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Business-Unit-Level Relationship Between Employee Satisfaction, Employee Engagement, and Business Outcomes: A Meta-Analysis

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Based on 7,939 business units in 36 companies, this study used meta-analysis to examine the relationship at the business-unit level between employee satisfaction–engagement and the business-unit outcomes of customer satisfaction, productivity, profit, employee turnover, and accidents. Generalizable relationships large enough to have substantial practical value were found between unit-level employee satisfaction–engagement and these business-unit outcomes. One implication is that changes in management practices that increase employee satisfaction may increase business-unit outcomes, including profit.

Locke, in his seminal 1976 review of the job satisfaction literature, noted that more than 3,300 articles had been published on the topic of job satisfaction. A search of PsycINFO for the years 1976 through 2000 revealed at least another 7,855 publications on the subject. Most job satisfaction studies (and subsequent meta-analyses) have focused on the individual employee level as a unit of analysis. For example, researchers have found positive linkages between general workplace attitudes and individual performance outcomes (Iaffaldano & Muchinsky, 1985). A recent meta-analysis showed a substantial relation between individual job satisfaction and individual performance ($r = .30$; Judge, Thoresen, Bono, & Patton, 2001). Even though it is more common to study employee attitude data at the individual employee level, studying data at the business-unit level is critical because that is the level at which employee survey data are typically reported to client organizations. Business-unit-level research also provides opportunities to establish linkages to outcomes that are directly relevant to most businesses. Important outcomes such as customer loyalty, profitability, productivity, employee turnover, and safety variables are typically aggregated and reported at the business-unit level. A final advantage to reporting and studying data at the business-unit level is that single-item scores are similar in reliability to subscale or dimension scores at the individual level of analysis because each work-group item score is an average across many different individual-level scores, making single-item scores quite reliable. Thus, employee surveys reported at a business-unit level are more efficient and less dependent on survey length because item-level measurement error is less of a concern.

Business-Unit Analyses

Several researchers have looked at how aggregate business-unit-level employee satisfaction, pride in service, and customer orientation relate to customer perceptions of service (Johnson, 1996; Reynierse & Harker, 1992; Schmit & Allscheid, 1995; Schneider, 1991; Schneider, Ashworth, Higgs, & Carr, 1996; Schneider & Bowen, 1992; Schneider, White, & Paul, 1998; Ulrich, Halbrook, Meder, Stuchlik, & Thorpe, 1991; Wiley, 1991). Other researchers have studied employee attitudes aggregated at the company level (Denison, 1990), the school level (Ostroff, 1992), and the bank-branch level (Ryan, Schmit, & Johnson, 1996) in relation to other organizational outcomes such as financials and employee turnover. Although findings of causal direction are unresolved, preliminary evidence in individual studies generally suggests that aggregate employee attitudes have positive relations with customer satisfaction–loyalty and financials, and there is a negative relationship between employee attitudes and employee turnover. One potential problem with such business-unit-level studies is limited data due to a limited number of business units (the number of business units becomes the sample size) or limited access to outcome measures that one can compare across business units. For this reason, many of these studies are limited in precision and statistical power; as such, results from individual studies may appear to conflict with one another. Meta-analytic techniques can provide the opportunity to pool studies together to clarify the strength of effects and their generalizability.

Over the course of the past 30 years, researchers with The Gallup Organization have conducted thousands of qualitative focus groups across a wide variety of industries. The approach

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underlying this research has been founded on what might be called "positive psychology" (e.g., Seligman & Csikszentmihalyi, 2000)—specifically, the study of the characteristics of successful employees and managers and productive work groups. In developing measures of employee perceptions, Gallup researchers have focused on the consistently important human resource issues on which managers can develop specific action plans. Throughout the workplace research conducted by Gallup researchers, both qualitative and quantitative data have indicated the importance of the supervisor or the manager and his or her influence over the engagement level of employees and their satisfaction with their company. In Gallup's research, items measuring aspects of the environment that the supervisor can directly influence explain most of the variance in lengthier job satisfaction surveys and lengthier employee opinion surveys. This finding has been mirrored in individual-level meta-analyses (e.g., Judge et al., 2001), in which the specific facet of satisfaction most highly related to performance has been satisfaction with the supervisor.

Hypotheses

The hypotheses examined in this study were as follows:

Hypothesis 1: Business-unit-level employee satisfaction and engagement will have positive average correlations with the business-unit outcomes of customer satisfaction, productivity, profit, employee retention, and employee safety.

Hypothesis 2: The correlations between employee satisfaction and engagement and business-unit outcomes will generalize across organizations for all business-unit outcomes. That is, these correlations will not vary substantially across organizations, and in particular, there will be few if any organizations with zero or negative correlations.

Method

Independent Variable Measures

This study used an instrument developed from studies of work satisfaction, work motivation, supervisory practices, and work-group effectiveness. The instrument, the Gallup Workplace Audit (GWA; The Gallup Organization, 1992–1999), is composed of an overall satisfaction item plus 12 items that measure employee perceptions of work characteristics. These 13 items were developed to measure employee perceptions of the quality of people-related management practices in business units. The criteria for selection of these questions came from focus groups, research, and management and scientific studies of the aspects of employee satisfaction and engagement that are important and influenceable by the manager at the business-unit or work-group level. This article presents a meta-analysis of studies conducted by The Gallup Organization to calibrate the instrument's relatedness to business-unit outcomes, generalizability across organizations, and usefulness in differentiating more effective work groups from less effective ones in relation to a variety of desirable business outcomes.

