A Critique and Revision of the Multidimensional Ethics Scale

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Abstract

The Multidimensional Ethics Scale is an eight-item, three-subscale measure developed in Reidenbach and Robin (1990) and subsequently applied in at least ten empirical studies of business ethics. Despite two failed replication studies and two skeptical critiques, business ethics researchers continue to use the scale. Given the lingering uncertainty about the scale and its continued use in empirical research, a definitive critique and revalidation study is warranted. After an examination of the previously published works and new criticisms of Reidenbach and Robin (1990), a revalidation study sensitive to these criticisms is described. Then, a revised, fourteen-item, five-subscale measure is presented. Results of confirmatory factor analyses and tests of predictive validity against three univariate ethics measures show the superior predictive and face validities of this revised measure. Such critique and revalidation studies, by ensuring the continuing soundness of scales created for use in empirical research, certify the tools that marketing scholars use to create marketing knowledge.

Introduction

Are published empirical studies of business ethics problematic? Two reviews of empirical articles on business ethics published since 1961, Randall & Gibson (1990) and Weber (1992), agree that most articles "expressed no concern for the reliability or validity of measures . . . and do not offer a theoretical framework" (Randall & Gibson 1990, p.471). A review of the marketing ethics literature, Tsalikis & Fritzsche (1989), argues[1] that the scientific study of marketing ethics would improve if researchers stopped using unreliable, univariate measures of ethicality. The Multidimensional Ethics Scale (henceforth *MES*), an eight-item, three-subscale measure developed in Reidenbach & Robin (1990) and subsequently applied in at least ten empirical studies, appeared to help business ethics researchers address these measurement concerns.

Are published empirical studies based on the MES problematic? Two failed replication studies of the MES (Cohen, Pant, & Sharp 1993; Hansen 1992) and two skeptical critiques of the MES (Jones & Ponemon 1993; Skipper & Hyman 1993) throw the results of such studies into question. Unfortunately, as evidenced by eight empirical studies published since these replication studies and critiques appeared, business–especially marketing–ethics researchers continue to use all or part of the MES. Furthermore, Drs. Reidenbach and Robin continue to champion the original MES (Reidenbach & Robin 1993, 1995; Flory, Phillips, Reidenbach, & Robin 1993).

Given the lingering uncertainty about the MES and its continued use in empirical research, a definitive critique and revalidation study is warranted. The exposition proceeds as follows. First, new and previously published criticisms of the MES are examined. Second, an effort to revalidate Reidenbach & Robin (1990), with an item pool and analyses sensitive to criticisms of Reidenbach & Robin (1990) and the MES, is described. Third, a revised version of the MES is presented and evaluated, one that also addresses the measurement concerns expressed by Randall & Gibson (1990), Tsalikis & Fritzsche (1989), and Weber (1992).

Some readers may view the attending to detail, especially in summarizing previously published criticisms of the MES, as nit-picking. These readers might argue that scale validators should focus on essential issues such as reliability (e.g., longitudinal stability, internal consistency) and validity (e.g., predictive, external). Although a good scale must have these psychometric properties, a scale is only as good as its weakest buttress. As with all scale development, the devil is in the psychometric details. This psychometric critique and revision shows the importance of the following details to sound scale development:

(1) constructing scales that exhaustively cover the construct domain;
(2) creating item pools that reflect the perspective of typical respondents rather than the perspective of subject matter experts;
(3) creating semantically-unambiguous item pools;
(4) normalizing often-skewed response data prior to performing multivariate analyses;
(5) avoiding degrees of freedom problems in multivariate analyses;
(6) using more than between-respondent variance to signal item importance; and
(7) accessing scale reliability across an adequate range of situations.

Inattention to these details compromised the psychometric integrity of the MES. Inattention to other details could reduce the psychometric integrity of any new measure. The overarching goal here is to increase researchers' sensitivity to the requisite psychometric details of proper scale development.

Previously Published and New Criticisms of the MES

Table 1 summarizes previously published and new criticisms of the MES. These criticisms are sorted into four groups: (1) ambiguous items, (2) scale development, (3) factor structure, and (4) omitted ethical rationales. These criticisms are now detailed.

Table 1
Problems with the MES

Problem	**Source**
Ambiguous MES Items	
Contractualism scales are double-barreled	SH93
Contradictories rather than contraries anchor three scale items	SH93
Researcher-intended perspective is omitted (e.g., target is unspecified in *violates/does not violate an unspoken promise*)	SH93
Meaning of *acceptable to family* item is ambiguous	SH93
Univariate ethics scale is incomplete; unknown if all respondents believe scenario portrays ethically problematic action	SH93
Scale Development	
Item creation process is inconsistent with Churchill (1979)	CA; SH93
Item distillation process is inconsistent with Churchill (1979)	CA
Strictly factor-analysis-based item distillation process can neglect important judgment criteria	SH93

Table 1 Problems with the MES	
Responses to pool items and MES are highly skewed, yet data not normalized prior to running factor analyses	CA; JP93; SH93
To split the *second stage distillation sample* (Reidenbach & Robin 1990) into two groups of 54 respondents caused a degrees of freedom problem	CA
Factor Structure of the MES	
Replication results are mixed	CA
Factor structure may be an artifact of non-randomly selected respondents' characteristics	CPS93; JP93
High reliability may be an artifact of minimal differences in the ethicality of calibration scenarios	JP93; SH93
Omitted Ethical Rationales	
MES does not correspond to normative ethical philosophies	CPS93; HA92; SH93
MES lacks utilitarianism and egoism components	CPS93; HA92; SH93
MES lacks religion and Golden Rule components	SH93
MES lacks a deontology component	HA92
Key to Article Abbreviations: CA = current article CPS93 = Cohen, Pant, & Sharp (1993) HA92 = Hansen (1992) JP93 = Jones & Ponemon (1993) SH93 = Skipper & Hyman (1993)	

