Median Composite Performance (Total)	% Above Median Composite Performance (Total)
Top Half	65	70
Bottom Half	35	30

To illustrate this further, Table 6 shows the probability of above-average performance for various levels of employee engagement. Business/work units at the highest level of employee engagement across all business/work units in Gallup’s database have an 83% chance of having high (above average) composite performance. This compares with a 17% chance for those with the lowest level of employee engagement. So, it is possible to achieve high performance without high employee engagement, but the odds are substantially lower (in fact, more than five times as low).

TABLE 6:
Percentage of Business/Work Units Above the Median on Composite Performance (Customer Loyalty/Engagement, Profitability, Productivity, Turnover, Safety, Absenteeism, Shrinkage, Quality [Defects]) for Different Employee Engagement Percentiles

Employee Engagement Percentile	Percentage Above Median
Above 99 th	83
95 th	75
90 th	70
80 th	63
70 th	58
60 th	54
50 th	50
40 th	46
30 th	42
20 th	37
10 th	30
5 th	25
Below 1 st	17

Other forms of expressing the practical meaning behind the effects from this study include utility analysis methods (Schmidt & Rauschenberger, 1986). Formulas have been derived for estimating the dollar-value increases in output as a result of improved employee selection. These formulas take into account the size of the effect (correlation), the variability in the outcome being studied and the difference in the independent variable (engagement in this case) and can be used in estimating the difference in performance outcomes at different levels in the distribution of Q¹² scores. Previous studies (Harter et al., 2002; Harter & Schmidt, 2000) provided utility analysis examples, comparing differences in outcomes between the top and bottom quartiles on the Q¹². For companies included in the fourth edition of the meta-analysis, it was typical to see differences between top and bottom engagement quartiles of 2 to 4 percentage points on customer loyalty/engagement, 1 to 4 points on profitability, hundreds of thousands of dollars on productivity figures per month, 4 to 19 points in turnover for low-turnover companies, and 14 to 51 points for high-turnover companies.

Gallup researchers recently conducted utility analysis across multiple organizations with similar outcome metric types (an update of analyses presented in Harter et al., 2002, p. 275, Table 6). Comparing top-quartile with bottom-quartile engagement, business/work units resulted in median percent differences of:

- 10% in customer loyalty/engagement
- 23% in profitability
- 18% in productivity (sales)
- 14% in productivity (production records and evaluations)
- 21% in turnover for high-turnover organizations (those with more than 40% annualized turnover)
- 51% in turnover for low-turnover organizations (those with 40% or lower annualized turnover)
- 63% in safety incidents (accidents)
- 78% in absenteeism
- 28% in shrinkage (theft)
- 58% in patient safety incidents (mortality and falls)
- 32% in quality (defects)
- 70% in wellbeing (thriving employees)
- 22% in organizational citizenship (participation)

The above differences and their utility in dollar terms should be calculated for each organization, given the organization's unique metrics, situation and distribution of outcomes across business/work units. The median estimates represent the midpoint in the distribution of utility analyses conducted across 736 studies based on organizational data with similar outcome types.

One can see that the above relationships are nontrivial if the business has many business/work units. The point of the utility analysis, consistent with the literature that has taken a serious look at utility, is that the relationship between employee engagement and organizational outcomes, even conservatively expressed, is meaningful from a practical perspective.

Discussion

Findings reported in this updated meta-analysis continue to provide large-scale cross-validation to prior meta-analyses conducted on the Q¹² instrument. The present study expands the size of the meta-analytic database by 71,494 business/work units (an increase of 64%), as well as the number of countries and business/work units studied. The relationship between engagement and performance at the business/work unit level continues to be substantial and highly generalizable across companies. Differences in correlations across companies can be attributed mostly to study artifacts. For outcomes with sample sizes of 10,000 or more business/work units in the 10th edition report (customer loyalty/engagement, profitability, productivity, turnover, safety and absenteeism), the results of this updated meta-analysis are almost completely replicated. For all six outcomes, differences in effect sizes between the 10th and 11th edition results ranged from 0.00-0.03, and evidence of generalizability of all outcomes aside from absenteeism remained substantial. For absenteeism, low percentage of variance accounted for by sampling error was the result of one large study with a substantially higher effect size than the combination of other studies in the meta-analysis. But the direction of relationship between engagement and absenteeism was highly generalizable (90% credibility value of -0.19). The outcomes that revealed meaningful differences in effect size results between the 10th and 11th editions were mostly based on a smaller number of business/work units (e.g., quality/defects, wellbeing) and it is expected that these results will stabilize as more data become available.

