

One Hundred Years of Social Psychology Quantitatively Described

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This article compiles results from a century of social psychological research, more than 25,000 studies of 8 million people. A large number of social psychological conclusions are listed alongside meta-analytic information about the magnitude and variability of the corresponding effects. References to 322 meta-analyses of social psychological phenomena are presented, as well as statistical effect-size summaries. Analyses reveal that social psychological effects typically yield a value of r equal to .21 and that, in the typical research literature, effects vary from study to study in ways that produce a standard deviation in r of .15. Uses, limitations, and implications of this large-scale compilation are noted.

In 1898 Norman Triplett published an early experiment in social psychology, about an effect of the presence of others on task performance. In the 100 years since Triplett's investigation, many social psychological effects have been documented. The current article summarizes the best established of these findings, with data from more than 25,000 research studies and 8 million people. Our goal is to quantify the magnitude and variability of social psychological effects. We begin by considering previous summaries of social psychology, note some unresolved issues, and review developments that permit a century of scholarly work to be quantitatively described. For present purposes, we follow Manstead and Hewstone (1995) in regarding *social psychology* as the study of "the reciprocal influence of the individual and his or her social context" (p. 588).

Social Psychology Summarized

There are many summaries of social psychology. For undergraduates, there are textbooks

(e.g., Lord, 1997). For the historically minded, there are chronologies (e.g., Sahakian, 1974). For specialists, edited handbooks of social psychology are periodically published (e.g., Gilbert, Fiske, & Lindzey, 1998). For the educated lay public, an alphabetic encyclopedia of social psychology has appeared (Manstead & Hewstone, 1995).

In light of these earlier efforts, one might imagine that the field of social psychology has been so thoroughly described that any additional description would be redundant. Yet, having read many of the field-wide summaries, we are left with some questions. For example, how large are the effects that social psychologists study? How variable are these effects? No empirically based answers to these questions can be found in any textbook, chronology, handbook, or encyclopedia we have seen.

There has been interest in the strength and variability of social psychological research findings. Some surmise that "many" social psychological effects are "small," reflecting relationships equivalent to a correlation coefficient of .10 (Cohen, 1988). Others report that the average effect cited in social psychology textbooks is much larger, approaching a correlation coefficient of .50 (Cooper & Findley, 1982). Some believe that social psychological effects are inherently nonreplicable (Cronbach, 1975; Gergen, 1973). Others contend that many relationships of interest to social psychologists are perfectly stable and that their apparent variability is artifactual (Hunter & Schmidt, 1990).

Contentions about the size and consistency of social psychological effects are important be-

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We are grateful to Alice Eagly, Bill Ickes, and Wendy Wood for comments on an earlier version of this article.

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cause they bear on the scientific status of the field (Rosenthal, 1984). Previous generalizations about these effects have not, however, been well supported. Perhaps “many” social psychological effects are “small,” but the scholar who offered this assertion acknowledged that it reflected only his “subjective averaging” (Cohen, 1988). Maybe the typical social psychological effect is “large,” but at present this belief is based on 237 effects cited in textbooks. These particular effects may have been selected for textbook citation precisely because they were unusually large (Cooper & Findley, 1982). Contentions about the replicability of social psychological effects have been based on individual scholars’ experiences with a limited number of research literatures in social (Gergen, 1973), educational (Cronbach, 1975), and industrial/organizational psychology (Hunter & Schmidt, 1990). In fact, the size and variability of most social psychological effects is at present unknown.

Meta-Analyses in Social Psychology

Generalizations about social psychological effects require a large-scale compilation of evidence that, until recently, would not have been possible. Such a compilation must draw on quantitative summaries of social psychological research literatures. These involve the use of techniques of *meta-analysis* (Glass, 1976; Rosenthal, 1984), described next.

A meta-analyst uncovers a number of studies on the same topic and then converts the effect observed in each study to a common metric, such as a Pearson product-moment correlation coefficient (r). Each of the effect sizes is weighted by a term that reflects its precision, and a weighted mean effect size is computed to estimate the typical magnitude of the effect. Meta-analysts also examine the heterogeneity of effects in a particular research literature. They may compute the variance in effect sizes from study to study; however, as an estimate of heterogeneity, the total variance among effect sizes is deceptive (Hunter & Schmidt, 1990). Statistical theory implies that effect sizes should vary from study to study by virtue of the fact that researchers investigate only samples of research participants, not populations. Meta-analysts use a homogeneity test to determine whether the effect sizes in a research literature

vary more than one would expect from sampling variability. They can also estimate the variance in effect sizes that would have been observed in a research literature if an entire population had participated in each study. This so-called *corrected variance* is equal to the total variance in effect sizes minus the expected sampling variance (Hedges & Vevea, 1998).

A few quantitative literature reviews had been published on social psychological topics before 1976, when Glass coined the term *meta-analysis*. Among these early efforts were quantitative reviews of leadership (Stogdill, 1948) and group discussion (Bass, 1954). After 1976, large numbers of social psychological meta-analyses began to appear. By 1997, hundreds had been published.

The present article presents a quantitative summary of a century of social psychological research. It seeks to compile quantitative reviews published on social psychological topics before 1998. Of interest is the mean size of the effect in each research literature, as well as the variability in effect sizes across studies. Accumulation of these data will permit rigorous generalizations about the typical magnitude and variability of social psychological research findings.

Although techniques for research synthesis had been available since the early 1900s, meta-analysis was popularized later, as a method for coping with the “information explosion” in social research. Glass, McGaw, and Smith (1981) hoped that meta-analytic research integrations would be more succinct and widely accessible than narrative research reviews. From the current vantage point, one wonders whether these hopes have been fulfilled. Meta-analyses often run to more than 20 journal pages, and so many quantitative reviews have now been published that primary research may seem as inaccessible as ever.

If one goal of the current article is to offer generalizations about social psychology as a whole, a second goal is to provide the briefest possible summary of the many specific research literatures composing the field. To this end, we present a listing of social psychological effects that have been meta-analyzed. Each effect is stated alongside (a) the number of times the effect has been studied in primary research, (b) the mean size of the effect, and (c) a standard deviation in that effect across studies. Hundreds

of such effects are summarized in this way, with references to the documents from which the effects were abstracted. These summaries are intended to increase the accessibility of social psychological research.

Indices of the magnitude and consistency of social psychological effects may have nonbibliographic uses as well. The mean size of a particular social psychological effect should help subject-area specialists in research planning and statistical power computation (Cohen, 1988). Cross-literature comparisons of effect sizes may help resolve some scholarly controversies. These data will, for example, permit the most complete comparison to date of the size of personality versus situational effects on social behavior (Bowers, 1973) and of the magnitude of sex effects on social behavior relative to other effects (Hall, 1998).

Perhaps the size of social psychological effects is influenced by the process of social psychological research. Perhaps social psychologists are attracted to unusually large effects, or to effects that are unusually stable. Perhaps there is a regular progression to social psychological research literatures: After an initial wave of studies that establish and replicate an effect, most studies are designed to find the limits and boundary conditions of the effect (Zanna & Fazio, 1982). By making statistical comparisons of different research literatures, we assess these possibilities.

Although no large-scale compilation of social psychological meta-analyses has ever been attempted, there has been related work. Sarason, Smith, and Diener (1975) compiled results from 102 studies and concluded that situational effects on social behavior are similar in size to personality effects (median $r_s = .21$ and $.17$, respectively). Statistical interactions between situation and personality are smaller, the authors found. Hedges (1987) empirically gauged the consistency of research results in a number of fields. He showed that effect sizes in particle physics were no more consistent from study to study than effect sizes in several areas of psychology (e.g., cognitive gender differences).

Scholars have compiled meta-analyses in other fields. Lipsey and Wilson (1993) cumulated results from 302 meta-analytic reviews of the efficacy of psychological, educational, and behavioral treatments. Lipsey and Wilson offered a listing and histogram of mean effect

sizes from these 302 quantitative reviews, as well as a number of statistical analyses. On average, people who received treatment scored one half of a standard deviation better on outcome variables than people who did not. This produced a treatment–outcome correlation coefficient of .24. Smaller scale compilations of meta-analyses have been reported in industrial/organizational psychology (Tett, Meyer, & Roese, 1994), on sex differences (Hall, 1998), and on the validity of laboratory research (Anderson, Lindsay, & Bushman, 1999). Here we compile meta-analyses in social psychology and related fields.