Ambiguous Scale Items

Skipper & Hyman (1993) argues that the semantic-differential items in the MES (and, by implication, other pool items considered in Reidenbach & Robin 1990) are ambiguous in five ways. First, the two contractualism items of the MES are double-barreled; for example, to answer *violates/does not violate an unwritten contract* assumes a *Yes* answer to *Does a contract exist*? Second, contradictories (i.e., X versus non-X) rather than contraries (i.e., opposites) anchor three items (i.e., morally/not morally right; violates/does not violate an unwritten contract; violates/does not violate an unspoken promise); because the bipolar adjectives that anchor semantic-differential items should be contraries (e.g., morally- right/morally-wrong), these MES items are misshaped (Kerlinger 1979). Third, the researcher-intended perspective is omitted; for example, the target is unspecified in *violates/does not violate an unspoken promise* and the culture is unspecified in *culturally acceptable/ unacceptable*. Fourth, the meaning of a response to

acceptable/unacceptable to my family is ambiguous because *my family may deem an action unacceptable, but I may dis**approve** of my family's values*. Given the likelihood of rebellion against parental values by often-surveyed college students, this ambiguity is noteworthy.

Finally, the univariate ethics scale used in Reidenbach & Robin (1990) and subsequent studies to show the predictive validity of the MES is incomplete; respondents will reply similarly (i.e., the scale midpoint) whether they hold indifferent beliefs about a scenario or believe that it lacks ethical undertones.[2] An exhaustive univariate ethics scale would include the reply *No Ethical Issue Involved* because some respondents will fail to sense a scenario poses an ethical dilemma. Without this response category, the behavioral intent scale used to validate the MES (i.e., It is highly probable/improbable that I would act this way) also becomes problematic.

Problematic Scale Development

Item Creation and Distillation Processes Inconsistent with Churchill (1979).

Reidenbach & Robin (1990) states "the development of the multidimensional [ethics] scale followed the procedures outlined by . . . Churchill (1979)" (p.641). However, the item creation and distillation processes described in Reidenbach & Robin (1990) differs from the scale development method delineated in Churchill (1979).

The Reidenbach & Robin (1990) item pool was suggested by five moral philosophies. Skipper & Hyman (1993) argues that moral philosophies provide only one source of pool items; another important source is the general public. Because pool items for the MES were inspired by moral philosophies rather than by the general public, the MES may neglect current societal norms (e.g., contrary to *caveat emptor*; contrary to maintaining good karma).

Under purification of measures, Churchill (1979) writes:

> Coefficient alpha *absolutely* should be the first measure one calculates to assess the quality of the instrument. . . . Some analysts like to perform a factor analysis on the data before doing anything else . . . . [but] theoretical arguments support the iterative process of the calculation of coefficient alpha, the elimination of items, and the subsequent calculation of alpha until a satisfactory coefficient is achieved. Factor analysis can then be used to confirm whether the number of dimensions conceptualized can be verified empirically (pp.68-69).

In Reidenbach & Robin (1990), a 29-item pool was distilled into eight items via a two-stage, strictly factor-analysis-based procedure; the first stage purged fifteen items and the

second stage purged six items. Reidenbach & Robin (1990) states that the *a priori* criteria used to develop objective decision rules for reviewing factor patterns and deleting items were

> (1) consistency of the loadings across all scale/scenario data sets; (2) size of the loadings for each structure set; [and] (3) low inter-item correlations with other dimension items (p.642).

Reidenbach & Robin (1990) only reports coefficient alphas for the three sets of items that survived this review process. Thus, Reidenbach & Robin (1990) follows neither the item creation nor item distillation processes delineated in Churchill (1979). (Note: The appendix further shows the limitations of strictly factor-analysis-based item distillation procedures.)

Skewed Data. Both Jones & Ponemon (1993) and Skipper & Hyman (1993) imply that MES items (and, by implication, many Reidenbach & Robin (1990) pool items) produce skewed data. Jones & Ponemon (1993) posits that the MES triggers a contrast effect, which is described as "when an attitudinal statement . . . is within a subject's bounds of rejection, the attitude represented is rejected with more vigor than is warranted by the true position of the subject" (p.414). Skipper & Hyman (1993) argues that factor analysis accounts for variability, rather than agreement, among responses; as a result, a strictly factor-analysis-based distillation process will ignore items on which many respondents agree–items that seemingly belong in the MES. If either Jones & Ponemon (1993) or Skipper & Hyman (1993) is correct, then many Reidenbach & Robin (1990) pool items produce highly skewed data. This is shown to be the case.

It is well known that researchers should avoid factor analyses on highly skewed data; such data should be transformed first (Cureton & D'Agostino 1983; Tabachnick & Fidell 1983; Rummel 1970). Cureton & D'Agostino (1983) notes that the product-moment correlation for two highly skewed measures reflects the strength *and* the skewness of the true relation between these measures; the correlation is lower (higher) than the strength of the true relation if both measures are skewed in the same (opposite) direction. If many Reidenbach & Robin (1990) pool items are highly skewed, then the MES may be an artifact of running factor analyses on distorted correlation matrices.

Degrees of Freedom Problem. In Reidenbach & Robin (1990), the *second stage distillation sample* is split into two groups of 54 respondents, which causes a *degrees of freedom* problem by creating a less than 2-to-1 respondent-to-item ratio. Although Reidenbach & Robin (1990) reports that respondents were split for two reasons–to test Likert-scaled versus semantic-differential versions of pool items and to test for convergent validity–Hair et al. (1995) suggests that

the minimum is to have at least five times as many observations as there are variables to be analyzed, and the more acceptable range would be a ten-to-one ratio (p.373).