The size of this database gives us confidence in the direction of the true relationship between employee engagement and business outcomes and confidence in the size of the relationship, which can be helpful in calculating potential return on investment from performance management initiatives. The consistent findings across many iterations of meta-analysis also speak to the importance and relevance of workplace perceptions for businesses across different economic times and even amid massive changes in technology since 1997 when this study series began. As noted earlier, a prior meta-analysis found somewhat higher correlations of engagement and business results during past economic recessions (Harter et al., 2020).

The findings from this updated meta-analysis are important because they continue to reinforce that generalizable tools can be developed and used across different organizations with a high level of confidence that they elicit important performance-related information. The data from the present study provide further substantiation to the theory that doing what is best for employees does not have to contradict what is best for the business or organization. This concept is further reinforced in the present study with the strong relationship between employee engagement and wellbeing. While the strength of the relationship dropped slightly from the results reported in the 10th edition report, the relationship remained very strong with inclusion of data from over three times as many business/work units.

These findings have significant ramifications for organizations given that wellbeing is a pressing issue for the global workforce. Among the most notable findings from Gallup's most recent *State of the Global Workplace Report* (Gallup, 2024) were that:

- Twenty percent of the world's employees experience daily loneliness and fully remote workers experience even higher levels of loneliness.
- Global employee wellbeing declined in 2023 for younger workers (under age 35).

The strong relationship between engagement and wellbeing reported in this meta-analysis suggests that a focus on engagement may be critical for addressing these issues. A more engaged workforce would likely lead to higher levels of overall wellbeing and lower levels of loneliness.

The association between engagement and wellbeing is supported by prior research. In worldwide samples, we have found consistent associations between engagement at work and life satisfaction, daily experiences and health (Gallup, 2024). A longitudinal study found that changes in engagement predicted changes in cholesterol and triglycerides (via blood samples) after controlling for demographics, health history and medication use (Harter, Canedy, & Stone, 2008). We have also observed differences in momentary affect and cortisol when comparing engaged and disengaged employees (Harter & Stone, 2011). Consistent with this study's finding of association between engagement and organizational citizenship, a previous study found that engagement at work predicts likelihood of involvement in organization-sponsored health programs (Agrawal & Harter, 2009). A previous meta-analysis found strong associations between job attitudes and citizenship behaviors (Whitman et al., 2010). Engagement has also been shown to be integral to perceptions of inclusiveness across diverse groups (Jones & Harter, 2004; Badal & Harter, 2014). All together, these studies suggest that the boundaries for the effect of an engaging workplace are quite wide.

It is also worth noting that, as Gallup consultants have educated managers and partnered with companies on change initiatives, organizations have experienced, on average, one-half standard deviation growth on employee engagement between the first and second year and often a full standard deviation growth and more after three or more years. An important element in the utility of any applied instrument and improvement process is the extent to which the variable under study can be changed. Our current evidence is that employee engagement is changeable and varies widely by business/work unit. A recent meta-analysis has found substantial increases in manager engagement, employee engagement and reductions in turnover rates when managers participate in curriculum that is aimed at improving employee engagement and performance management through the strengths of each manager (Asplund & Agrawal, 2022).

As we demonstrated in the utility analyses presented here and in other iterations of this analysis, the size of the effects observed has important practical implications, particularly given that engagement, as measured here, is quite changeable.