Method

Document Retrieval

To locate published quantitative reviews of social psychological research, we used the following methods. We searched PsycLIT and other computerized databases for references to meta-analysis, examined a number of special journal issues and books on meta-analysis (e.g., Miller & Cooper, 1991), used the Social Sciences Citation Index to locate documents that had cited certain key references on meta-analysis (e.g., Rosenthal, 1984), consulted lists of meta-analyses that had been compiled by others (e.g., Bausell, Li, Gau, & Soeken, 1995), and manually scanned all of the issues of certain journals (e.g., *Psychological Bulletin*). Using these methods, we retrieved and photocopied 490 documents for possible inclusion in this work.

Criteria for Inclusion

Our goal was to compile quantitative summaries of social psychological effects published before 1998. In selecting documents for this compilation, we used a number of criteria. To be included, a document had to report a numerical measure of the combined magnitude or significance level of a relationship between two variables that had been measured on individuals or small groups. The document had to summarize evidence of this effect collected within five or more primary studies by two or more research teams. The topic under review must have been covered in a recent encyclopedia of social psychology (Manstead & Hewstone, 1995).

These criteria resulted in the exclusion of a number of potentially relevant documents. Narrative reviews of social psychological research were not included, nor were documents that reported only a vote counting of significant and nonsignificant results. We did not compile statistical summaries of a single research

team's work, quantitative reviews of factor structure, or meta-analytic demonstrations of cross-study relationships. On substantive grounds, reviews of cognitive gender differences were excluded, as were reviews of educational, clinical, medical, marketing, and industrial/organizational research. To ensure the independence of our contribution, we also excluded reviews of all psychological topics that had been covered in Lipsey and Wilson's (1993) compendium of 302 meta-analyses on psychological treatment effectiveness.

Within the boundaries imposed by these criteria, we sought inclusive coverage of social psychological meta-analyses. We were open to reviews that had not been conducted by social psychologists and to reviews that had not appeared in the usual publication outlets, so long as they addressed topics that would qualify as social psychology, broadly defined. We were open to quantitative reviews of social psychological topics on which meta-analyses had previously been published, so long as the earlier meta-analytic database had been altered in some way. We also compiled reviews of many topics in personality psychology.

Selection and Coding of Effects

We selected for coding at least one social psychological effect from each document. Many meta-analysts begin by aggregating all of the literature on a topic into a single effect and then assess the magnitude of that effect in various subsets of the literature. Hoping to compile the broadest generalizations social psychologists find meaningful, we selected for coding the most highly aggregated effect a meta-analytic document displayed. Sometimes in their most highly aggregated analysis, meta-analysts summarize the literature on a topic into two or more distinct effects. In such cases, we coded these effects separately, including in our compilation up to four effects from a given document. From those rare documents that (in their most highly aggregated analyses) summarized a research literature into five or more distinct effects, we selected for compilation only four of those effects, preferring effects that had not been meta-analyzed elsewhere and ones that had been examined in a large number of studies.

We coded a summary measure of size of each effect. We used the meta-analyst's effect-size metric and whatever summary statistic the reviewer provided, seeking (when available) a weighted mean Fisher's r -to- Z statistic. We then transformed the meta-analyst's summary effect size to a Pearson product-moment correlation coefficient according to methods described by Rosenthal (1994). We symbolize this value as \bar{r} .

Although meta-analysts usually report positive values for their summary effect sizes, 60 negative

summary effect sizes were reported in the documents we retrieved. We analyzed the absolute value of the \bar{r} corresponding to each summary effect size and we provide a statement of the meta-analytic finding. For example, we report an \bar{r} value of .13 for the meta-analytic finding that women experience more anxiety than men, even though Feingold (1994) had expressed this effect as a negative standardized difference between means.

Each of the mean effect sizes in our compilation was independently coded by two of the authors. A preliminary analysis established interrater reliability ($r = .92$ for the relationship between the two sets of \bar{r} s). Coding differences were resolved by discussion.

We were interested not only in the magnitude of social psychological effects, but also in their variability. For each effect abstracted from a meta-analytic document, we sought the corrected variance in effect sizes, that is, the variance in effect size from study to study that could not be accounted for by differences among samples of research participants (Hedges & Vevea, 1998). Some meta-analysts report a corrected (or true) variance. In such cases, the meta-analyst's value was coded. In other cases, we used a method of moments (Shadish & Haddock, 1994) to estimate the corrected variance from information the meta-analyst reported, such as the number of studies being analyzed, the number of research participants, a homogeneity statistic, and a raw variance in effect sizes. Sometimes the requisite information was not reported, and the corrected variance could not be estimated. Corrected variance was estimated in the effect-size metric the meta-analyst had cumulated and then converted to a corrected variance for Pearson product-moment correlation coefficients with Taylor series approximations (e.g., Law, 1995). Occasionally, these procedures resulted in a negative estimate. In such cases, a value of zero was substituted. We report subsequently the square root of our estimate of the corrected variance in correlation coefficients, that is, the corrected standard deviation in r from study to study. From each research literature that allowed it, we also coded the total variance in effect sizes from study to study.

Additional Coding

Effects may be larger in some research literatures than others. The variability in effect sizes may differ from literature to literature. To clarify cross-literature differences in effect sizes, we coded four additional variables from each meta-analysis: (a) number of primary effect-size estimates, (b) proportion of unpublished research, (c) number of theoretical moderator analyses, and (d) number of artifactual moderator analyses. These variables are described next.

Meta-analysts base their conclusions on differing amounts of data. There are two indices of the quantity

of data that enter into a meta-analytic conclusion: the number of primary research *studies* on which that conclusion is based and the number of primary *effect-size estimates*. Often, meta-analysts abstract multiple effect-size estimates from a single research study. For our statement of the total number of research studies included in the current compilation, we took care to avoid double counting studies from which multiple effect sizes had been abstracted. However, this double counting could not be avoided in the appended listing of effects. There we note the number of primary effect-size estimates on which a meta-analytic conclusion was based. This value is symbolized as *k*.

Publication practices may compromise the validity of scholarly conclusions. To address this concern, we perused the references to the primary studies on which each meta-analysis was based and noted the proportions of studies that were unpublished.

Some research literatures may consist solely of studies that seek to document and replicate an effect. Others may consist largely of studies that seek to neutralize an effect documented earlier. To capture this difference, we read each meta-analytic document carefully, looking for attempts to relate effect sizes to moderator variables. As a proxy for primary researchers' attempts to neutralize the focal effect of a research literature, we coded the number of psychological moderator variables examined in the meta-analysis of that literature. For comparison, we also coded the number of artifactual moderator variables examined.

Results

Our search yielded 322 codable meta-analytic documents spanning more than 6,200 pages of text. As mentioned, these documents incorporated results from more than 25,000 research studies and 8 million human research participants. References to the 322 documents appear in Appendix A. From these documents, we abstracted 474 effects, reflecting a considerable amount of data (mean $k = 71.54$).

Appendix B lists these 474 social psychological effects. The effects are organized under 18 social psychological topic headings (e.g., aggression and attitudes). Alongside a statement of each meta-analytically established effect is the number of estimates of that effect (*k*), the mean size of the effect (expressed as \bar{r}), the corrected standard deviation in *r* across studies, and a numerical reference to the meta-analytic document from which the effect was abstracted (i.e., to the reference list of Appendix A). Note that the standard deviation in effect sizes was not always estimable. For example, the first row

in Appendix B indicates that Document 176 of Appendix A (i.e., the meta-analysis by Miles & Carey, 1997) concluded from 42 effect-size estimates that "there are genetic influences on aggressiveness," that the mean size of this effect corresponds to a correlation coefficient of .49, and that the corrected standard deviation in this effect across studies cannot be estimated. In some cases, several documents reached the same social psychological conclusion from different meta-analytic databases. In such cases, a separate effect was coded from each document. For instance, three documents (Documents 39, 40, and 143 in Appendix A) concluded that "when people drink alcohol, they become aggressive."