Factor Structure of the MES

The MES in Prior Empirical Studies. Table 2 profiles twenty-one published studies in which researchers used all/most of the Reidenbach & Robin (1990) item pool (eight studies), the MES (ten studies), or an abridged MES (three studies). Regarding the predominant types of scenarios used, ten studies used retailing/sales scenarios only, and four studies used advertising scenarios. Regarding the predominant samples used, four studies relied on a probability sample and eight studies relied on a student sample only.

Table 2
Empirical Studies Using Reidenbach & Robin (1988) Items, the MES, or an Abridged MES

Article	Items Used	Scenarios/Stimuli Used	Data Collection Method, Sample Type, Sample Size, and Response Rate	Separate Moral Equity & Relativism Factors
Barnett, Bass, & Brown (1994)	3 moral equity items	26; one-to-three sentence, mostly-marketing scenarios, used in eight previous studies	Convenience sample of 166 business students at a mid-sized university in southern U.S.	Not applicable
Clark & Dawson (1996)	MES	3; retailing scenarios from Reidenbach, Robin, & Dawson (1991)	Convenience sample of 144 students at a mid-sized university in southern U.S.	For 3 of 3 scenarios
Cohen, Pant, & Sharp (1993)	33 items	7; Reidenbach & Robin (1990) retailing scenarios and four accounting scenarios for main study; three Reidenbach & Robin (1990) retailing scenarios for item reduction phase	(a) Item reduction: 92 business students at a selective private university (b) Study: mail survey of 113 accounting academics (response rate was 37%)	No
Fernandez, Plank, & Landeros (1995)	MES	1; salesperson who asks buyer for bid information in return for $100 donation to buyer's favorite charity (unknown length)	Mail survey of 162 National Association of Purchasing Management members (response rate was 34.1%)	Yes (used composite score of all 8 items)

Table 2 Empirical Studies Using Reidenbach & Robin (1988) Items, the MES, or an Abridged MES				
Flory, Phillips, Reidenbach, & Robin (1992)	MES	4; 200-word scenarios based on IMA videotape portraying 5 ethically-problematic situations	Pretest via statewide CPA organization; mail survey of 314 certified management accountants (response rate was 62.8%)	For 4 of 4 scenarios
Hansen (1992)	33 items	3; failing to make full disclosures of damaging information	Convenience sample of 128 marketing students at a large southeastern university in U.S.	No
Henthorne & LaTour (1995)	MES	Subjects saw black and white ad for jeans which contained substantial erotic content and nudity	Mall intercept of 103 adults (in mid-gulf coast region of U.S.)	No
Henthorne, Robin, & Reidenbach (1992)	MES	3; Reidenbach & Robin (1990) retailing scenarios	(a) Administered survey of 206 association members and 105 retail managers (b) Administered survey of 160 meeting attendees, 100 auto salespeople, and 69 direct marketing sales reps	Assumed (attempt to confirm unreported)
Humphreys, Robin, Reidenbach, & Moak (1993)	MES	4; food service (retailing) scenarios about manager who lies to customer, owner who fails to correct unintended deception, owner who knowing violates state labor law, and owner who trains employees to short change customers	(a) Administered survey of 96 small business owner/ managers (attendees of regional food conference and regional food products/ equipment trade show, and NJ/PA food retailers) (b) Convenience sample of 103 consumers from two NJ/PA retail locations	For 4 of 4 scenarios and both samples
LaFleur, Reidenbach, Robin, & Forrest (1996)	MES	2; two and five sentence scenarios on deception and host selling in ads for children	Mail survey of 251 members of a national advertising association	For 2 of 2 scenarios
LaTour & Henthorne (1994)	MES	na	Mall intercept of 199 adults in mid-gulf coast region of U.S.	No (single factor solution)

Table 2
Empirical Studies Using Reidenbach & Robin (1988) Items, the MES, or an Abridged MES

Reidenbach & Robin (1988)	33 items	3; car warranty, overeager salesperson, and grocer scenarios from Dornoff & Tankersley (1975)	Convenience sample of 218 marketing students at the University of Mississippi	No
Reidenbach & Robin (1990)	33 items	3; Reidenbach & Robin (1988) retailing scenarios	Administered survey of 108 retail owner/managers and 105 small business operators	For 3 of 3 scenarios
Reidenbach, Robin, & Dawson (1991)	MES	8; Reidenbach & Robin (1990) retailing scenarios and five additional scenarios about high pressure sales tactics, misleading an appraiser, taking kickbacks, misleading the customer, and product substitution unknown by customer	(a) Mail survey of 152 retail managers (b) Administered survey of 70 auto sales personnel at weekly sales meeting, 70 direct marketers, and 160 book reps at national sales meeting	In 10 of 15 cases (in other five cases, factors #1 and #2 merge)
Reidenbach, Robin, & Forrest (1996)	4 moral equity items	2; two and five sentence scenarios on deception and host selling in ads for children	Mail survey of 251 members of a regional advertising association	NA
Tansey, Brown, Hyman, & Dawson (1994)	MES	2; deceitful sales practices by a life insurance agent	Convenience sample of 104 life insurance agents who attended a company meeting	No (single factor solution for all 8 items)
Tansey, Hyman, & Brown (1992)	6 moral equity and relativism items	5; use of ads depicting combat by Red Cross to increase blood donations, military to recruit, TV networks to promote news shows, and firms to promote themselves	Convenience sample of 124 business majors at a large public university in southern U.S.	No (single factor solution)
Tsalikis & LaTour (1995)	20 item subset	3; scenarios from Tsalikis & Nwachukwu (1991) (substituted Greek for Nigerian as actor)	Convenience sample of 240 U.S. business students from Tsalikis & Nwachukwu (1991); convenience sample of 204 Greek economics students	NA (summed items by category (e.g., justice))