References

- Abelson, R. P. (1985). A variance explanation paradox: When a little is a lot. *Psychological Bulletin*, 97(1), 129–133.
- Agrawal, S., & Harter, J. K. (2009, October). *Employee engagement influences involvement in wellness programs*. Omaha, NE: Gallup.
- Apedo-Amah MC, Avdiu B, Cirera X, Cruz M, Davies E, Grover A, ..., Tran TT (2020) Unmasking the Impact of COVID-19 on Businesses. Available at: <https://openknowledge.worldbank.org/handle/10986/34626>.
- Asplund, J., & Agarwal, S. (2022). *Meta-analysis of the relationship between Gallup's management development programs and organizational outcomes*. Omaha, NE: Gallup.
- Badal, S., & Harter, J. K. (2014). Gender diversity, business-unit engagement, & performance. *Journal of Leadership & Organizational Studies*, 2(4), 354–365.
- Bangert-Drowns, R. L. (1986). Review of developments in meta-analytic method. *Psychological Bulletin*, 99(3), 388–399.
- Batt, R. (2002). Managing customer services: Human resource practices, quit rates, and sales growth. *Academy of Management Journal*, 45(3), 587–597.
- Bloom, N., Bunn, P., Mizen, P., Smietanka, P., & Thwaites, G. (2023). The impact of COVID-19 on productivity. *Review of Economics and Statistics*, 1–45.
- Bureau of Labor Statistics. (2024). Job openings and labor turnover survey (JOLTS). Retrieved February 28, 2024, from <https://www.bls.gov/jlt/>
- Carver, R. P. (1975). The Coleman Report: Using inappropriately designed achievement tests. *American Educational Research Journal*, 12(1), 77–86.
- Denison, D. R. (1990). *Corporate culture and organizational effectiveness*. New York: John Wiley.
- Edmans, A. (2012, November 1). The link between job satisfaction and firm value, with implications for corporate social responsibility. *Academy of Management Perspectives*, 26(4), 1–19.
- Fairlie, R., & Fossen, F. M. (2021). The early impacts of the COVID-19 pandemic on business sales. *Small Business Economics*, 1–12.
- Fleming, J. H., Coffman, C., & Harter, J. K. (2005, July-August). Manage your Human Sigma. *Harvard Business Review*, 83(7), 106–114.
- Gallup (2024). *State of the global workplace: The Voice of the World's Employees*. Omaha, NE: Gallup.
- Gallup, G. H. (1976, Winter). Human needs and satisfactions: A global survey. *Public Opinion Quarterly*, 40(4), 459–467.
- Gallup, G. H., & Hill, E. (1959). *The secrets of long life*. New York: Bernard Geis.
- The Gallup Organization (1993–1998). *Gallup Workplace Audit* (Copyright Registration Certificate TX-5 080 066). Washington, D.C.: U.S. Copyright Office.
- Grissom, R. J. (1994). Probability of the superior outcome of one treatment over another. *Journal of Applied Psychology*, 79(2), 314–316.
- Harrison, D. A., Newman, D. A., & Roth, P. L. (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and time sequences. *Academy of Management Journal*, 49(2), 305–325.
- Harter, J. K., & Agrawal, S. (2011). *Cross-cultural analysis of Gallup's Q12 employee engagement instrument*. Omaha, NE: Gallup.
- Harter, J. K., Asplund, J. W., & Fleming, J. H. (2004, August). *HumanSigma: A meta-analysis of the relationship between employee engagement, customer engagement and financial performance*. Omaha, NE: The Gallup Organization.
- Harter, J. K., Canedy, J., & Stone, A. (2008). A longitudinal study of engagement at work and physiologic indicators of health. Presented at Work, Stress, & Health Conference. Washington, D.C.
- Harter, J. K., & Creglow, A. (1997). *A meta-analysis and utility analysis of the relationship between core GWA employee perceptions and business outcomes*. Lincoln, NE: The Gallup Organization.
- Harter, J. K., & Creglow, A. (1998, July). *A meta-analysis and utility analysis of the relationship between core GWA employee perceptions and business outcomes*. Lincoln, NE: The Gallup Organization.
- Harter, J. K., Hayes, T. L., & Schmidt, F. L. (2004, January). *Meta-analytic predictive validity of Gallup Selection Research Instruments (SRI)*. Omaha, NE: The Gallup Organization.
- Harter, J. K., & Schmidt, F. L. (2000, March). *Validation of a performance-related and actionable management tool: A meta-analysis and utility analysis*. Princeton, NJ: The Gallup Organization.
- Harter, J. K., & Schmidt, F. L. (2002, March). *Employee engagement, satisfaction, and business-unit-level outcomes: A meta-analysis*. Lincoln, NE: The Gallup Organization.