The term *employee engagement* refers to the individual's involvement and satisfaction with as well as enthusiasm for work. Aside from the overall satisfaction item, the GWA's 12 items (Items 1–12 in Table 1) measure processes and issues that are actionable at (i.e., under the influence of) the work group's supervisor or manager (further elaborated on in the Discussion section). Although these 12 items explain a great deal of the variance in what is defined as "overall job satisfaction" in the literature and although as a composite measure they have high convergent validities (Mount, Colbert, Harter, & Barrick, 2000) with overall job satisfaction measures such as the Brayfield–Rothe Satisfaction Index (Brayfield & Rothe, 1951), we refer to them as measures of employee engagement to differentiate these actionable work-group-level facets from the more general theoretical construct of "job satisfaction."

Table 1
Items Comprising the Gallup Workplace Audit

Overall Satisfaction—On a five-point scale, where "5" is *extremely satisfied* and "1" is *extremely dissatisfied*, how satisfied are you with (Name of Company) as a place to work?

1. I know what is expected of me at work.
2. I have the materials and equipment I need to do my work right.
3. At work, I have the opportunity to do what I do best every day.
4. In the last seven days, I have received recognition or praise for doing good work.
5. My supervisor, or someone at work, seems to care about me as a person.
6. There is someone at work who encourages my development.
7. At work, my opinions seem to count.
8. The mission/purpose of my company makes me feel my job is important.
9. My associates (fellow employees) are committed to doing quality work.
10. I have a best friend at work.
11. In the last six months, someone at work has talked to me about my progress.
12. This last year, I have had opportunities at work to learn and grow.

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The GWA items are antecedents of personal job satisfaction and other affective constructs. As Kahn (1990) suggested, broadly defined constructs such as job involvement (Lawler & Hall, 1970; Lodahl & Kejner, 1965), organizational commitment (Mowday, Porter, & Steers, 1982), or intrinsic motivation (Deci, 1975) add to understanding employee perceptions of themselves, their work, and their organization. However, these understandings are too general to be easily applied in practice because they exist at a distance from the day-to-day experiences of employees within their work situation. That is, employees are proud of their company and satisfied with their job in part because their basic needs are met fairly consistently. As in Kahn's conceptualization, we see engagement occurring when individuals are emotionally connected to others and cognitively vigilant. Employees are emotionally and cognitively engaged when they know what is expected of them, have what they need to do their work, have opportunities to feel an impact and fulfillment in their work, perceive that they are part of something significant with coworkers whom they trust, and have chances to improve and develop. Having a measurement tool with items that make sense to employees and managers is critical to employees' and managers' acceptance of the instrument's results and for their motivation to take action as a result of feedback based on such items.

The GWA was designed to reflect two broad categories of employee survey items: those measuring attitudinal outcomes (satisfaction, loyalty, pride, customer service intent, and intent to stay with the company) and those measuring or identifying issues within a manager's control that are antecedents to attitudinal outcomes. The GWA includes 1 outcome item referring to overall satisfaction with one's company that can be seen as a generalized summary of specific affect-based reactions to work (see also Locke, 1976, pp. 1300–1319). A meta-analysis by Wanous, Reichers, and Hudy (1997) demonstrated that, even at the individual level, single-item measures of overall satisfaction have moderate reliabilities (approximately .60). At the business-unit level, where responses are averaged across many individuals, the reliability of single items is higher (as we show later in the Results section).

The 13 GWA statements are presented in Table 1. As a current standard, these statements are asked of each employee (median participation rate = 77%) with six response options (1 = *strongly disagree*, 5 = *strongly agree*; the sixth response is unscored and is *don't know/does not apply*). As a satisfaction item, the 1st item is scored on a satisfaction scale rather than on an agreement scale. As a total instrument (sum or mean of Items 1–12), the GWA has a Cronbach's alpha of .91 at the business-unit level of analysis (N = 4,172 business units). The meta-analytic convergent validity of the equally weighted mean (or sum) of Items 1–12 to the equally weighted mean (or sum) of additional items added to longer surveys measuring commonly known facets of job satisfaction and engagement is .91 (also at the business-unit level of analysis; N = 8,127 business units). The observed correlation of the mean (or sum) of Items 1–12 with the overall satisfaction item averages .77 (at the business-unit level), and the true score correlation is .91. As such, additional facets related to overall satisfaction are likely to be statistically redundant with Items 1–12. The above findings provide evidence that the GWA, as a composite measure, captures the general factor in longer employee surveys and most of the variance in overall satisfaction assessments. (We further discuss the statistical relevance of additional antecedent items in the Discussion section.) In studying the appropriateness of analyzing the 12 antecedent items as a unidimensional construct, we conducted a factor analysis across business units and companies and found the ratio of the first to second eigenvalues to be 5.9 times the ratio of the second to third eigenvalues (sufficient according to a definition of unidimensionality provided by Lord, 1980).

Description of the Data

The Gallup database contains 42 studies conducted in 36 independent companies. In each GWA study, 1 or more of the GWA core items were used (83% included all 12 items, and 90% included 11 or more items), and starting in 1997, all items were included in all studies. For each business unit, its score on the employee engagement variable was the average across the GWA items that were administered. Its score on overall satisfaction was its mean score on the single overall satisfaction item. Satisfaction data were aggregated at the business-unit level and were correlated with business-unit performance measures within each company: customer satisfaction–loyalty, profitability, productivity, turnover, and safety incidents. Again, the level of analysis in these studies was the business unit, not the individual employee.

Pearson correlations were calculated to estimate the correlation of business-unit mean of employee satisfaction–engagement with each of these five general business outcomes (described below). Correlations were calculated across business units within each company, and these correlation coefficients were entered into the meta-analysis database. We then calculated mean validities, standard deviations of validities, and validity generalization statistics for these two composite indices for each of the five business-unit outcome measures.