Table 2 Empirical Studies Using Reidenbach & Robin (1988) Items, the MES, or an Abridged MES				
Tsalikis & Ortiz-Buonafina (1990)	29 item subset	4; retail grocer scenario from Reidenbach & Robin (1990) and three other retailing scenarios from Dornoff & Tankersley (1975)	Convenience sample of 175 business students at a major university in south Florida	NA (summed items by category (e.g., justice))
Tsalikis & Nwachukwu (1988)	32 item subset	2; overeager salesperson and retail grocer scenarios used in Reidenbach & Robin (1990) (from Reidenbach & Robin 1988)	Convenience samples of marketing students: 221 at a mostly white university in southern U.S. and 236 at a mostly black university in eastern U.S.	5 factors for white sample, 6 factors for black sample
Tsalikis & Nwachukwu (1991)	20 item subset	3; native/foreign businessman offering a bribe to native/foreign government official	Convenience sample of 240 business students at a major university in Mississippi; convenience sample of 180 students at the University of Lagos in Nigeria	NA (summed items by category (e.g., justice))
Note: na = not available NA = not applicable				

Of fifteen empirical studies in which responses to all/some of the Reidenbach & Robin (1990) item pool were subjected to factor analysis, five used the entire item pool, nine used the MES, and one used an abridged MES. In the first group of five studies, only Reidenbach & Robin (1990) reports the MES-inspiring three factor solution; the other four studies (including Reidenbach & Robin 1988, the precursor of Reidenbach & Robin 1990) report five and six factor solutions.[3] In the second group of nine studies, six report the MES solution, but five of these studies were coauthored by Dr. Reidenbach and/or Dr. Robin and/or their coauthor on a MES-based study. In one abridged MES study, the moral equity and relativistic items loaded on one factor.[4]

Hence, only one of eight MES-based studies not coauthored by Dr. Reidenbach and/or Dr. Robin and/or their coauthors (i.e., Fernandez, Plank, & Landeros 1995) yielded the MES-inspiring, three-factor solution.[5] Table 2 shows that finding the MES solution is unrelated to scenario context (e.g., retailing, personal selling) or sample size, but weakly related to the respondent group surveyed (i.e., four of nine non-student studies reported this solution). Thus, the MES solution is most strongly related to study authorship.

Factor Structure an Artifact of Respondent Characteristics. Cohen, Pant, & Sharp (1993) and Jones & Ponemon (1993) suggest that the MES-inspiring, three-factor solution is an artifact of surveying members of professional associations, businesspeople, or students from the southern U.S. However, the use of non-probability samples for scale development is acceptable (Churchill 1979; Flory et al. 1993); thus, this criticism should be discounted.

High Reliability an Artifact of Similar Calibration Scenarios. Jones & Ponemon (1993) and Skipper & Hyman (1993) posit that the high reliability of the MES is an artifact of minimal differences in the ethicality of calibration scenarios; overlooked in Reidenbach & Robin (1990) are highly unethical, ethically positive, and ethically ambiguous scenarios. Flory et al. (1993), the rejoinder to Jones & Ponemon (1993), argues that to assume *the professional ethical code of accountants'* (i.e., respondents in Flory et al. 1992) *mandates their ethical judgments* is to make an 'is-ought' mistake; because accountants' ethical judgments are not dictated by their professional ethical code, the calibration scenarios were adequate. Even if true, the argument in Flory et al. (1993) is superfluous to the calibration concerns broached by Jones & Ponemon (1993) and Skipper & Hyman (1993).

Important Ethical Rationales Omitted

Cohen, Pant, & Sharp (1993), Hansen (1992), and Skipper & Hyman (1993) question the face validity of the MES based on its non-correspondence with normative ethical philosophies. Rejoinders by Drs. Reidenbach and Robin to this question include (1) the parsimony and usability of the MES (Reidenbach & Robin 1993), (2) the positive rather than normative nature of the MES (Reidenbach & Robin 1993), and (3) the high percent of variance in a univariate ethics measure explained by the MES (Reidenbach & Robin 1995). Upon scrutiny, however, all these rejoinders seem superfluous to this face validity question.

The MES Lacks a Utilitarian Component. Reidenbach & Robin (1990) states that "All references to cost/benefit types of ethical calculus were purged on the basis of minimal contribution to explanatory power. . . . Moreover, respondents had a difficult time in understanding and applying the concepts inherent in utilitarian thinking" (p.647). Cohen, Pant, & Sharp (1994), Hansen (1992), and Skipper & Hyman (1993) question this outcome. Cohen, Pant, & Sharp (1993) argues that "utilitarianism . . . is very amenable to the cost-benefit principle which permeates accountants' decisions" (p.14) and notes that managers who participated in prior studies "predominantly follow a utilitarian approach to ethical decision making" (p.14); the empirical analyses yielded a utilitarian

factor for five of six scenarios. The teleological judgment factor reported in Hansen (1992) includes three utilitarian items.

Hansen (1992) also reports a deontological judgment factor. In response to Hansen (1992), Reidenbach & Robin (1993) argues that the fifteen-item, four-factor solution in Hansen (1992) neither does "a better job predicting ethical judgments or intentions" than the MES (p.663) nor "significantly improve[s] the reliability of the scales" (p.664). This rejoinder is superfluous because it addresses predictive validity rather than face validity.

The MES Lacks a Religion Component. Reidenbach & Robin (1990) argues that "some secular notions can be found in religions; so there must be no important, uniquely religious norms" (Skipper & Hyman 1993, p.540). Skipper & Hyman (1993) replies that a face-valid MES would include a religion component because the large memberships of organized religions "is a strong prima facie reason to think that uniquely religious concepts–eternal damnation, original sin . . . and so forth–may influence real-world moral decisions" (p.540). An empirical study, Clark & Dawson (1996), reports that religious beliefs influence ethical judgments. Even Reidenbach & Robin (1993) and Reidenbach & Robin (1995) agree; both suggest that researchers should focus on "amplifying the scales with new items. . . . that acknowledge the influence of religious beliefs" (Reidenbach & Robin 1993, p.664).