Appendix B is intended to provide information about effect sizes, not statistical significance. We attempted to include in this appendix every social psychological effect that satisfied the criteria described in the Method section, irrespective of the outcome of a null hypothesis test. Each statement in the appendix expresses the direction of the corresponding mean effect, even if it was not statistically significant. For significance levels, substantive qualifications, and additional information about any of the 474 social psychological effects listed in Appendix B, the relevant meta-analysis should be read.

Appendix B is intended as a reference source. It is keyed to a narrative encyclopedia of social psychology (Manstead & Hewstone, 1995). The 18 topic headings in the appendix appear in the encyclopedia, as does each italicized term. The encyclopedia should be consulted for explanations of these terms and descriptions of relevant scholarship.

Magnitude of Social Psychological Effects

Some suspect that "many" social psychological effects are small, corresponding in size to a correlation coefficient of .10 (Cohen, 1988). Others report that social psychology textbooks cite large effects, ones that approach a correlation coefficient of .50. Figure 1 presents a histogram of the mean size of the 474 social psychological effects listed in Appendix B. Each effect was established by a meta-analysis and is expressed in the histogram by the absolute value of a Pearson product-moment correlation coefficient. As the figure reveals, social psychological effects vary in size. Their distribution is

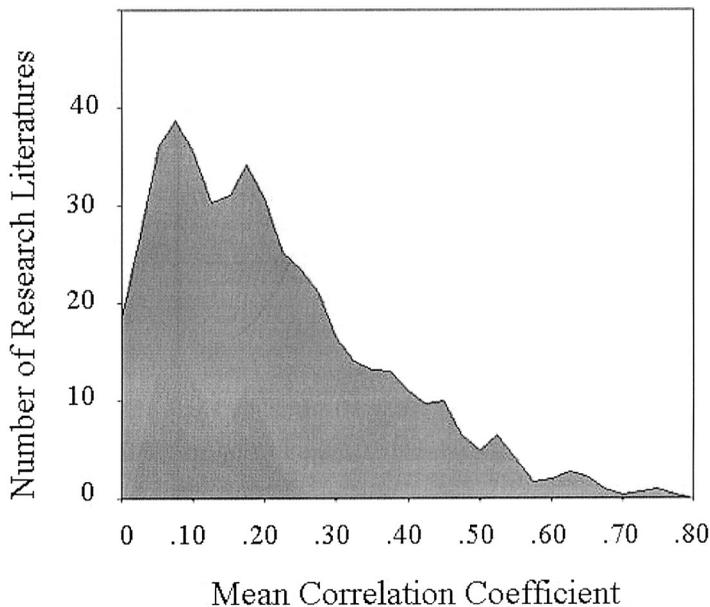


Figure 1. Magnitude of meta-analytic effect sizes in social psychology.

positively skewed. Although many of these effects are small (30.44% yielding an r of .10 or less), many others are not (23.68% yielding an r of .30 or more). Only 5.28% yield a value of r greater than .50. In this, the largest-scale social psychological database yet compiled, social psychological effects yield a mean value of \bar{r} of .21 ($Mdn \bar{r} = .18$; across-literatures $SD = .15$). Recall that 302 meta-analyses showed a mean correlation of .24 between psychological treatments and outcomes (Lipsey & Wilson, 1993).

Journal referees may block publication of nonsignificant research findings (Greenwald, 1975). In principle, this publication bias might influence our estimate of the size of social psychological effects. To assess this possibility, we divided the 474 meta-analytic effects in Appendix B into three categories based on the percentage of unpublished studies cited in the corresponding meta-analytic document. Analyses indicated only a modest relationship between the magnitude of a social psychological effect and the percentage of unpublished studies on which it was based. One hundred seventy-five meta-analytic effects drawn from documents that cited no unpublished studies yielded a mean \bar{r} value of .216; 208 effects drawn from documents whose reference lists included a range of

1%–25% unpublished studies yielded a mean value of \bar{r} of .202; and 91 meta-analytic effects drawn from documents whose reference lists included more than 25% unpublished studies yielded a mean value of \bar{r} of .199. Publication biases seem to have had little impact on our aggregate estimate of social psychological effect sizes.

Social psychologists study a variety of topics, some of which may show larger effects than others. Although social psychological research can be categorized in a number of ways, it is categorized in Appendix B under 18 topic headings: aggression, attitudes, attribution, expectancy effects, gender roles, group processes, health psychology, helping behavior, intergroup relations, law, leadership, methodology, motivation, nonverbal communication, personality, relationships, social cognition, and social influence.

Table 1 summarizes meta-analytic effects on each of these 18 topics. Listed in the table are the number of social psychological conclusions that have been reached about each topic, the number of primary research estimates on which those conclusions are based (total k), the mean size of the effect (expressed as \bar{r}), and the mean estimate of the corrected standard deviation in r

Table 1
Social Psychological Effect Sizes, by Topic

Topic	No. of meta-analytic conclusions	Total k	Mean \bar{r}	Mean corrected SD
Aggression	31	3,323	.24	.20
Attitudes	32	2,476	.27	.14
Attribution	36	1,929	.14	.14
Expectancy effects	16	902	.16	.22
Gender roles	19	1,243	.18	.13
Group processes	27	1,183	.32	.15
Health psychology	22	2,340	.17	.13
Helping behavior	14	824	.18	.16
Intergroup relations	28	1,542	.19	.18
Law	25	1,374	.17	.08
Leadership	42	2,588	.25	.18
Methodology	29	2,356	.21	.10
Motivation	12	1,099	.15	.12
Nonverbal communication	29	1,471	.22	.17
Personality	32	3,905	.21	.14
Relationships	32	2,203	.22	.12
Social cognition	22	1,526	.20	.19
Social influence	26	1,629	.13	.18
Overall	474	33,912	.21	.15

across studies. As the table indicates, more meta-analyses are published on leadership than on motivation or helping behavior. The largest mean effects were found in the study of attitudes (mean $\bar{r} = .27$) and group processes (mean $\bar{r} = .32$). The smallest were found in the study of attribution (mean $\bar{r} = .14$) and social influence (mean $\bar{r} = .13$). It is noteworthy, however, that these effects did not range as widely as one might have expected. In fact, *none* of the 18 social psychological topic areas in Table 1 yielded a mean correlation coefficient as low as .10 (the value that Cohen stated would describe "many social psychological effects"), nor did any of the topic areas yield a mean correlation coefficient as high as .50 (the typical size of effects cited in social psychology textbooks, according to Cooper & Findley, 1982).

Inspired by criticisms of traditional conceptions of personality (Mischel, 1968), psychologists have debated whether social behavior is more strongly influenced by the person or the situation (Bowers, 1973). Of the 474 effects in our compilation, 247 involved assessments of the relationship of social behavior to a situational variable; 227 involved assessments of the relationship of social behavior to a demographic, personality, or other dispositional variable. Analyses showed that situational effects

are similar in magnitude to person effects (mean $\bar{r} = .22$ in 17,631 estimates of situational effects; mean $\bar{r} = .19$ in 16,282 estimates of person effects). Situational effects may be slightly larger.

There have been arguments about the magnitude of sex differences. Psychological sex differences have been variously characterized as small, large, and highly variable in size (Hall, 1998). Appendix B lists 83 meta-analytically established sex differences: 16 in attribution, 14 in relationships, 10 in nonverbal communication, and 43 on other topics. These differences tend to be small: mean $\bar{r} = .12$ for 5,691 estimates of sex differences and mean $\bar{r} = .22$ for 28,222 estimates of other social psychological effects. Differences in reactions to female and male targets are smaller than differences produced by female and male actors (mean \bar{r} s = .08 and .13 for sex of target effects and sex of actor effects, respectively). These sex differences are not especially variable across literatures: Cross-literature standard deviations in \bar{r} values are .10 for the 83 sex differences and .15 for the 391 other meta-analytic effects (note that the current compilation is confined to sex differences on social psychological variables; for a treatment of cognitive sex differences, see Hall, 1998).