Tables 2 and 3 provide summaries of the studies included in this meta-analytic study. Table 2 presents the number of companies, business units, and respondents represented in each industry. There was considerable variation in type of industry represented; companies from 21 industries provided studies. Each of the five general government-industry clas-

Table 2
Number of Companies, Business Units, and Respondents by Industry Type

Industry type	Companies	Business units	Respondents
Financial			
Depository	3	1,163	8,656
Security	2	69	2,606
Manufacturing			
Food	2	35	2,781
Instrument	1	8	164
Paper	1	118	35,479
Printing	1	14	420
Retail			
Automotive	1	80	1,384
Building materials	1	42	4,340
Eating	5	316	16,999
Entertainment	1	106	1,051
Food stores	2	184	16,483
Furniture	1	275	28,175
Miscellaneous	1	634	14,753
Services			
Business	1	20	600
Education	3	200	1,747
Health	2	334	13,675
Hotels	3	167	6,549
Recreation	1	14	288
Transportation and public utilities			
Trucking	1	96	6,213
Communication	2	4,039	35,964
Electrical	1	25	187
Total financial	5	1,232	11,262
Total manufacturing	5	175	38,844
Total retail	12	1,637	83,185
Total services	10	735	22,859
Total transportation and public utilities	4	4,160	42,364
Total	36	7,939	198,514

Table 3
Number of Companies, Business Units, and Respondents by Business-Unit Type

Business/ operating-unit type	Companies	Business units	Respondents
Bank branch	3	1,163	8,656
Call center department	2	52	2,024
City center office	3	64	2,612
Dealership	1	80	1,384
Health care unit	2	334	13,675
Hotel	1	36	3,124
Plant or mill	2	130	38,041
Restaurant	5	316	16,999
Region	1	96	6,213
Sales team	2	31	383
School	2	186	1,497
Store	6	1,241	64,802
Team or department	6	4,210	39,104
Total	36	7,939	198,514

sifications by means of Standard Industrial Classification (National Technical Information Services, 1987) was represented, with the largest number of companies represented in retail and service industries. The largest number of business units was in transportation and public utilities, which was heavily influenced by one large study for one communications company. (This one company had effect sizes at approximately the median of the distribution of effect sizes for other companies.)

Table 3 presents the number of companies, business units, and respondents included by type of business unit (bank branches, stores, restaurants, etc.). There was also considerable variation in type of business unit, ranging from stores, to manufacturing plants, to departments. Overall, 13 different types of business units were represented, with the most frequent categories being stores, teams–departments, and restaurants.

In the selection of studies for this meta-analysis, each company was represented once in each analysis. For six companies, multiple studies were conducted. To ensure inclusion of the best possible information for each company represented in the study, some basic decision rules were followed. If two concurrent studies were conducted for the same client—that is, if GWA and outcome data were collected concurrently in the same year—then the weighted average effect sizes across the multiple studies were entered as the value for that company. If a company had both a concurrent and a predictive study—for example, if GWA data were collected in Year 1 and outcomes were tracked in Year 2—then the effect sizes from the predictive study were entered. The latter decision was implemented assuming that predictive data may be more informative than concurrent data, because one of our assumptions was that employees' perceptions predict future behavior, which in turn is related to outcomes (this assumption is elaborated on in the Discussion section).

Dependent Variable Measures

Customer satisfaction–loyalty. Customer satisfaction data were available for 24 studies from 20 companies that examined the correlation between business-unit GWA scores and customer perceptions. Customer perceptions included customer satisfaction–loyalty scores, patient satisfaction–loyalty scores, students' ratings of teachers, and quality ratings by those posing as customers (mystery shoppers in 1 study). Customer instruments varied from company to company. For each company, the general index of customer satisfaction–loyalty was an average score of the items included in each measure.

Profitability. Profitability measures were available for 28 studies from 23 companies. The definition of *profitability* was typically profit as a percentage of revenue (sales). In several companies, the researchers used a difference score from the previous year or a difference from a budgeted amount as the best measure of profit because it represented a more accurate measure of each unit's relative performance. Such "control for business opportunity" variables were used when profitability figures were deemed to be not comparable from one unit to the next. For example, a difference variable involved dividing profit by revenue for a business unit and then subtracting a budgeted percentage from that percentage. In every case, profitability variables were measures of margin, and productivity variables (described below) were measures of amount produced. Within each company, the same measures were used across all business units.

Productivity. Twenty-four studies from 21 companies included measures of productivity. Measures of business-unit productivity consisted of revenue figures, revenue-per-person figures, revenue per patient, or a managerial evaluation based on all available productivity measures. In some cases, designation of whether the business unit was successful or not was coded as a dichotomous variable (1 = less successful business units, 2 = top-performing business units). Again, the measures used were the same within a given company across business units.

Turnover. Turnover data were available for 26 studies from 21 companies. The turnover measure was the annualized percentage of employee turnover (turnover rate) for each business unit (including both voluntary and involuntary turnover).

Safety. Safety data were available for 3 studies or companies. The safety variable was a lost workday/time incident rate, or percentage of workdays lost because of incidents—basically the same variable across all companies.