The MES Lacks Other Ethical Components. Cohen, Pant, & Sharp (1993), Hansen (1992), and Skipper & Hyman (1993) suspect the lack of an egoism component, and Skipper & Hyman (1993) suspects the lack of a Golden Rule (i.e., "Do unto others . . .") component. Common sense also suggests that a comprehensive MES would include these components.

The Empirical Study

Instrument and Sample

Table 3 lists the revised item pool, disambiguated in accord with the concerns expressed in Skipper & Hyman (1993); the matching scales from Reidenbach & Robin (1990) are also listed. Seven-point, Likert-scaled items, anchored by the adjectives *strongly agree* and *strongly disagree*, were evaluated because they are easy for respondents to understand, easy for researchers to use, and Reidenbach & Robin (1990) reports no difference between the Likert-scaled and semantic-differential versions of pool items. (Note: All items included an eighth, non-ordinal scale point labeled *Not applicable/No opinion*.) Items numbered 1 to 27, 29, and 30, are disambiguated versions of items in Reidenbach & Robin (1990). Items 31 to 33 are new items about religion and

the Golden Rule. Although other items were considered, such as *In the agent's best interest*, more new items would threaten the primary goal: a revalidation of Reidenbach & Robin (1990). (Note: There is no analogous item to Reidenbach & Robin (1990) item 28 because pretest respondents could not differentiate the disambiguated version from revised item 13.)

Table 3
Original and Revised Item Pool

Item	Revised Item Pool	Reidenbach & Robin (1990) Item Pool
	The *actor's* (e.g., sales manager's) action . . .	
	Justice Scales	
1	Was unjust to the *receiver* (e.g., customer)	Just/Unjust
2	Was fair to the *receiver* (e.g., customer)	Fair/Unfair
3	Results in an equal distribution of good and bad	Does Result/Does Not Result in an equal distribution of good and bad
	Relativist Scales	
4	Was culturally acceptable in *this country* (e.g., the U.S.)	Culturally Acceptable/Unacceptable
5	Was acceptable to me	Individually Acceptable/Unacceptable
6	Was acceptable to the people I most admire	Acceptable/Unacceptable to people I admire most
7	Was traditionally acceptable in *this country (e.g.,* the U.S.)	Traditionally Acceptable/Unacceptable
8	Was acceptable to my family (of whose values I approve)	Acceptable/Unacceptable to my family
	Egoism Scales	
9	Was self promoting for the *actor* (e.g., sales manager)	Self Promoting/Not Self Promoting
10	Was selfish for the *actor* (e.g., sales manager)	Selfish/Not Selfish
11	Was self sacrificing for the *actor* (e.g., sales manager)	Self Sacrificing/Not Self Sacrificing
12	Was prudent for the *actor* (e.g., sales manager)	Prudent/Not Prudent
13	Was unacceptable because the *actor* (e.g., sales manager) was morally obligated to act otherwise	Under no moral obligation/Morally obligated to act otherwise

Table 3 Original and Revised Item Pool		
14	Was personally satisfying to the *actor* (e.g., sales manager)	Personally Satisfying/Not Personally Satisfying
15	Was in the best interest of the *actor's* (e.g., sales manager's) company	In the best interests of the company/Not in the best interests of the company
	Utilitarian Scales	
16	Was efficient	Efficient/Inefficient
17	Was OK because action can be justified by its consequences	OK/Not OK if actions can be justified by their consequences
	Utilitarian Scales (continued)	
18	Compromises an important rule by which I live	Compromises/Does Not Compromise an important rule by which I live
19	On balance, tends to be good	On balance, tends to be Good/Bad
20	Produces the greatest total utility	Produces the Greatest/Least utility
21	Maximizes benefits while minimizes harm	Maximizes/Minimizes benefits while Minimizing/Maximizing harm
22	Leads to the greatest good for the greatest number	Leads to the Greatest/Least good for the greatest number
23	Results in a positive cost-benefit ratio	Results in a Positive/Negative cost-benefit ratio
24	Maximizes total pleasure	Maximizes/Minimizes pleasure
	Deontology Scales	
25	Violates an unwritten contract with the *receiver* (e.g., customer)	Violates/Does Not Violate an unwritten contract
26	Violates my ideas of fairness	Violates/Does Not Violate my ideas of fairness
27	Was OK because the *actor* (e.g., sales manager) is duty bound to act this way	Duty Bound/Not Duty Bound to act this way
28	None	Morally Right/Not Morally Right

Table 3 Original and Revised Item Pool		
29	Was OK because the *actor* (e.g., sales manager) is obligated to act this way	Obligated/Not Obligated to act this way
30	Violates an unspoken promise to the *receiver* (e.g., customer)	Violates/Does Not Violate an unspoken promise
	Additional Items	
31	Violates my religious beliefs	None
32	Violates the teachings of most religions	None
33	Violates the Golden Rule ("Do unto others . . .")	None
	Univariate Items	
	Thinking about the *actor's* (e.g., sales manager's) action . . .	
34	It was unethical (includes additional category "Not an Ethical Issue")	Unethical/Ethical
35	I would probably act this way	Highly Probable/Improbable (I would act this way)
36	Others would probably act this way	None

Respondents were selected from a convenience sample of students–predominantly upper-division undergraduates–attending a land-grant university in the southwestern U.S. (Again, as noted in Churchill (1979), the use of such samples for scale development is acceptable.) Two sets of respondents were queried: one set in Summer 1995 (n=161) and one set in Fall 1995 (n=120). Figure 1 lists the scenarios evaluated by respondents. The three scenarios used in Summer 1995 (henceforth *S1a*, *S2a*, and *S3a*) are essentially the retailing scenarios in Reidenbach & Robin (1990). The three scenarios used in Fall 1995 (henceforth *S1b*, *S2b*, and *S3b*) are altered versions of the Summer 1995 scenarios. In S2a the owners of the grocery chain are African-Americans, but in S1a the ethnicity of the owners is unspecified. In S2b the salesperson is female, but in S2a the salesperson is male. In S3b the dealer charged half price for parts and labor, but in S3a the dealer changed full price for parts and labor. The three new, yet similar, scenarios provide additional cases for scale development and confirmatory factor analysis. Furthermore, pretest respondents generally found the altered versions more ethically problematic (i.e., less ethically homogeneous than the unaltered versions).