Variability of Social Psychological Effects

Researchers who are interested in the typical magnitude of an effect may also be interested in the variability of that effect from study to study. Here we sought to document the variability of social psychological effects by determining, in each of 474 research literatures, a corrected standard deviation, that is, the standard deviation in effect sizes across studies that would have been observed in the absence of sampling variability. This task proved to be challenging. Meta-analysts reported a corrected standard deviation (or variance) for only 61 of the 474 social psychological effects in Appendix B, and many meta-analytic documents do not include sufficient information for standard deviations to be estimated. However, in the 355 literatures that do allow its computation, the corrected standard deviation in correlation coefficients varies in magnitude.

These estimates are presented for 355 of the social psychological effects listed in Appendix B. Statistical summaries indicate that some social psychological literatures show no variability in effect sizes beyond that which is introduced by sampling error (9.29% of the 355 literatures yielding a corrected standard deviation of zero). Others show high study-to-study variability in effect sizes (9.86% yielding a corrected standard deviation of .30 or higher). The mean estimate of the corrected standard deviation is .15 ($Mdn = .14$; across-literatures $SD = .10$). It is interesting that the mean corrected standard deviation within a social psychological research literature is similar in magnitude to the standard deviation across the mean effect sizes of all 474 literatures. Each of these standard deviations equals .15.

For each research literature from which a corrected standard deviation in effect sizes could be estimated, we also estimated a total standard deviation as well as the percentage of variance accounted for by sampling error. Across 355 research literatures, our mean estimate of the total standard deviation in correlation coefficients is .19.

Hunter and Schmidt (1990) contended that much of the variability observed in research is artifactual. Our data support this contention. Averaging across 355 social psychological research literatures, sampling variance accounts for a mean of 38.89% of the variance in effect

sizes. In 59 of these literatures, sampling variance accounts for more than 75% of the variance in effect sizes.

Correlates of Effect-Size Variability and Magnitude

The number of studies conducted on a social psychological topic may reflect the research community's interest in that topic. Theoretically, researchers' interest in an effect might be related to the magnitude or variability of the effect. Analyses of the current database reveal no relationship between the number of studies of a social psychological effect and the mean size of that effect ($r = -.04$). However, effects that are widely studied tend to be highly variable: $r = .11$ for the relationship between k and corrected SD . Perhaps social psychologists are attracted to inherently unstable effects. More likely, as research literatures mature, scholars turn their attention from demonstrating an effect to identifying limits and boundary conditions of that effect (Zanna & Fazio, 1982).

Often, meta-analysts abstract variables from a research literature to explain effect-size differences. To understand the heterogeneity in social psychological effects, we examined each of the 322 meta-analytic documents listed in Appendix A and found that 300 analyzed at least one moderator variable. We counted the number of *artifactual* and the number of *psychological* moderator variables meta-analyzed in each document.

Perhaps research literatures grow as social psychologists turn their attention from demonstrating an effect to finding limits and boundary conditions of that effect. Perhaps these efforts produce effect-size variability. Given this characterization of the research process, there should be more psychological moderator variables in large than small research literatures. Moreover, the greater the number of psychological moderator variables in a literature, the more variable should be the effect sizes.

Our data confirm these hypotheses. Across the 474 effects in Appendix B, the number of psychological moderator analyses in the associated meta-analytic document is positively associated with k ($r = .25$) and is positively associated with the corrected SD ($r = .15$). This pattern is specific to psychological moderator analyses. In fact, the corrected standard devia-

tion of a social psychological effect is *not* related to the number of artifactual moderator variables examined in a meta-analysis of that effect ($r = .08$).

Social psychologists' attempts to neutralize or reverse a focal finding may deflate the mean effect size in a research literature. Our results are consistent with this suggestion: The mean size of an effect is inversely related to the number of psychological moderator analyses of that effect ($r = -.12$) but unrelated to the number of artifactual moderator analyses ($r = .06$).

Discussion

Social psychology has grown over the past century. At the dawn of the 1900s, its experimental database consisted of a single study (Triplett, 1898). More studies were conducted, and much was learned. Later, scholars began to question the evidentiary value of individual studies (Schmidt, 1992) and developed methods for synthesizing all of the research on a particular topic (Glass et al., 1981). Now hundreds of research literatures have been meta-analyzed, and social psychology can be quantitatively described.

As a description of social psychology, the present effort has shortcomings. It is restricted to research that has been meta-analyzed and to research topics that were covered in a recent version of the *Encyclopedia of Social Psychology*. It may omit many important social psychological phenomena, particularly those at the boundaries of the field. No doubt, there are complications, qualifications, and subtleties to every social psychological phenomenon that could never be captured in descriptions as brief as the one-line summaries appended here. Moreover, the magnitude of a social psychological effect does not determine the value of that effect. A small effect can have important real-world consequences (Rosenthal, 1994). A small effect can hold great scientific interest if, for example, it is produced by a small cause (Abelson, 1995). Despite its limitations, this is the largest social psychological database ever assembled. It allows the most rigorous generalizations to date about the magnitude of social psychological effects.

Cohen (1988) provided some guidelines for effect sizes. According to Cohen, "many" effects in social psychology would yield a corre-

lation coefficient of .10, and such values are small. Cohen defined medium-sized effects as those that yield a correlation coefficient of .30. Large effects, he stated, are those that yield a correlation coefficient of at least .50. Cohen, however, cautioned that these guidelines reflected only his "subjective averaging," and he recommended that they be used only when there was "no better basis" for identifying small, medium, and large effects.

The current review provides an empirical basis for gauging the size of social psychological effects. It indicates that a correlation coefficient of .10 is "small" relative to most social psychological effects. Mean effects this small are found in roughly 30% of social psychological research literatures. It indicates that a correlation coefficient of .20 is a medium-sized effect. Effects that small are found in roughly half of the relevant literatures. A correlation coefficient of .30 is large relative to most social psychological effects. Less than 25% of mean effects are that large.

Although general reference values for "small," "medium," and "large" effects can be used in statistical power computation, it is better to base such computations on information that is specific to the research question being posed. Appendix B presents quantitative data for a large number of social psychological effects. Researchers who plan work on one of these effects should consult this appendix for the mean size of that effect in previous research. This value would be a good starting point for power computations.

Social psychological effects vary considerably from study to study, but much of this variation is artifactual. In a typical social psychological research literature, almost 40% of the cross-study variance in effects can be accounted for by differences among research samples. Even after correction for sampling error, however, substantial effect-size variance remains. No doubt, some of this residual variance is due to artifacts such as measurement error (Hunter & Schmidt, 1990). Variance is also introduced by social psychologists' attempts to manipulate effects (Zanna & Fazio, 1982). In our view, each standard deviation listed in Appendix B should be regarded as an upper bound to the value that would be obtained in a series of attempts at exact replication and as a lower bound to the impact on the effect of a typical

moderator variable. In literatures in which most of the studies are designed to document a focal effect, our standard deviation may be a reasonable measure of effect-size consistency. In literatures in which most of the studies are intended to reverse an effect, our standard deviation may better measure the effect's manipulability. In light of these considerations, scholars should be cautious in comparing effect-size variability across research literatures.

The mean effect size yielded by a meta-analysis also requires judicious interpretation. Meta-analytic means (such as those listed in Appendix B) incorporate effects from a variety of conditions, settings, and research designs. Strong conclusions can be reached from research literatures that show homogeneous effect sizes. There, the mean is estimating a single effect. However, in research literatures that contain highly heterogeneous findings, it would be naive to interpret the mean size of an effect as the magnitude of that effect under any particular set of conditions (say, conditions that specialists regard as standard or theoretically prescribed). A social psychological effect may be larger under standard conditions than is the mean effect in the literature as a whole, the mean having been deflated by investigators' attempts to neutralize and reverse the usual finding.

Narrative reviews of social psychology have presented rich interpretations of verbally stated effects (e.g., Gilbert et al., 1998). Here we have offered a quantitative description.