Composite performance. To this point, we have focused on each outcome treated independently. However, an alternative point of view is that each of these outcomes (customer satisfaction–loyalty, employee turnover, productivity, profitability, and safety) occupies a different part of the criterion space called "overall performance" that the manager manages toward. In the longer term, perhaps quarterly or annually, the manager is often managing toward profitability. But in the shorter term (perhaps daily), the manager is working with and through his or her employees to please customers and keep employees. That is, managers are seeking to manage many outcomes at once, and the optimum for both the short term and the long term is expected to be favorable outcomes on multiple criteria with different temporal foci. For this reason, we also created an overall or composite business performance measure using all outcome variables in this composite measure except safety, because the database of correlations to safety outcomes was much smaller than the database for other dependent variables at the time of this study. This overall performance composite was then correlated with the GWA satisfaction and employee engagement scores (Hunter & Schmidt, 1990b, chap. 10).

On review, productivity and profitability were much more highly correlated than were the other variables (observed r of .60 vs. an average observed r of .20 for the other variables). This high correlation resulted from the fact that these two measures were typically defined as financial measures (productivity as revenue and profitability typically as percent profit of revenue). Because of the limited number of variables included in the composite, one outlying correlation coefficient will cause an overrepresentation of one bivariate correlation in the sum-of-diagonals term. For this reason, and because it is also conceptually straightforward to think of profitability and productivity as representing slightly different aspects of the same performance outcome, we created a composite "financial performance" variable ($\alpha = .75$) that was the equally weighted sum of productivity and profitability. The overall business performance composite then consisted of the equally weighted sum of this financial performance variable and customer satisfaction–loyalty and employee turnover (reverse scored as employee retention). Using Mosier's (1943) formula, the reliability of this index of composite business-unit performance was .72. This overall business performance index was then correlated with overall satisfaction and employee engagement measures.

The overall study involved 198,514 independent employee responses to surveys and 7,939 independent business units, with an average of 25 employees per business unit and an average of 221 business units per company. This meta-analysis included all available Gallup studies (whether published or unpublished) and therefore has no risk of publication bias.

Meta-Analytic Methods Used

Analyses included weighted average estimates of true validity; estimates of the 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 (GWA mean score) for these validities. The specific calculational procedure used was the interactive procedure for artifact distribution meta-analysis (Law, Schmidt, & Hunter, 1994a, 1994b; see also Schmidt & Rader, 1999). This procedure provides an improvement in the accuracy of meta-analytic statistics from earlier calculational procedures.

We gathered performance variable data for multiple time periods to calculate the reliabilities of the business performance measures. Because such reliability estimates were not available for each study, we used artifact distribution meta-analytic methods (Hunter & Schmidt, 1990b, pp. 158–197) to correct for measurement error in the performance variables. The reliability distributions for the criterion measures consisted of test–retest reliabilities.

The procedure followed for calculation of business-unit outcome measure reliabilities was based on Scenario 23 of Schmidt and Hunter (1996). To take into account that some change (instability) in outcomes may be due to real change and not to measurement error, test–retest reliabilities were calculated using the 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. This approach separates real change (which is more likely to occur from Time Periods 1 to 3 than from Time Periods 1 to 2 and 2 to 3) from random changes in business-unit results caused by measurement error. Some estimates were available for quarterly data and others for annual data. Reliability distributions were assembled for customer satisfaction, profitability, productivity, and employee turnover outcomes. Reliability data for safety outcomes were not available at the time of this study. Therefore, estimates of validities for safety outcomes should be considered downwardly biased estimates, because they were not corrected for attenuation due to measurement error. Appendix A presents the reliabilities used in the corrections for measurement error.

The reliability of the independent variable was similarly estimated by using the above formula across four studies in which three or more administrations of the GWA were available for the same business units. The reliability of a business-unit measure of employee satisfaction and engagement is dependent on both random response measurement error and transient measurement error (Schmidt & Hunter, 1996). Because some real change was expected over time, we factored out real change by using Schmidt and Hunter's (1996) aforementioned formula. The resulting reliability estimates are shown in Appendix B. It could be argued that, because the independent variable is used in practice to predict outcomes, the practitioner must live with the reliability of the instrument. This is true in connection with practical applications. However, correcting for random response and transient error in the independent variable answers the theoretical question of how highly the underlying constructs relate to each other. Therefore, for purposes of theoretical discussion, true score correlations (ρ estimates) were also calculated. Estimates labeled as *true validities* in our results did not include correction for independent variable reliabilities.

In considering corrections for range variation or range restriction, there are fundamental theoretical questions concerning whether such corrections are necessary. In personnel selection, validities are routinely corrected for range restriction because the corrected correlation estimates the correlation in the applicant pool, in which the selection procedure is to be used. In the employee satisfaction and engagement arena, one could argue that there is no range restriction because we are studying populations as they exist in the workplace, and it is the workplace that we want our results to generalize to. However, there is substantial variation across companies in means and standard deviations of business-unit-level GWA scores. One hypothesis for why this variation occurs is that companies differ in how they encourage employee satisfaction and engagement initiatives and in how they have or have not developed a common set of values and culture. In the current Gallup database, the standard deviation within a given company is, on average, 75% as large as the standard deviation in the population of business units across companies. Therefore, if one goal is to estimate the effect size in the population of all business units (an arguably theoretically important issue), then correction should be made on the basis of such available data. Also, the ratio of the standard deviation for an individual company to the average within-company standard deviation varies from company to company. Hence, individual study correlations are attenuated for companies in which there is less variability than average across business units and augmented for companies that have more variability than average. This variability in standard deviations across companies increases variability in observed correlations and is an artifact that can be corrected for in interpreting the generalizability of validities. Appendix C presents the between-company artifact distribution of range-restriction correction factors ($U = s/S$) used for this meta-analysis. The U values were calculated by dividing the standard deviation of the GWA measure across business units within a given company (s) by the standard deviation of the GWA measure across all business units in the pooled database (S). These values averaged approximately .75 across companies. Appendix D presents the within-company artifact distribution of range-restriction correction factors. These factors were calculated by dividing the standard deviation of the GWA measure across business units within a given company (s_i) by the average standard deviation across companies ($\bar{s}$). Therefore, the average of the within-company $s_i/\bar{s}$ ratios was 1, indicating that there was no range restriction on average. The values in Appendix C were used to estimate the across-company correlation, and the values in Appendix D were used to correct for within-company biases in correlations due to range variation.