- Harter, J. K., & Schmidt, F. L. (2006). Connecting employee satisfaction to business unit performance. In A. I. Kraut (Ed.), *Getting action from organizational surveys: New concepts, technologies, and applications* (pp. 33–52). San Francisco: Jossey-Bass.
- Harter, J. K., & Schmidt, F. L. (2008). Conceptual versus empirical distinctions among constructs: Implications for discriminant validity. *Industrial and Organizational Psychology*, 1, 37–40.
- Harter, J. K., Schmidt, F. L., Agrawal, S., & Plowman, S. K. (2013, February). *The Relationship Between Engagement at Work and Organizational Outcomes: 2012 Q12 Meta-Analysis*. Omaha, NE: Gallup.
- Harter, J. K., Schmidt, F. L., Agrawal, S., Plowman, S. K., Blue, A. (2016). *The relationship between engagement at work and organizational outcomes: 2016 Q¹² meta-analysis: Ninth edition*. Omaha, NE: Gallup.
- Harter, J. K., Schmidt, F. L., Agrawal, S., Blue, A., Plowman, S. K., Josh, P., & Asplund, J. (2016). *The relationship between engagement at work and organizational outcomes: 2020 Q¹² meta-analysis: Tenth edition*. Omaha, NE: Gallup.
- Harter, J. K., Schmidt, F. L., Agrawal, S., Plowman, S. K., & Blue, A. T. (2020). Increased business value for positive job attitudes during economic recessions: A meta-analysis and SEM analysis. *Human Performance*, 33(4), 307–330.
- Harter, J. K., Schmidt, F. L., Asplund, J. W., Killham, E. A., & Agrawal, S. (2010). Causal impact of employee work perceptions on the bottom line of organizations. *Perspectives on Psychological Science*, 5(4), 378–389.
- Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, 87(2), 268–279.
- Harter, J. K., Schmidt, F. L., & Killham, E. A. (2003, July). *Employee engagement, satisfaction, and business-unit-level outcomes: A meta-analysis*. Omaha, NE: The Gallup Organization.
- Harter, J. K., Schmidt, F. L., Killham, E. A., & Agrawal, S. (2009). *Q¹² Meta-Analysis*. Gallup. Omaha, NE.
- Harter, J. K., Schmidt, F. L., Killham, E. A., & Asplund, J. W. (2006). *Q¹² Meta-Analysis*. Gallup. Omaha, NE.
- Harter, J. K., & Stone, A. A. (2011). Engaging and disengaging work conditions, momentary experiences, and cortisol response. *Motivation and Emotion*, 36(2), 104–113.
- Hunter, J. E., & Schmidt, F. L. (1983). Quantifying the effects of psychological interventions on employee job performance and work-force productivity. *American Psychologist*, 38(4), 473–478.
- Hunter, J. E., & Schmidt, F. L. (1990). *Methods of meta-analysis: Correcting error and bias in research findings*. Newbury Park, CA: Sage.
- Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings (2nd ed.)*. Newbury Park, CA: Sage.
- Hunter, J. E., Schmidt, F. L., & Le, H. A. (2006). Implications of direct and indirect range restriction for meta-analysis methods and findings. *Journal of Applied Psychology*, 91, 594–612.
- Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38(3), 635–672.
- Iaffaldano, M. T., & Muchinsky, P. M. (1985). Job satisfaction and job performance: A meta-analysis. *Psychological Bulletin*, 97(2), 251–273.
- Johnson, J. W. (1996). Linking employee perceptions of service climate to customer satisfaction. *Personnel Psychology*, 49, 831–851.
- Jones, J. R., & Harter, J. K. (2004). Race effects on the employee engagement — turnover intention relationship. *Journal of Leadership & Organizational Studies*, 11(2), 78–87.
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, 127(3), 376–407.
- Judge, T. A., Zhang, S. C., & Glerum, D. R. (2020). Job satisfaction. *Essentials of Job Attitudes and Other Workplace Psychological Constructs*, 207–241.
- Lipsey, M. W. (1990). *Design sensitivity: Statistical power for experimental research*. Newbury Park, CA: Sage.
- Lipsey, M. W., & Wilson, D. B. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. *American Psychologist*, 48(12), 1181–1209.
- Mackay, M. M., Allen, J. A., & Landis, R. S. (2017). Investigating the incremental validity of employee engagement in the prediction of employee effectiveness: A meta-analytic path analysis. *Human Resource Management Review*, 27(1), 108–120.
- Mosier, C. I. (1943). On the reliability of a weighted composite. *Psychometrika*, 8, 161–168.
- Newman, D. A., Harrison, D. A., Carpenter, N. C., & Rariden, S. M. (2016). Construct mixology: Forming new management constructs by combining old ones. *The Academy of Management Annals*, 10(1), 943–995.
- Ostroff, C. (1992). The relationship between satisfaction, attitudes, and performance: An organizational level analysis. *Journal of Applied Psychology*, 77(6), 963–974.