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Appendix A

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Appendix B

474 Meta-Analytic Conclusions

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
Aggression				
There are <i>genetic influences</i> on aggressiveness	42	.49		176
Highly aggressive men have high levels of testosterone	118	.06	.17	20
People become aggressive when they see aggression-related cues	78	.16	.36	45
People become aggressive when they are provoked	66	.36	.33	28
People are aggressive toward individuals who provoke them	143	.51	.26	47
People who have been provoked are aggressive toward bystanders	24	.06	.38	47
People are aggressive when they are in a bad mood	256	.41	.29	44
People are aggressive when they are hot	54	.03		13
People are aggressive when they are under environmental stress	37	.25	.29	47
People are aggressive when they are anonymous	24	.26		13
People who have aggressive personalities display aggressive behavior	27	.18		13
Pornography increases aggression	33	.13	.15	7
Educational briefings prevent pornography from increasing aggression	10	.29	.22	9
Sexually aggressive men are aroused by depictions of rape	18	.24	.10	121
When people drink alcohol, they become aggressive	88	.24	.04	40
When people drink alcohol, they become aggressive	65	.23		39
When people drink alcohol, they become aggressive	49	.26	.32	143
When people think they are drinking alcohol, they become aggressive	20	.05		39
When people think they are drinking alcohol, they become aggressive	16	.05	.17	40
Exposure to mass media violence increases aggression	1,142	.31	.14	216
Exposure to mass media violence increases aggression	12	.13	.12	315
People act antisocially after seeing antisocial behavior on TV	528	.12	.40	134
Aggressiveness is stable over time	38	.48	.39	322
Males' aggressiveness is stable over time	24	.55	.36	214
Females' aggressiveness is stable over time	21	.44	.33	215
There are sex differences				
Men are more aggressive than women	110	.31	.23	158
Men are more aggressive than women	107	.12	.14	28
Men are more aggressive than women	83	.23	.10	141
Men are more aggressive than women	50	.20	.35	85
After exposure to violence, men are more aggressive than women	20	.11	.16	27
People are more aggressive toward men than women	20	.06	.26	85
Attitudes				
Persuasive fear appeals induce attitude change	40	.11	.06	279
Persuasive fear appeals induce attitude change	25	.21	.14	34
Persuasive fear appeals induce behavior change	15	.10	.19	34
Persuasive fear appeals induce behavior change	16	.13	.12	279
Cumulative exposure to mass media influences viewers' attitudes	52	.09	.04	179
Mere exposure to a stimulus increases liking for that stimulus	208	.26	.52	32
Some people are more persuasive than others	745	.21		312
People who are involved in a message are unlikely to be persuaded by it	40	.10	.17	145
A message is most persuasive if it presents a lot of information	31	.20	.07	271
The higher a person's credibility, the more persuasive that person will be	10	.10	.04	271
Good arguments are persuasive to people who have a high need to think	11	.15	.07	41
Sometimes a message has more persuasive impact after a delay	20	.00	.43	11
Information about a speaker's credibility has less impact if it is delayed	10	.13	.25	207
Distraction increases the persuasive impact of a message	104	.03	.17	37
Two-sided messages are more persuasive than one-sided messages	26	.04	.06	6
People are more persuaded by comparative than non-comparative ads	95	.11	.21	117
Subliminal advertising increases sales	23	.00	.11	291

(Appendixes continue)

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
<i>Attitudes (continued)</i>				
Scarcity increases the value of a commodity	49	.12	.16	168
There is consistency between people's attitudes and behavior	138	.47	.14	153
There is consistency between people's attitudes and behavior	92	.65	.14	154
There is consistency between people's attitudes and behavior	88	.38	.18	162
There is consistency between people's attitudes and behavior	37	.45	.46	91
There is consistency between people's attitudes and behavior	15	.43		320
People do what they intend to do	98	.45	.19	225
People do what they intend to do	87	.53	.20	255
People do what they intend to do	47	.46	.21	154
People do what they intend to do	13	.56		320
People are likely to perform an action if they . . .				
intend to perform the action and believe they can control it	17	.51		5
feel positively about the action and believe it is common	87	.66	.13	255
People are likely to recycle if they . . .				
know about recycling	115	.40	.26	138
know about recycling, like it, and have an incentive to recycle	115	.48	.23	136
have concern for the environment	7	.11	.12	247
<i>Attribution</i>				
People attribute their successes to ability	69	.29	.35	306
People attribute their successes to ability	25	.27		305
People attribute their successes to effort	69	.18	.27	306
People attribute their successes to effort	25	.14		305
People attribute their successes to internal factors	49	.26	.17	197
Students attribute their academic successes to luck	25	.01		305
People attribute their failures to bad luck	69	.10	.43	306
People attribute their failures to the difficulty of their task	69	.05	.42	306
People attribute their failures to the difficulty of their task	25	.22		305
People attribute their failures to external factors	42	.09	.17	197
People take more responsibility for success than failure	23	.19	.33	21
People are held more responsible for a severe than a minor accident	22	.13	.38	38
There are actor-observer differences in work performance attributions	11	.41	.00	68
Successful, expected work performances are attributed to ability	20	.35	.17	68
Adults who suffer depression attribute . . .				
negative outcomes to internal, global, stable factors	268	.22	.15	281
positive outcomes to external, specific, unstable factors	160	.14	.14	281
Children who suffer depression attribute . . .				
negative outcomes to internal, global, stable factors	19	.39		112
negative outcomes to internal, global, stable factors	17	.38	.03	147
positive outcomes to external, specific, unstable factors	18	.32		112
positive outcomes to external, specific, unstable factors	15	.32	.06	147
There are sex differences				
Men attribute their performance to ability	58	.07	.07	308
Men attribute their performance to ability	28	.06	.00	260
Men attribute their performance to ability	22	.06	.02	105
Men attribute their performance to effort	58	.03	.11	308
Men attribute their performance to effort	22	.00	.00	105
Women attribute their performance to luck	58	.05	.21	308
Women attribute their performance to luck	26	.08	.00	260
Women attribute their performance to luck	22	.08	.05	105
Women attribute their performance to the difficulty of their task	58	.02	.21	308
Women attribute their performance to the difficulty of their task	21	.00	.00	105
Women attribute their performance to the difficulty of their task	20	.00	.00	260
Women take more responsibility than men for academic performance	12	.04	.19	57

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
<i>Attribution (continued)</i>				
Women's successes are attributed to effort	84	.04		283
Men's successes are attributed to ability, luck, and the ease of the task	230	.01		283
Women's failures are attributed to task difficulty	36	.07		283
Men's failures are attributed to lack of ability, lack of effort, and bad luck	134	.02		283
<i>Expectancy effects</i>				
People behave as others expect them to behave	114	.16		233
People behave as others expect them to behave	113	.33	.43	236
Males behave as others expect them to behave	14	.19		124
Females behave as others expect them to behave	28	.08		124
Experimenters find the research results they expect to find	35	.25		232
Some experimenters show bigger expectancy effects than others	22	.11		59
Some subjects show bigger experimenter expectancy effects than others	26	.03		59
Teachers expect more from female than male students	28	.07		75
Teachers expect more from Anglo-Americans than African-Americans	20	.05		75
Teachers expect more from attractive than unattractive students	24	.12		75
Teachers who have positive expectations for a student have positive interactions with that student	180	.19		130
	165	.19		129
Teachers form self-fulfilling prophecies about students	18	.05	.07	226
Students achieve the most if their teachers interact with them, display warmth, and give them positive feedback	58	.24		130
	50	.26		129
People have status expectations for one another	7	.31	.12	73
<i>Gender roles</i>				
Parents encourage their children to engage in sex-stereotypic activities	21	.21	.11	169
Exposure to TV increases acceptance of gender role stereotypes	31	.11	.12	135
Boys who are reared in father-absent homes are nonmasculine	116	.07	.23	269
Girls who are reared in father-absent homes are nonfeminine	48	.01	.14	269
Women are more likely than men to support the feminist movement	46	.39		292
Members of the women's movement are perceived to be unattractive	21	.00	.00	25
Traditionally sex-typed people have traditional attitudes toward women	27	.10	.05	19
Men are recommended for jobs over women	19	.20	.16	212
People rate male authors more favorably than female authors	575	.02	.09	282
Counselors evaluate female clients more favorably than male clients	60	.02		259
Women are more likely than men to say positive things about people	6	.21	.35	299
Nonmasculine men are at risk for assaulting their wives	14	.10	.32	276
Highly feminine women are at risk for being assaulted by their husbands	16	.19	.09	276
Highly feminine people . . .				
have high self-esteem	63	.17	.11	303
have high self-esteem	35	.24		288
report high social satisfaction	23	.27	.12	242
Highly masculine people . . .				
have high self-esteem	63	.52	.23	303
have high self-esteem	36	.52		288
report high social satisfaction	23	.14	.00	242
<i>Group processes</i>				
Goal-setting facilitates group performance	26	.42	.08	211
Highly cohesive groups show high group productivity	66	.25	.21	190
Highly cohesive groups show high group productivity	51	.17	.17	119
Highly cohesive groups show high group productivity	18	.36	.14	89
Highly cohesive groups make bad decisions	17	.02	.22	183
There is social loafing when people work in a group	163	.21	.30	149
All-male groups outperform all-female groups	64	.19	.28	314
People produce more ideas alone than in group brainstorming	34	.45	.42	196