Figure 1 Scenario-Action Pairs	
Scenario:	**(An African-American owned)** A retail grocery chain operates several stores throughout the local area, including one in the city's ghetto area. Independent studies have shown that prices tend to be higher and there is less of a selection of products in the ghetto-area store than in the other stores.
Action:	On the day that welfare checks are received in this ghetto area, the retailer increases prices on all merchandise in the ghetto-area store.
Scenario:	A young **(woman)** man, recently hired as a **(saleswoman)** salesman for a local retail store, has been working very hard to impress **(her)** his boss. At times, this young **(woman)** man, anxious for an order, has been a little over-eager. To get the order, **(she)** he exaggerates the value of the item or withholds relevant information concerning the product **(she)** he is trying to sell. No fraud or deceit is intended by **(her)** his actions; **(she)** he is simply over-eager.
Action:	**(Her)** His boss, the owner of the store, is aware of **(her)** the salesman's actions, but has done nothing to stop such practices.
Scenario:	A man bought a new car from a franchised automobile dealership in the local area. Eight months after the car was purchased, he began having problems with the transmission. He took the car back to the dealer, and some minor adjustments were made. During the next few months, he continually had similar problems with the transmission. Each time the dealer made only minor adjustments to the car. During the thirteenth month after he bought the car, the man returned to the dealer because the transmission still functioned improperly. At that time, the transmission was completely overhauled.
Action:	Because the warranty was only for one year (12 months from the date of purchase), the dealer charged **(one-half)** full price for parts and labor.
Note:	Versions 1a, 2a, and 3a correspond to the underlined words; versions 1b, 2b, and 3b correspond to the parenthetical bolded words.

Skewness of Item Pool Data

For the seven-point, Likert-scaled items used to evaluate S1a, S2a, and S3a, (1) the percent of pool items with means less than 2.0 or greater than 5.5 is 46.9 percent, 9.4 percent, and 59.4 percent, respectively; (2) the percent of pool items with medians of 1, 2, 6, or 7 is 65.6 percent, 53.1 percent, and 71.9 percent, respectively; (3) the mean absolute skewness for pool items is 1.10, 0.68, and 1.26, respectively; and (4) the percent of pool items with skewness exceeding $\pm$ 1 is 46.8 percent, 25.0 percent, and 53.1 percent, respectively. (See Table 4 for a univariate statistical summary.) Hair et al. (1995) states that "Skewness values falling outside the range of -1 to +1 indicate a substantially skewed distribution" (p.35). On this basis, responses to many items are judged highly skewed; thus, data was normalized before factor analyses were run.

Table 4
Univariate Statistics

	Mean			Std. Dev.			Median			Skewness		
	S1a	S2a	S3a	S1a	S2a	S3a	S1a	S2a	S3a	S1a	S2a	S3a
Justice Scales												
Unjust to customers	1.703	2.416	1.478	1.470	1.672	1.079	1	2	1	2.526	1.115	2.946
Fair to customers	6.398	5.516	6.344	1.261	1.636	1.387	7	6	7	-2.869	-0.982	-2.697
Results in an equal distribution of good and bad	5.620	5.031	5.547	1.611	1.652	1.739	6	5	6	-0.846	-0.505	-0.974
Relativist Scales												
Culturally acceptable in the U.S.	5.236	3.658	4.578	1.780	1.878	2.018	6	3	5	-0.618	0.386	-0.267
Acceptable to me	6.304	5.497	6.369	1.414	1.729	1.353	7	6	7	-2.399	-1.042	-2.516
Acceptable to the people I most admire	6.236	5.484	6.242	1.272	1.593	1.395	7	6	7	-1.780	-0.830	-2.091
Traditionally acceptable in the U.S.	4.901	3.838	4.671	1.704	1.755	1.999	5	4	5	-0.327	0.357	-0.340
Acceptable to my family (of whose values I approve)	6.256	5.650	6.273	1.299	1.595	1.280	7	6	7	-1.933	-1.153	-2.157
Egoism Scales												
Self promoting for the retailer	3.614	2.849	3.402	2.356	1.815	2.382	3	2	3	0.292	0.852	0.406
Selfish for the retailer	1.969	2.681	2.043	1.635	1.713	1.787	1	2	1	1.958	0.902	1.852
Self sacrificing for the retailer	5.845	5.385	5.975	1.687	1.707	1.581	7	6	7	-1.518	-1.061	-1.631
Prudent for the retailer	4.759	4.406	4.857	2.086	1.792	2.012	5	4	5	-0.520	-0.104	-0.445
Retailer morally obligated to act otherwise	3.225	3.296	3.012	2.169	1.928	2.162	3	3	2	0.459	0.437	0.664
Personally satisfying to the retailer	3.356	3.398	3.381	1.871	1.772	1.876	3	3	3	0.415	0.512	0.457
In the best interest of the company	4.809	4.363	4.863	2.079	1.954	2.023	5	4	5	-0.500	-0.188	-0.641
Utilitarian Scales												
Efficient	5.131	4.882	5.621	1.795	1.804	1.483	5	5	6	-0.622	-0.507	-0.699
OK because action can be justified by its consequences	5.805	5.161	5.988	1.362	1.717	1.374	6	6	7	-1.133	-0.636	-1.310
Compromises an important rule by which I live	3.764	3.752	3.379	2.337	1.972	2.326	4	4	3	0.148	0.089	0.424
On balance, tends to be good	5.733	5.250	5.963	1.520	1.602	1.444	6	6	7	-1.345	-0.760	-1.661
Produces the greatest total utility	5.413	5.186	5.783	1.615	1.526	1.340	6	5	6	-0.766	-0.619	-0.967
Maximizes benefits while minimizes harm	5.913	5.244	5.969	1.493	1.609	1.311	7	6	6	-1.355	-0.790	-1.359
Leads to the greatest good for greatest number	5.969	5.394	5.969	1.311	1.558	1.385	6	6	7	-1.460	-0.829	-1.502