- Reynierse, J. H., & Harker, J. B. (1992). Employee and customer perceptions of service in banks: Teller and customer service representative ratings. *Human Resource Planning*, 15(4), 31–46.
- Rosenthal, R., & Rubin, D. B. (1982). A simple, general purpose display of magnitude of experimental effect. *Journal of Educational Psychology*, 74, 166–169.
- Sackett, P. R., Zhang, C., Berry, C. M., & Lievens, F. (2023). Revisiting the design of selection systems in light of new findings regarding the validity of widely used predictors. *Industrial and Organizational Psychology*, 16(3), 283–300.
- Schmidt, F. L. (1992). What do data really mean? Research findings, meta-analysis, and cumulative knowledge in psychology. *American Psychologist*, 47(10), 1173–1181.
- Schmidt, F. L., & Hunter, J. E. (1996). Measurement error in psychological research: Lessons from 26 research scenarios. *Psychological Methods*, 1(2), 199–223.
- Schmidt, F. L., & Hunter, J. E. (2015). *Methods of meta-analysis: Correcting error and bias in research findings*. (3rd ed.). Thousand Oaks, CA: Sage.
- Schmidt, F. L., Hunter, J. E., McKenzie, R. C., & Muldrow, T. W. (1979). Impact of valid selection procedures on work-force productivity. *Journal of Applied Psychology*, 64(6), 609–626.
- Schmidt, F. L., Hunter, J. E., Pearlman, K., & Rothstein-Hirsh, H. (1985). Forty questions about validity generalization and meta-analysis. *Personnel Psychology*, 38, 697–798.
- Schmidt, F. L., & Le, H. A. (2004). Software for the Hunter-Schmidt meta-analysis methods. Iowa City, IA: Tippie College of Business, University of Iowa.
- Schmidt, F. L., Oh, I. S., & Shaffer, J. A. (2016). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 100 years of research findings. *Fox School of Business Research Paper*.
- Schmidt, F. L., & Rader, M. (1999). Exploring the boundary conditions for interview validity: Meta-analytic validity findings for a new interview type. *Personnel Psychology*, 52, 445–464.
- Schmidt, F. L., & Rauschenberger, J. (1986, April). *Utility analysis for practitioners*. Paper presented at the First Annual Conference of The Society for Industrial and Organizational Psychology, Chicago, IL.
- Schmit, M. J., & Allscheid, S. P. (1995). Employee attitudes and customer satisfaction: Making theoretical and empirical connections. *Personnel Psychology*, 48, 521–536.
- Schneider, B. (1991). Service quality and profits: Can you have your cake and eat it too? *Human Resource Planning*, 14(2), 151–157.
- Schneider, B., Ashworth, S. D., Higgs, A. C., & Carr, L. (1996). Design, validity, and use of strategically focused employee attitude surveys. *Personnel Psychology*, 49(3), 695–705.
- Schneider, B., & Bowen, D. E. (1993). The service organization: Human resources management is crucial. *Organizational Dynamics*, 21, 39–52.
- Schneider, B., Parkington, J. J., & Buxton, V. M. (1980). Employee and customer perceptions of service in banks. *Administrative Science Quarterly*, 25, 252–267.
- Sechrest, L., & Yeaton, W. H. (1982). Magnitudes of experimental effects in social science research. *Evaluation Review*, 6(5), 579–600.
- Ulrich, D., Halbrook, R., Meder, D., Stuchlik, M., & Thorpe, S. (1991). Employee and customer attachment: Synergies for competitive advantage. *Human Resource Planning*, 14(2), 89–103.
- Wagner, R., & Harter, J. K. (2006). *12: The elements of great managing*. New York: Gallup Press.
- Whitman, D. S., Van Rooy, D. L., & Viswesvaran, C. (2010). Satisfaction, citizenship behaviors, and performance in work units: A meta-analysis of collective construct relations. *Personnel Psychology*, 63(1), 41–81.
- Wiley, J. W. (1991). Customer satisfaction: A supportive work environment and its financial cost. *Human Resource Planning*, 14(2), 117–127.
- Zohar, D. (1980). Safety climate in industrial organizations: Theoretical and applied implications. *Journal of Applied Psychology*, 65(1), 96–102.
- Zohar, D. (2000). A group-level model of safety climate: Testing the effect of group climate on microaccidents in manufacturing jobs. *Journal of Applied Psychology*, 85(4), 587–596.