(Appendixes continue)

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
<i>Group processes (continued)</i>				
The members of a group influence one another	108	.33	.28	285
People who deviate from a group are rejected by that group	23	.60	.37	287
Intelligent people are the most active members of a group	36	.18		172
A person who is close to others and central to group communication . . .				
will be satisfied with the group	33	.33	.00	186
will actively participate in the group	39	.33	.05	186
is likely to emerge as leader of the group	33	.37	.09	186
People who participate in a group are likely to become the leader of that	72	.60		268
group	33	.55	.17	198
People who are highly esteemed are likely to lead group discussions	17	.36	.16	23
Knowledge of others' views causes a group polarization of attitudes	22	.44	.43	142
Hearing others' arguments causes a group polarization of attitudes	12	.75	.43	142
Dormitory crowding makes residents dissatisfied	19	.28	.15	192
Large groups have firmer spatial boundaries than small groups	58	.20	.19	187
In social dilemmas, people favor self-interest over group interest	130	.06		241
Tough bargaining strategies produce advantageous outcomes	34	.20	.06	10
Negotiators are likely to compromise if they . . .				
are experienced	14	.37	.28	74
have a cooperative personality and a tough opponent	20	.37	.39	74
Negotiators sometimes reach mutually disadvantageous agreements	20	.20	.00	289
Conversations lack social content if they are computer-mediated	21	.09	.00	298
<i>Health psychology</i>				
People who receive the most social support are healthy	316	.11		258
People who receive the most social support are unhealthy	110	.07	.13	251
People who receive the most social support are unhealthy	83	.06	.07	250
People who lack social support have high blood pressure	21	.08	.01	294
Social support facilitates healthy maternal attitudes and behavior	163	.30	.24	17
People who believe they have social support in fact have social support	39	.27	.41	224
People with Type A personalities suffer chronic emotional distress	101	.13	.33	278
The most socially active people report the highest life satisfaction	506	.15	.10	209
Anglo Americans report higher life satisfaction than African-Americans	54	.10	.08	272
Married people report higher life satisfaction than others	111	.14	.08	128
Women report higher life satisfaction than men	85	.00	.04	317
Men report higher life satisfaction than women	149	.04	.40	127
When people drink alcohol, they engage in extreme behaviors	121	.24		267
When people think they are drinking alcohol . . .				
they engage in extreme behaviors	48	.19		267
they engage in illicit social behaviors	20	.08	.18	140
People with AIDS suffer more stigma than people with other diseases	21	.22	.32	61
People who suffer depression are evaluated negatively	26	.27	.19	253
People who suffer depression make their interaction partners feel bad	63	.16	.22	253
Disabled students have low status among their peers	37	.30	.09	205
People exercise if they are encouraged to exercise	173	.21	.00	48
People exercise if they intend to exercise and like to exercise	70	.40	.00	133
People donate blood if they intend to donate blood and like to do so	23	.26		98
<i>Helping behavior</i>				
People are likely to help others when they are in a bad mood	85	.11		46
People are likely to help others when they are in a good mood	61	.26		43
Children who are helpful can infer others' motives and thoughts	22	.28	.46	296
Children who are helpful can infer others' feelings and concerns	14	.09	.49	296
People act prosocially after seeing prosocial behavior on TV	108	.26	.42	134
Only children are prosocial in character	26	.07	.23	90
People are likely to help individuals who depend on them	72	.25		33

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
<i>Helping behavior (continued)</i>				
Rural people are more helpful than urban people	65	.11		264
Men are more likely than women to help others	99	.17	.20	79
Women are more likely than men to perform caretaking tasks for others	21	.07	.09	177
Women have more empathy than men	18	.37	.19	86
Empathy increases helping behavior	161	.15	.10	87
People who are empathetic are nonaggressive	49	.10	.06	178
Empathetic people do not act negatively, antisocially, or abusively	23	.21		178
<i>Intergroup relations</i>				
People prefer their own group to other groups	137	.35	.31	188
Minority psychotherapy clients prefer counselors of their own ethnicity	42	.25	.24	54
Schoolchildren prefer classmates of their own race	24	.37	.15	244
People identify members of their own race better than members of another race	44	.28	.34	18
	28	.33	.18	35
In judging performance, Anglo Americans favor Anglo Americans over African Americans	76	.09		239
	74	.15	.10	160
In judging performance, African Americans favor African Americans over Anglo Americans	16	.01		239
	14	.18	.17	160
People give higher job ratings to Anglo than African Americans	53	.20	.09	103
Supervisors rate African Americans by job performance and knowledge	25	.26	.00	161
Supervisors rate Anglo Americans by job performance and knowledge	25	.14	.12	161
African Americans believe that they have high academic ability	14	.08		58
School desegregation raises African Americans' academic achievement	269	.04		60
School desegregation raises African Americans' academic achievement	106	.22		318
Blacks are slightly more impulsive, aggressive, and mature than Whites	64	.06	.37	115
People fuse the visual images of individuals of different races	17	.05		182
People perceive less in-group than out-group homogeneity	63	.21	.47	194
Prejudice causes discrimination	46	.29	.18	249
Men are more likely than women to dislike homosexuals	119	.19	.13	157
Men are more likely than women to dislike homosexuals	91	.13	.11	307
Men are more likely than women to dislike homosexuals	24	.04	.08	155
People prefer young adults to elderly adults	43	.19	.19	156
Young people believe that the elderly are unqualified for jobs	30	.30	.27	102
Elderly people give equal ratings to young and old job applicants	11	.00	.30	102
People attribute negative behaviors to members of stereotyped groups	23	.26	.16	195
People associate small groups with negative events	36	.41	.10	146
People associate small groups with negative events	28	.34	.19	195
<i>Law</i>				
A confident eyewitness gives accurate eyewitness testimony	35	.25	.09	36
A confident eyewitness gives accurate eyewitness testimony	30	.28	.07	262
Eyewitnesses are accurate if they were confident before seeing a lineup	9	.10	.23	63
Eyewitnesses who are told that the perpetrator is in a lineup . . .				
are confident in identifying a perpetrator	10	.04		266
are inaccurate in identifying a perpetrator	19	.12	.35	266
It is easier to identify a suspect from a lineup than from photographs	28	.06	.21	62
If weapons are present at a crime, eyewitnesses have difficulty . . .				
identifying the perpetrator of the crime in a lineup	19	.06	.11	265
recalling the perpetrator's features	10	.27		265
Eyewitnesses are more accurate under some conditions than others	552	.17	.39	254
There are individual differences in eyewitnesses' accuracy	173	.05	.23	254
Large juries are more likely than small juries to reach a correct verdict	10	.02	.09	240
Large juries are more likely than small juries to produce a hung trial	15	.07	.09	240
A jury's final verdict is likely to be the verdict a majority initially favored	13	.63	.00	171

(Appendixes continue)