Given the importance of both practical and theoretical interpretations of these data, we provide four meta-analytic indices each for overall satisfaction and employee engagement and the study of their relation to each of the business outcomes: (a) observed correlations with no corrections; (b) true validity estimates with correction for range variation within companies and dependent variable measurement error (labeled *True Validity A* in Table 4; computed using the range-restriction values in Appendix D); (c) true validity estimates with correction for range restriction based on the whole population of business units and dependent variable measurement error (labeled *True Validity B* in Table 4; computed using the range-restriction values in Appendix C); and (d) true score correlations (labeled ρ in Table 4) with correction for range restriction across companies (Appendix C), dependent variable measurement error, and independent variable measurement error. Estimate (a) is downwardly biased, Estimate (b) is the practical effect size that we would expect within the typical company, Estimate (c) is the effect size for business units across companies, and Estimate (d) is the true score correlation of the constructs for business units across companies. In addition to the aforementioned analysis procedures, we performed standard utility analysis on the results to estimate the practical implications of the findings.

Table 4
Composite Indices (Overall Satisfaction and Employee Engagement)—Meta-Analysis

	Customer		Profit		Productivity		Turnover		Safety	
Analysis	OS	EE	OS	EE	OS	EE	OS	EE	OS	EE
No. of business units	2,940	3,199	2,693	2,856	1,915	2,144	6,505	6,506	121	121
No. of *r*s	17	20	20	23	17	21	19	19	3	3
Mean observed *r*	.16	.16	.09	.10	.12	.15	−.16	−.13	−.14	−.21
Observed *SD*	.10	.08	.09	.09	.08	.12	.06	.05	.06	.07
True Validity A[a]	.23	.22	.11	.11	.14	.17	−.25	−.20	−.14	−.21
True Validity *SD* A[a]	.05	.00	.00	.00	.00	.05	.00	.00	.00	.00
True Validity B[b]	.28	.29	.13	.15	.17	.22	−.32	−.27	−.17	−.28
True Validity *SD* B[b]	.06	.00	.00	.00	.00	.06	.00	.00	.00	.00
% variance accounted for: Sampling error	53	102	92	100	127	66	91	112	694	460
% variance accounted for[a]	89	161	109	118	159	87	231	217	764	562
% variance accounted for[b]	90	162	109	118	159	88	233	218	764	562
90% CV[a]	.17	.22	.11	.11	.14	.11	−.25	−.20	−.14	−.21
90% CV[b]	.21	.29	.13	.15	.17	.14	−.32	−.27	−.17	−.28
ρ[c]	.32	.33	.15	.17	.20	.25	−.36	−.30	−.20	−.32
SD_ρ[c]	.06	.00	.00	.00	.00	.07	.00	.00	.00	.00

Note. Customer = customer satisfaction–loyalty; OS = overall satisfaction; EE = employee engagement (mean of Gallup Workplace Audit Items 1–12); True Validity A = true validity estimates with correction for range variation within companies and dependent variable measurement error; True Validity B = true validity estimates with correction for range restriction based on the whole population of business units and dependent variable measurement error; 90% CV = 10th-percentile credibility value; ρ = true score correlation (corrected for measurement error in engagement–satisfaction measures).
[a] Includes correction for range variation within companies and dependent variable measurement error. [b] Includes correction for range restriction from population of business units and dependent variable measurement error. [c] Includes correction for range restriction from population of business units and dependent variable measurement error, plus correction for measurement error in the independent measures of OS and EE.

Results

Effect Size and Generalizability Analyses

Table 4 presents the meta-analytic results for overall satisfaction and employee engagement. Overall satisfaction was assessed by a single overall satisfaction item, whereas employee engagement was the mean of GWA Items 1–12 (see Table 1).

As we noted earlier, these overall indices lend themselves to general theoretical inquiry, and, therefore, an additional correction was made to meta-analytic estimates for range restriction in the independent variable across companies. Estimates that include this range-restriction correction apply to interpretations of effects in business units across companies, as opposed to effects expected within a given company. Because there is more variation in business units pooled across companies than there is within the average company across business units, estimated correlations are larger when true validity estimates are calculated for business units across companies. For instance, consider the estimates relative to the customer satisfaction–loyalty criterion. Without the between-company range-restriction correction, the true validity value of overall satisfaction was .23 (True Validity A) with a 90% credibility value (CV) of .17. This is the relation expected within a typical company. With the between-company range-restriction correction (True Validity B), the true validity value of overall satisfaction was .28 with a 90% CV of .21. This is the relation expected in business units pooled across companies (i.e., in the total population of business units). For employee engagement, all of the variance in correlations across studies was accounted for by sampling error: True Validity A was the 90% CV, which was .22 within a given company, and True Validity B for business units across companies was .29.