Table 4 Univariate Statistics												
Results in a positive cost-benefit ratio	5.210	4.918	5.625	1.621	1.615	1.553	5	5	6	-0.602	-0.350	-0.884
Maximizes total pleasure	5.366	4.932	5.700	1.752	1.670	1.640	6	5	6	-0.991	-0.551	-1.240
Deontology Scales												
Violates an unwritten contract with customers	2.547	2.494	2.144	1.823	1.652	1.762	2	2	1	1.046	1.159	1.678
Violates my ideas of fairness	1.831	2.621	1.894	1.446	1.900	1.645	1	2	1	1.955	1.039	2.114
Retailer is duty bound to act this way	5.681	5.491	5.683	1.556	1.526	1.766	6	6	6	-1.130	-0.903	-1.377
Retailer is obligated to act this way	5.845	5.644	5.776	1.456	1.531	1.771	6	6	7	-1.154	-1.170	-1.514
Violates an unspoken promise to customers	2.384	2.550	1.925	1.626	1.790	1.495	2	2	1	0.972	1.073	1.754
Additional Items												
Violates my religious beliefs	3.365	3.665	3.177	1.907	1.950	1.849	4	4	4	0.330	0.163	0.373
Violates teachings of most religions	3.044	3.556	3.158	1.681	1.929	1.761	3	4	4	0.399	0.228	0.422
Violates the Golden Rule ("Do unto others . . .")	2.585	2.994	2.633	1.822	1.947	1.845	2	3	2	1.630	0.624	0.959
Univariate Items												
Unethical	2.012	2.727	1.862	1.597	1.927	1.617	1	2	1	1.630	0.963	1.920
I would probably act this way	6.174	5.776	6.236	1.507	1.508	1.353	7	6	7	-2.144	-1.240	-2.108
Others would probably act this way	4.087	3.602	3.944	1.667	1.570	1.683	4	4	4	-0.115	0.083	0.066

Tabachnick & Fidell (1983) suggests normalizing moderately and positively skewed data with a square root transformation and normalizing highly and positively skewed data with a logarithmic transformation; for negatively skewed data, reverse score the data and apply the transformation for positively skewed data. Rummel (1970) gives several log and arcsin transformations for normalizing distributions of different degree and direction of skewness and kurtosis. Both SPSS and SAS offer the Blom transformation for normalizing skewed data. Cureton & D'Agostino (1983) describes the following *mean* method for "normal-standardizing" Likert-type scales:

> first divide a unit-normal distribution into segments with areas proportional to the frequencies of the original score-groups. . . . [This] puts each *z* at the mean of the corresponding segment, where *z* is the standard-score distance from the mean of the whole distribution . . . to the mean of the segment (p.128).

Because it is specific to Likert-scaled data, the *mean* method was applied.

As evidence of diverse responses to the MES, Flory et al. (1993) states that all scale distributions "extended the full limits of the scale (1 to 7), and the standard deviations ranged from 1.1 to 1.7" (p.420). In only one case did a revised pool item fail to extend "the full limits of the scale;" also, the standard deviations of these revised pool items ranged from 1.08 to 2.34. Given that responses to the revised pool items are more diverse than the responses to the MES described in Flory et al. (1993), and that typical mean responses to the MES are near scale endpoints, then it follows that responses to the MES are typically *more* skewed than responses to the revised pool items. Perhaps the unexpected results of Reidenbach & Robin (1990), such as an MES without a utilitarian dimension, are artifacts of factor analyses run on highly skewed data.

The MES-R1: A Revised MES

As noted earlier, Churchill (1979) suggests that researchers run reliability analyses before they run factor analyses. Of course, reliability analyses assume same-domain items. Because Skipper & Hyman (1993) argues that several pool items in Reidenbach & Robin (1990) are misclassified as egoism and utilitarian items, preliminary factor analyses were run to insure proper groupings of items for reliability analyses. For S1a, S2a, and S3a, the Kaiser-Meyer-Olkin tests exceeded 0.85, which is in the meritorious range (Hair et al. 1995), and all Bartlett sphericity tests were significant at the 0.001 level; thus, the revised item pool data is amenable to factor analysis. (Subsequent tests for S1b, S2b, and S3b produced similar results.)

Table 5 shows the results of preliminary factor analyses for S1a, S2a, and S3a. Seven groups of items, denoted by the letters 'a' through 'g', appeared for at least two of three scenarios. On this basis, seven subscales–utilitarian (group 'a'), personal relativism/justice (group 'b'), national relativism (group 'c'), religion (group 'd'), contractualism (group 'e'), deontology (group 'f'), and egoism (group 'g')–were considered in subsequent analyses. (Note: The Golden Rule is a central precept of many religions, so its grouping with other religion items is unsurprising.)