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
<i>Law (continued)</i>				
If a jury is initially split on a verdict, its final verdict is likely to be lenient	13	.63	.00	171
Juries are more influenced by credible than noncredible witnesses	8	.17		304
Juries are harsher on African American than Anglo American defendants	19	.09	.03	280
Jurors are harsh on poor, unattractive African American male defendants	131	.05	.11	175
Jurors are harsh if the victim is an attractive Anglo American female	55	.04	.00	175
Jurors who are high in authoritarianism favor harsh sentences	34	.16	.09	202
In sexual assault cases, female jurors are harsher than male jurors	36	.16	.00	248
Men, more than women, believe that people get what they deserve	39	.06	.06	206
Exposure to pornography encourages acceptance of rape myths	24	.10	.09	8
The people most tolerant of rape are aging, lower-class men of color	61	.23	.14	14
A woman is likely to be held responsible for being raped if she . . .				
was previously acquainted with her attacker	14	.16	.22	302
is of questionable character	17	.20	.13	302
<i>Leadership</i>				
In comparison with subordinates . . .				
leaders are older	13	.21		273
leaders are more intelligent	196	.25		172
leaders are more intelligent	17	.28		273
leaders are more intelligent	13	.38	.03	165
leaders are more extroverted	119	.15		172
leaders are more extroverted	10	.10	.19	165
Leaders are most effective if they . . .				
have charisma	49	.54	.14	107
have charisma	47	.62	.25	166
stimulate subordinates and show them consideration	86	.52	.01	166
offer rewards that are contingent on performance	43	.34	.27	166
avoid making unnecessary changes	41	.04	.20	166
People are less satisfied with autocratic than democratic leaders	28	.23	.18	110
People are more productive under autocratic than democratic leaders	23	.02	.07	110
In large groups, leaders initiate structure and are inconsiderate	16	.07	.08	185
People are satisfied with leaders who initiate structure	90	.25	.17	313
People perform well under leaders who initiate structure	87	.13	.28	313
People are satisfied with leaders who show them consideration	88	.46	.20	313
People perform well under leaders who show them consideration	88	.19	.27	313
Good leader-subordinate relations promote subordinate satisfaction	60	.53	.25	111
Good leader-subordinate relations promote subordinate productivity	65	.28	.24	111
In favorable situations, task-oriented leaders are most effective	58	.28	.23	218
In favorable situations, task-oriented leaders are most effective	57	.18	.65	116
In favorable situations, task-oriented leaders are most effective	40	.24		275
In favorable situations, task-oriented leaders are most effective	18	.32		245
In favorable situations, task-oriented leaders are most effective	11	.54		100
In unfavorable situations, task-oriented leaders are most effective	22	.41	.21	218
In unfavorable situations, task-oriented leaders are most effective	20	.44	.61	116
In unfavorable situations, task-oriented leaders are most effective	13	.45		100
In unfavorable situations, task-oriented leaders are most effective	12	.44		245
In intermediate situations, morale-oriented leaders are most effective	69	.13	.54	116
In intermediate situations, morale-oriented leaders are most effective	57	.29	.06	218
In intermediate situations, morale-oriented leaders are most effective	50	.36		245
In intermediate situations, morale-oriented leaders are most effective	43	.31		275
In intermediate situations, morale-oriented leaders are most effective	30	.20		100
There are sex differences				
Women are more effective leaders than men	76	.01	.13	83
Men are more effective leaders than women	18	.02	.12	71

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
<i>Leadership (continued)</i>				
Men are more likely than women to . . .				
be evaluated favorably as leaders	114	.02	.16	84
be evaluated favorably as leaders	71	.04		15
remain subordinates in social groups	15	.09	.08	81
emerge as leaders in other groups	169	.16	.17	81
be task oriented, solitary, and autocratic as leaders	329	.01	.35	80
be non-task oriented and autocratic as school principals	117	.02	.18	82
<i>Methodology</i>				
Psychological ratings are reliable	154	.75	.39	52
Measures of communication anxiety are reliable across situations	17	.45	.17	31
Measures of subjective well-being are valid	77	.52	.20	210
Self-evaluations of ability are valid	267	.31	.17	170
Self-evaluations of performance are valid	47	.22	.12	131
People who report being feminine exhibit feminine behaviors	35	.17		288
People who report being masculine exhibit masculine behaviors	66	.24		288
Men report greater masculinity than women	43	.26		293
Women report greater femininity than men	43	.40		293
Persuasive fear appeals effectively arouse fear	40	.36	.12	34
Illusion of control manipulations changes perceptions of control	53	.32	.18	222
Experimental mood induction procedures effectively alter mood	380	.36		164
Experimental mood induction procedures effectively alter mood	250	.45	.06	301
When assessed with a bogus pipeline measure, people . . .				
acknowledge undesirable attitudes	31	.20	.12	230
acknowledge smoking	30	.02	.08	3
deny using drugs	16	.02	.03	4
People are most likely to respond to surveys if they . . .				
are greeted face-to-face, rather than through the mail	26	.07		139
are assured that their responses will be confidential	64	.07		256
are offered monetary incentives	74	.12	.08	51
are offered monetary incentives	30	.08	.06	104
are given monetary gratuities	85	.19	.30	137
are given return postage	6	.03	.00	22
receive prior notice, follow-ups, and monetary incentives	184	.07	.09	319
People who volunteer to participate in research are unusually . . .				
young	39	.03		235
intelligent	37	.11		235
low in authoritarianism	34	.10		235
high in sensation-seeking	26	.12		235
Taking a pretest improves a person's score on a posttest	164	.08		311
People act differently if they believe they are being studied	38	.00	.00	2
<i>Motivation</i>				
External rewards increase productivity	13	.17	.04	310
External rewards decrease the amount of free time spent on a task	17	.24	.05	310
External rewards decrease intrinsic motivation	88	.16	.07	237
External rewards increase intrinsic motivation	148	.03	.18	42
External rewards decrease intrinsic motivation in some circumstances	99	.22		286
External rewards increase intrinsic motivation in other circumstances	127	.09		286
People who have high achievement motivation achieve a lot	383	.18	.17	261
African Americans have less achievement motivation than Anglos	26	.10	.13	58
Only children have high achievement motivation	43	.08	.24	90
Situational factors influence a person's willingness to wait for a reward	9	.44	.26	108
Men are more motivated than women to manage businesses	51	.11	.08	76
Boys are more competitive than girls	95	.03	.11	274

(Appendixes continue)

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
Nonverbal communication				
Nonverbal behavior quickly conveys accurate information about the actor	38	.41	.38	12
The people who are good at understanding others' nonverbal behavior . . .				
have dominant personalities	15	.29	.43	126
have high socioeconomic status	17	.15	.08	126
are from nonexpressive families	5	.20	.00	120
are intelligent, trusting, well adjusted, and cognitively complex	230	.10	.11	64
People like individuals who make eye contact, smile, and lean forward	75	.26		290
People can recognize facial expressions of emotion across cultures	34	.45		238
People can recognize facial expressions of emotion across cultures	23	.53		243
Emotions are expressed more on the left than the right side of the face	65	.19	.23	257
Smiling increases happiness	16	.34	.04	173
People judge deception accurately	16	.40	.21	67
People judge deception accurately from nonverbal cues	14	.23	.43	66
People judge deception accurately from verbal cues	14	.39	.14	66
People judge deception from certain visible cues (like gaze aversion)	31	.17		65
People judge deception from certain audible cues (like high pitch)	19	.19	.27	321
People who are lying have wide pupils, blink a lot, and don't move their head	110	.07		65
People who are lying have wide pupils, blink a lot, and don't move their head	91	.12	.31	321
People who are lying give short responses, and offer negative, irrelevant remarks	92	.10		65
People who are lying give short responses, and offer negative, irrelevant remarks	68	.15	.38	321
There are sex differences: Females smile more than males	20	.23		125
In comparison with women, men maintain more physical distance from others	62	.25		123
In comparison with males, females gaze more at others	41	.29		125
Men touch women more than women touch men	10	.04	.50	270
Women are more skilled at expressing emotion than men	42	.28		123
In comparison with men, women have more understanding of nonverbal behavior	64	.21		123
In comparison with men, women have more understanding of nonverbal behavior	46	.17	.18	122
Women are more sensitive than men to facial cues	85	.16		234
Women are more sensitive than men to vocal cues	68	.06		234
Women are more sensitive than men to nonverbal body cues	60	.11		234
Personality				
Personality characteristics are stable over time	106	.66		246
People agree with one another about others' personality characteristics	36	.16		151
Introverts are more vigilant than extroverts	216	.08	.07	1
Introverts are less intelligent than extroverts	100	.06	.03	159
Unintelligent people have strong reactions to stress	217	.09	.08	1
Intelligent people are popular	38	.10		172
Sociable, intelligent children are popular with their peers	176	.05	.20	204
Aggressive, withdrawn children are rejected by their peers	194	.03	.28	204
Nonaggressive, unsociable children are neglected by their peers	182	.06	.11	204
Aggressive, sociable children cause controversy among their peers	63	.18	.26	204
People who are optimistic are usually in a good mood	42	.43	.13	16
People with low self-esteem often feel bad	6	.46	.22	300
People with low self-esteem often suffer communication apprehension	31	.35		167
Students who have high self-esteem achieve a lot	1,136	.21	.47	132
Students who perform well have high perceived self-efficacy	38	.38	.04	199
Students who perform poorly are external in locus of control	261	.23	.39	148
Students who perform poorly are external in locus of control	67	.18	.41	101