Appendix A: Reliabilities of Business/Work Unit Outcomes

Based on Schmidt & Hunter, 1996, scenario 23, page 219

Customer Loyalty/ Engagement		Profitability		Productivity		Turnover		Safety		Quality (Defects)	
Reliability	Frequency	Reliability	Frequency	Reliability	Frequency	Reliability	Frequency	Reliability	Frequency	Reliability	Frequency
0.89	1	1.00	3	1.00	6	1.00	1	0.84	1	0.94	1
0.87	1	0.99	2	0.99	2	0.63	2	0.82	1		
0.86	1	0.94	1	0.92	2	0.62	1	0.66	1		
0.84	1	0.93	1	0.90	1	0.60	1	0.63	1		
0.75	1	0.91	1	0.62	1	0.39	1	0.46	1		
0.73	1	0.90	1	0.57	1	0.27	1	0.19	1		
0.58	1	0.89	2	0.34	1	0.25	1				
0.53	2	0.79	1			0.24	1				
0.52	1	0.57	1								
0.51	1	0.56	1								
0.46	1										
0.41	1										
0.33	1										

Appendix B: Test-Retest Reliabilities of Employee Engagement

Based on Schmidt & Hunter, 1996, scenario 23, page 219

Engagement	
Reliability	Frequency
0.97	1
0.92	1
0.86	1
0.84	1
0.83	1
0.82	3
0.81	1
0.80	3
0.79	2
0.78	1
0.77	1
0.76	1
0.75	4
0.74	1
0.73	2
0.71	2
0.70	1
0.69	1
0.66	2
0.65	2
0.64	1
0.63	1
0.61	3
0.60	2
0.59	1
0.57	1
0.55	1
0.54	1
0.47	3
0.45	1
0.35	1
0.27	1

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