Both overall satisfaction and employee engagement showed generalizability across companies in their correlation with customer satisfaction–loyalty, profitability, productivity, employee turnover, and safety outcomes. That is, all 90% CVs exceeded zero. Correlations were of similar magnitude for overall satisfaction and employee engagement, being slightly higher for employee engagement in relation to customer satisfaction–loyalty, profitability, productivity, and safety. The effect size was slightly higher for overall satisfaction in relation to employee turnover. Although many of the reasons why employees stay at or leave companies may be related to aspects of the work situation that the manager can influence (GWA Items 1–12), there may be an accumulation of factors that lead to an overall perception of the company that may also include factors such as pay, benefits, and other facets that are beyond the supervisor's or the manager's control. Additional facets may have led to a slightly higher correlation for overall satisfaction relative to employee engagement with employee turnover. However, this difference was not large (and may have been due to second-order sampling error; Hunter & Schmidt, 1990b, chap. 9). In any event, the correlations were clearly in the hypothesized direction and generalizable for both measures. The true score correlations (ρs) for overall satisfaction and employee engagement were highest for customer satisfaction–loyalty (.32 and .33, respectively) and employee turnover (−.36 and −.30), followed by safety (−.20 and −.32), productivity (.20 and .25), and profitability (.15 and .17).

In summary, the strongest effects were found relative to employee turnover, customer satisfaction–loyalty, and safety. Correlations were positive and generalizable relative to productivity and profitability criteria but were of lower magnitude, perhaps because these outcomes are more remote downstream variables that are also influenced by other variables and indirectly by employee attitudes. That is, these outcomes may be closer to the end of the causal chain.

The correlations of overall satisfaction and employee engagement with composite business-unit performance are shown in Table 5. It is interesting that the observed correlations of overall satisfaction and employee engagement with composite performance were identical (.22). Corrected for performance variable measurement error, the correlation for both measures to composite performance was .26. Next, adding the correction for range restriction resulted in a correlation of .32 for overall satisfaction and .33 for employee engagement for business units across companies. Finally, correcting for independent variable measurement error yielded correlations of .37 (overall satisfaction) and .38 (employee engagement). Given that these are business-unit-level correlations, the magnitudes of these correlations are substantial. The corresponding *d* values are also provided in Table 5.

These findings indicate that both of the hypotheses in this study were supported. Employee attitude measures were related to business-unit outcomes, and these relationships were generalizable. We should again note that the business-unit-level observed correlation between overall satisfaction and employee engagement was .77 (the true score correlation was .91). In an additional analysis, we conducted a multiple regression of employee engagement and overall satisfaction to composite performance. The resulting multiple correlation was .01 above the correlation of employee engagement to composite performance. Therefore, if additional antecedents explain unique variance relative to overall business-unit performance, they likely do so in a path unique from that of satisfaction with one's company. In the next section, we explore the practical utility of the relationship between employee satisfaction–engagement and composite performance and specific performance outcomes.

Table 5
Correlation of Employee Satisfaction and Engagement With Composite Business-Unit Performance

Analysis	Satisfaction	Engagement
Observed *r*	.22	.22
d	.36	.36
r corrected for dependent variable measurement error	.26	.26
d	.43	.43
r corrected for dependent variable measurement error and range restriction	.32	.33
d	.53	.55
ρ corrected for dependent variable measurement error, range restriction, and independent variable measurement error	.37	.38
δ	.62	.64

Utility Analysis: Practicality of the Effects

Effect sizes may be represented as either *d* values or *r* values (*d* values represent the difference between a treatment and a control group in standard deviation units, and *r* values represent the correlation between two variables). All effect sizes referenced in Lipsey and Wilson's (1993) review of treatment effects were *d* values. Fortunately, *r* values can be transformed into *d* values, and vice versa. We should note that, when converting continuous *r* values into *d* values, one must dichotomize one of the variables to avoid inflation in the resulting *d* value (Hunter & Schmidt, 1990a). As such, a correction factor (.80 if measurement is dichotomized at the median) must be multiplied by the *r* value prior to converting it to a *d* value. In our computations, we dichotomized employee attitude scores at the median and multiplied each correlation by .80 before converting it to a *d* value.

In terms of correlation to composite business performance within a given company (Table 5), business units above the company median on employee satisfaction–engagement realized .43 of a standard deviation higher performance in comparison to business units below the median. Across companies, the difference between business units above the median and those below the median was more than one half of a standard deviation on composite performance. Although the effects observed are technically not experimental treatment effects, they are consistent in magnitude with the findings from a high percentage of the meta-analyses included in Lipsey and Wilson's (1993) review.

The research literature includes a great deal of evidence that numerically small or moderate effects often translate into larger practical effects (Abelson, 1985; Carver, 1975; Lipsey, 1990; Rosenthal & Rubin, 1982; Sechrest & Yeaton, 1982). One method of displaying the practical value of an effect is the binomial effect size display (Grissom, 1994; Rosenthal & Rubin, 1982). Binomial effect size displays typically depict the success rate of a treatment versus a control group as a percentage above the median on the outcome variable of interest. For instance, based on within-company true validity estimates, the success rate on composite performance for business units above the median on employee engagement was 63% compared with 37% for business units below the median. Business units above the median on employee engagement had a 70% (i.e., [63% − 37%]/37%) higher success rate than those below the median on employee engagement. Across companies (using the across-company true validity correlation), business units above the median on employee engagement had a 67% success rate on composite performance compared with 33% for those below the median on employee engagement. For business units across companies, those above the median on employee engagement had a 103% higher success rate than those below the median.

Table 6 presents another form of utility analysis. It compares differences in outcomes between the top and bottom quartiles on the employee engagement measure for five different companies with similar outcome metrics for the dependent variables of customer satisfaction–loyalty (percentage of satisfied or loyal customers), profitability (percent profit of revenue), productivity (monthly revenue), and employee turnover (annualized turnover for both high- and low-turnover companies).