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
<i>Personality (continued)</i>				
People who suffer depression are external in locus of control	97	.32	.33	26
People who suffer depression are external in locus of control	15	.19	.11	223
Shrewd, manipulative people are external in locus of control	20	.34		180
Intrinsically religious people do not make selfish use of religion	34	.06	.15	72
Socially anxious people . . .				
blush and have rapid heartrate	28	.36		217
have negative self-focus, and worry about being evaluated	232	.46		217
stutter, pause before speaking, and avoid others	120	.40		217
A person's ability to process messages is disrupted by anxiety	18	.34	.14	221
Only children are highly sociable	54	.00	.22	220
There are sex differences: men have higher self-esteem than women	88	.06	.06	97
Women experience more anxiety than men	64	.13	.08	97
Women are more anxious than men about communicating with others	22	.10		167
Women are more likely than men to be external in locus of control	39	.06	.16	97
Men are more assertive than women	52	.08	.19	97
Girls develop mature personalities at an earlier age than boys	113	.14	.12	53
<i>Relationships</i>				
Romantic partners resemble one another in physical attractiveness	61	.30	.10	92
People who are physically attractive are judged to have positive traits	183	.21	.12	96
People who are physically attractive are judged to have positive traits	76	.28	.18	77
People who are physically attractive are judged to have positive traits	17	.20		228
People who are physically attractive have positive traits	266	.09	.08	96
People who are physically attractive are judged to be intelligent	47	.29	.15	144
People who are physically attractive are intelligent	31	.14	.11	144
Physically attractive women are popular	28	.40	.08	93
Physically attractive men are popular	28	.36	.10	93
People engage in self-disclosure to people they like	31	.34	.32	55
People who disclose a lot about themselves are liked by others	94	.14	.27	55
Interpersonal attraction is reciprocated	11	.42		151
Friends interact more positively with one another than nonfriends	251	.18	.23	203
Adolescents use contraceptives if they . . .				
receive social support	45	.22		309
have a good relationship with their partner	37	.16		309
Spouses who treat one another well are satisfied with their marriage	13	.29		150
People who relate well to their children relate well to their spouse	253	.22	.15	88
People involved in intimate violence give undesirable self-descriptions	18	.18	.05	277
There are <i>sex differences</i> in relationships: Women are more likely than men to engage in self-disclosure to others	205	.09	.12	70
In comparison with women, men are more likely to rate . . .				
physical attractiveness as important in romantic attraction	10	.18	.03	94
physical attractiveness as important in mate selection	34	.26	.05	93
similarity as unimportant in romantic attraction	10	.11	.00	94
In selecting a mate, women attach more importance than men to . . .				
intelligence	23	.14	.04	95
socioeconomic status	23	.31	.11	95
character	19	.16	.04	95
Women are attracted to taller men; men are attracted to shorter women	14	.46	.37	219
Men are more likely than women to . . .				
favor premarital sex	46	.18	.10	213
report being aroused by sexual stimuli	62	.15	.13	200
be sexually permissive	39	.27	.12	213
report sexual intercourse	135	.16	.11	213
report petting	28	.05	.14	213
be satisfied if they remarry	65	.03	.02	297

(Appendixes continue)

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
Social cognition				
People who engage in a behavior believe that the behavior is common	115	.31	.17	184
People who engage in a behavior believe that the behavior is common	84	.34	.21	193
The members of a majority will underestimate the size of their majority	67	.33	.39	193
The members of a minority will overestimate the size of their minority	67	.49	.42	193
A majority consisting of 50%–62% of a group will overestimate its size	47	.09		118
Once people know something, they believe they “knew it all along”	122	.17	.14	50
Impressions are based on stereotyping	40	.19		163
Impressions are based on individuals’ special characteristics	40	.69		163
People know how well they are liked by others	12	.30		152
For social categorization, person categories are most often used	26	.00	.20	252
Accuracy in rating others is reduced by biases, like being too lenient	240	.05		201
People are most likely to recall information from social memory if . . .				
it is inconsistent with their expectations	165	.11	.15	231
it is consistent with their expectations	65	.03	.33	263
it is consistent with their attitudes	63	.18	.44	229
it is consistent with their stereotypes	26	.17	.23	109
they think about how the information relates to them	129	.24	.19	284
their mood is the same as when they learned the information	100	.21	.37	295
People remember positive events when they are elated	22	.04	.00	174
People remember negative events when they are depressed	35	.04	.00	174
People normally remember more positive than negative events	25	.07	.00	174
Memory is positively related to an individual’s need for cognition	19	.17	.19	41
Women are more accurate than men at recognizing people’s faces	17	.16		123
Social influence				
In the presence of others . . .				
people become physiologically aroused	82	.08	.30	29
people become physiologically aroused	49	.04	.52	189
people show a social facilitation of simple task performance	266	.11	.24	29
people show a social impairment of complex task performance	201	.16	.30	29
Children perform well on tests that are administered by people they know	34	.16	.18	106
People who get a <i>foot-in-the-door</i> by securing compliance to a small request are likely to gain compliance to a larger request	85	.16		24
People who get a <i>foot-in-the-door</i> by securing compliance to a small request are likely to gain compliance to a larger request	77	.13	.00	99
People who get a <i>foot-in-the-door</i> by securing compliance to a small request are likely to gain compliance to a larger request	34	.11	.37	69
People who get a <i>door-in-the-face</i> by securing refusal to a large request are likely to gain compliance to a smaller request	56	.07	.00	99
People who get a <i>door-in-the-face</i> by securing refusal to a large request are likely to gain compliance to a smaller request	24	.08	.30	69
People who get a <i>door-in-the-face</i> by securing refusal to a large request are likely to gain compliance to a smaller request	17	.10	.07	208
People show a conformity to others’ incorrect answers	133	.42	.12	30
Women are more likely than men to conform to others’ actions	38	.06	.07	56
Women are more susceptible to social influence than men	148	.08	.26	78
People are unlikely to express their opinions without others’ support	25	.05	.05	113
People are likely to jaywalk if they see another person jaywalk	25	.16	.07	191
People who engage in ingratiation are well-liked	69	.10	.25	114
It is easiest to influence a person who . . .				
has low self-esteem	38	.11	.21	227
has moderate self-esteem	41	.09	.13	227
has little intelligence	10	.20	.25	227
The higher a person’s status, the greater the person’s social influence	9	.18	.33	181

Appendix B (continued)

Meta-analytic conclusion	<i>k</i>	\bar{r}	<i>SD</i>	Document no.
<i>Social influence (continued)</i>				
Subordinates are most productive and satisfied if their supervisors . . .				
use expert or referent power	52	.27	.26	49
use legitimate or reward power	52	.04	.25	49
refrain from using coercive power	26	.18	.22	49
In comparison with majority influence, minority social influence produces . . .				
more change in private behaviors unrelated to the influence	12	.02	.17	316
less change in other behaviors	26	.15	.12	316

Note. Italicized terms are those that appear in the Manstead and Hewstone (1995) encyclopedia.

Received October 6, 2002
Revision received January 10, 2003
Accepted February 10, 2003 ■