Table 6 provides five examples of the means and the standard deviations of customer satisfaction–loyalty measures, each mea-

Table 6
Difference on Business Outcome Measures Between Top and Bottom Quartiles on Composite Employee Engagement: A Utility Analysis

Dependent variable and company	*M*[a]	*SD*[b]	Difference[c]
Customer satisfaction–loyalty			
Company A	89.16%	4.39%	2.47% pts
Company B	54.79%	5.51%	3.12% pts
Company C	89.30%	3.35%	1.90% pts
Company D	90.79%	4.97%	2.81% pts
Company E	82.45%	7.70%	4.36% pts
Profitability (% of sales)			
Company F	5.68%	3.05%	0.87% pts
Company G	26.15%	5.48%	1.57% pts
Company H	28.84%	14.79%	4.24% pts
Company I	17.00%	3.28%	0.94% pts
Company J	2.30%	7.87%	2.26% pts
Productivity (×$1,000)			
Company K	$746	$258	$111
Company L	$858	$278	$120
Company M	$274	$186	$80
Company N	$232	$249	$107
Company O	$3,531	$914	$393
High turnover[d]			
Company P	100.0%	70.4%	36.0% pts
Company Q	181.5%	100.0%	51.2% pts
Company R	106.3%	54.5%	27.9% pts
Company S	104.1%	26.7%	13.7% pts
Company T	63.2%	29.4%	15.0% pts
Low turnover[e]			
Company U	25.8%	37.7%	19.3% pts
Company V	7.1%	7.2%	3.7% pts
Company W	21.6%	19.5%	10.0% pts
Company X	11.1%	10.7%	5.5% pts
Company Y	21.8%	19.8%	10.1% pts

Note. The difference scores for customer satisfaction–loyalty measures refer to the percentage of satisfied or loyal customers. % pts = percentage points.
[a] Mean within company across business units. [b] Standard deviation within company across business units. [c] Difference on business outcome between top and bottom 25% on employee engagement. [d] Companies with high turnover rates. [e] Companies with low turnover rates.

sured on a 0- to 100-point scale. Across companies, the difference on customer satisfaction–loyalty between the top and bottom quartiles on employee engagement ranged from 2 to 4 points. To compute the dollar impact, one would need to know the average number of customers per business unit and the average number of dollars spent per customer. Within most organizations with a large number of business units, this equates to millions of dollars.

Five examples for profitability measures are provided in Table 6. Again, there was some variance in the utility across the different types of companies, and the difference between employee engagement for the top and bottom quartiles ranged from approximately 1 to 4 percentage points in profitability. On average, business units in the top quartile on the employee engagement measure produced 1 to 4 percentage points higher profitability.

Similar results were found for productivity (revenue or sales per month). Business units in the top quartile on employee engagement had, on average, from $80,000 to $120,000 higher monthly revenue or sales (and for one organization, the difference was more than $300,000). Assuming even an $80,000 difference per month per business unit, this difference translates into $960,000 per year per business unit.

For high-turnover companies (ranging from 60% to 182% annualized turnover), the difference between the average unit in the top quartile on employee engagement and the average unit in the bottom quartile ranged from 14 to 51 percentage points. For lower turnover companies, the difference was from 4 to 19 percentage points. What these differences are worth to an organization may vary depending on the organization's number of employees and the cost of turnover per employee.

Discussion

The effect sizes presented in this article are nontrivial, especially for businesses with many business units. The point of the utility analyses presented here is that the correlation between employee engagement and business outcomes, even conservatively expressed, is meaningful from a practical perspective. It seems clear from these data that companies could learn a great deal about the management talents and practices that drive business outcomes if they studied their own top-scoring employee engagement business units. We should note that, in a more detailed analysis, each of the 12 GWA antecedent items showed a generalizable relationship to one or more of the business outcomes studied (Harter & Schmidt, 2000).

In this article, there has been no discussion regarding possible causal relationships. A number of the larger studies in the meta-

analysis included predictive data for which performance outcomes were measured after the GWA measurement. Across studies, correlations of GWA items and overall indices with outcomes were generalizable, with variance in correlations mostly explained by sampling error and other artifacts. Consequently, the design of the study (predictive vs. concurrent) was not considered as a moderator of the effect sizes. Future meta-analyses could, of course, further explore this study design issue. Through longitudinal designs, the lag between employee satisfaction–engagement changes and business-unit outcome changes can be more fully understood. Evidence of directionality (through multiple time periods and path analysis) can be seen in individual published case studies provided in *The Gallup Research Journal—Special Issue on Linkage Analysis* (Fleming, 2000). At this point, these case studies would suggest not only some directionality from employee engagement to outcomes but also a reciprocal relationship in some cases. Path coefficients reported in such analyses are consistent with the magnitude of the correlations observed in this larger meta-analysis, which would suggest that, if moderators do exist, then they may be limited. Future research should continue to focus on causality and directionality issues. The most convincing causal evidence comes not from one study but from a body of research and a multitude of types of evidence, including qualitative analysis of high-performing business units, path analysis, predictive studies, and studies of change over time.

Actionability and Change

An important element in the usefulness of any applied instrument and process is the extent to which the variable under study can be changed. There is evidence that, at the individual level, employee satisfaction is at least somewhat trait-based (Arvey, Bouchard, Segal, & Abraham, 1989; Bouchard, 1997). In the present analysis, we averaged the employee responses across individuals within business units, making our overall satisfaction and employee engagement measures indicators of business-unit performance-related culture rather than indicators of individual employee satisfaction. That is, the process of averaging across individuals removes trait-related individual differences, leaving business-unit characteristics as the construct measured.

In studying organizations over different time periods, we have seen changes in all 12 GWA antecedent items. Such statistical changes have been consistent with qualitative feedback from business units achieving growth within these organizations. On the surface, it may appear that some of the 12 items are less actionable than others. For example, Items 2, 8, 9, and 10 (see Table 1) may appear to be less directly actionable by the immediate supervisor. For Item 2 (materials and equipment), we found that many supervisors maintain employee objectivity around this perception by helping employees see how their materials and equipment needs relate to business-unit outcomes. Employees who receive the same materials and equipment may view them differently, depending on how they see these resources being applied to reach outcomes. In a similar manner, for Item 8 (mission or purpose of the company), supervisors can help people see how their work connects to a broader purpose, reminding them about and helping them to see the larger context of their work. For Item 9 (coworkers committed to quality), supervisors can influence the extent to which employees respect one another by selecting conscientious employees, providing common quality-related goals and metrics, and increasing opportunities for employees to have interaction about these outcomes. For Item 10 (best friend), supervisors vary in the extent to which they create opportunities for employees to get to know one another. Many supervisors encourage close friendships, which they see as influencing communication and trust. Certainly, they do not legislate "best friends," nor could they. They simply create more opportunities for these connections to be established in the context of regular business activities.

Conclusion

Further research should attempt to achieve a more comprehensive understanding of the reliability of business-unit outcomes and the test–retest reliability of business-unit-level measures of employee satisfaction–engagement. Finally, a causal model should be developed exploring the generalized path of employee satisfaction–engagement to short-term outcomes (e.g., employee turnover and customer satisfaction) that result in later financial outcomes.

We conclude from this study that employee satisfaction and engagement are related to meaningful business outcomes at a magnitude that is important to many organizations and that these correlations generalize across companies. An efficient composite of items measuring issues at the heart of the workplace—issues that are important to employees and that managers can influence—has substantial implications for a further understanding of the true nature of overall satisfaction at the business-unit level. The effect sizes for the employee engagement composite measure of antecedents to satisfaction (a short 12-item form) were of similar magnitude to the effect sizes for the more broadly defined overall satisfaction measure, even after correction for measurement error in the independent variables. Our results have implications not only for the design of instruments that measure the theoretical construct of interest but also for instruments used as the basis for practice. The potential for longitudinal research in the area of employee engagement and satisfaction rests on the usefulness of instruments for managers and employees. Useful instruments are those that provide information that managers can act on to improve their management practices. Future research should emphasize longitudinal designs that study changes in employee satisfaction–engagement, the causes of such changes, and the resulting usefulness to the business. The best opportunity for such research within businesses may rest on the application of efficient and intuitively actionable measures of the constructs of interest.

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(*Appendixes follow*)

Appendix A

Reliabilities of Business-Unit Outcomes (Based on Schmidt & Hunter, 1996, Scenario 23, p. 219)

Customer satisfaction		Productivity		Profitability		Turnover rate	
Reliability	Frequency	Reliability	Frequency	Reliability	Frequency	Reliability	Frequency
.75	1	1.00	1	1.00	1	.62	1
.58	1	.99	1	.99	1	.60	1
.52	1	.62	1	.57	1	.39	1
.46	1	.57	1	.56	1	.27	1
.33	1					.24	1

Note. All reliability estimates have equal weight; number of business units used to compute reliabilities ranged from 15 to 853, with a mean of 247.

Appendix B

Independent Variable Test–Retest Reliabilities (Based on Schmidt & Hunter, 1996, Scenario 23, p. 219)

Overall satisfaction		Employee engagement (Items 1–12)	
Reliability	Frequency	Reliability	Frequency
.94	1	.92	1
.88	1	.80	1
.64	1	.79	1
.64	1	.66	1

Note. All reliability estimates have equal weight; number of business units used to compute reliabilities ranged from 10 to 274, with a mean of 95.

Appendix C

Between-Company Artifact Distribution of Range-Restriction/Variation Estimates

Overall satisfaction		Employment engagement (Items 1–12)	
s/*S*	Frequency	*s*/*S*	Frequency
1.45	1	1.36	1
1.37	1	1.18	1
0.94	1	0.84	1
0.86	1	0.78	1
0.84	1	0.74	1
0.76	1	0.74	1
0.74	1	0.56	1
0.71	1	0.56	1
0.67	1	0.55	1
0.61	1	0.54	1
0.55	1	0.52	1
0.47	1	0.49	1
0.41	1	0.42	1

Note. Values less than 1.00 indicate range restriction; values greater than 1.00 indicate range enhancement and produce a downward correction in the observed correlation. s = within-company standard deviation; S = standard deviation in the data pooled across companies; s/S = range variation ratio.

Appendix D

Within-Company Artifact Distribution of Range-Restriction/Variation Estimates

Overall satisfaction		Employment engagement (Items 1–12)	
$s_i/\bar{s}$	Frequency	$s_i/\bar{s}$	Frequency
1.82	1	1.82	1
1.71	1	1.57	1
1.18	1	1.32	1
1.07	1	1.13	1
1.05	1	1.04	1
0.95	1	1.00	1
0.92	1	0.99	1
0.90	1	0.75	1
0.84	1	0.74	1
0.77	1	0.72	1
0.69	1	0.70	1
0.59	1	0.65	1
0.51	1	0.56	1

Note. Values less than 1.00 indicate range restriction; values greater than 1.00 indicate range enhancement and produce a downward correction in the observed correlation. s_i = within-company standard deviation; $\bar{s}$ = average standard deviation across companies; $s_i/\bar{s}$ = range variation ratio.

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