Table 5
Factor Groupings

	S1a	S2a	S3a	Composite
Utilitarian Scales				
OK because action can be justified by its consequences	a	a	a	a
Produces the greatest total utility	a	a	a	a
Maximizes benefits while minimizes harm	a	a	a	a

Table 5 Factor Groupings				
Leads to the greatest good for greatest number	a	a	a	a
Results in a positive cost-benefit ratio	a	a	a	a
On balance, tends to be good	a	a	a	a
Efficient	a	a		a
Maximizes total pleasure		a		Omit
Compromises an important rule by which I live	f			Omit
Justice Scales				
Unjust to customers	b	b	b	b
Fair to customers	b	b		b
Results in an equal distribution of good and bad	c			Omit
Relativist Scales				
Acceptable to me		b	b	b
Acceptable to the people I most admire	c	b	b	b
Acceptable to my family (of whose values I approve)		b	b	b
Culturally acceptable in the U.S.	c	c	c	c
Traditionally acceptable in the U.S.	c	c	c	c
Religion Scales				
Violates my religious beliefs	d	d	d	d
Violates teachings of most religions	d	d	d	d
Violates the Golden Rule (“Do unto others . . .”)	d	d	d	d
Deontology Scales				
Retailer is duty bound to act this way	a	a	f	f
Retailer is obligated to act this way	a		f	f
Violates an unwritten contract with customers	a	e	b	e
Violates an unspoken promise to customers	a	e	b	e
Violates my ideas of fairness		e	b	e
Egoism Scales				
Self promoting for the retailer	g	g	g	g
Personally satisfying to the retailer		g	g	g

Table 5 Factor Groupings				
Self sacrificing for the retailer	g		h	Omit
Prudent for the retailer		a	h	Omit
In the best interest of the company		a	g	Omit
Selfish for the retailer		f		Omit
Retailer morally obligated to act otherwise		e		Omit

Note: The ratio of scale items to observations exceeds 5.00; n=161 and scale items=32.

Key: a	=	items that group together (utilitarian factor)
b	=	items that group together (personal relativism/justice factor)
c	=	items that group together (national relativism factor)
d	=	items that group together (religion factor)
e	=	items that group together (contractualism factor)
f	=	items that group together (deontology factor)
g	=	items that group together (egoism factor)
S1a to S3a	=	three scenarios for which data evaluated
Composite	=	factor on which item loads at least twice for S1a, S2a, and S3a
Omit	=	eliminated after analysis of data for S1a, S2a, and S3a

Table 6 shows inter-item reliabilities (α s) and item-total correlations for these seven possible subscales of the MES-R1–a revised MES. To enhance the parsimony and usability of the MES-R1, several utilitarian and personal relativism/justice items were purged via iterative inter-item reliability analyses; the item with the largest *alpha if item deleted* was purged until only four utilitarian items or three personal relativism/justice items remained. Items in the final utilitarian and personal relativism subscales tended to remain after applying these analyses to data on all scenarios. Across all scenarios, the average was 0.84 for the utilitarian subscale, 0.88 for the personal relativism subscale, 0.80 for the national relativism subscale, 0.84 for the religion subscale, 0.78 for the contractualism subscale, 0.79 for the deontological subscale, and 0.53 for the egoism subscale. Nunnally (1978) suggests that 0.70 is acceptable; thus, inter-item reliabilities for all but the egoism subscale are acceptable. Also, these average α s are similar to the average α s in Reidenbach & Robin (1990) (0.8) and Flory et al. (1992) (0.86).

Table 6
Reliabilities (alpha) and Item-Total Correlations (r) for Additive Scales

	alpha / r	S1a	S2a	S3a	S1b	S2b	S3b
Utilitarian (a)	alpha						
	all four	.868	.900	.866	.902	.903	.870
		.822	.873	.849	.809	.860	.822
OK because action can be justified by its consequences	r	.77	.76	.65	.63	.73	.64
On balance, tends to be good	r	.59	.73	.68	.65	.73	.56
Maximizes benefits while minimizes harm	r	.67	.66	.75	.76	.80	.75
Leads to the greatest good for greatest number	r	.65	.76	.64	.69	.77	.70
Efficient	r	.61	.62	.48	.72	.75	.71
Produces the greatest total utility	r	.59	.83	.74	.77	.71	.65
Results in a positive cost-benefit ratio	r	.53	.70	.61	.68	.56	.57
Retailer is duty bound to act this way	r	.60	.55	.47	.65	.56	.50
Personal Relativism/(Justice) (b)	alpha						
	all three	.852	.904	.879	.849	.857	.849
		.912	.920	.888	.830	.883	.862
Acceptable to me	r	.83	.84	.79	.70	.75	.71
Acceptable to my family (of whose values I approve)	r	.75	.82	.79	.71	.74	.70
Acceptable to the people I admire most	r	.70	.79	.78	.66	.72	.71
Unjust to customers (c)	r	.41	.70	.59	.60	.54	.60
Fair to customers	r	.68	.66	.63	.66	.61	.60
National Relativism	alpha	.794	.803	.867	.709	.787	.815
Culturally acceptable in the U.S.	r	.66	.66	.76	.42	.76	.69
Traditionally acceptable in the U.S.							
Religion	alpha	.837	.892	.845	.825	.775	.853
Violates my religious beliefs	r	.70	.83	.73	.74	.67	.80
Violates teachings of most religions	r	.76	.86	.83	.72	.67	.81
Violates the Golden Rule (“Do unto others . . .”)	r	.65	.68	.60	.62	.52	.59
Contractualism	alpha	.830	.818	.736	.707	.716	.851
Violates an unwritten contract with the customer	r	.71	.69	.59	.55	.56	.74

Table 6 Reliabilities (alpha) and Item-Total Correlations (r) for Additive Scales							
Violates an unspoken promise to the customer							
Deontological	alpha	.789	.705	.811	.860	.849	.740
Retailer is duty bound to act this way	r	.65	.54	.68	.75	.74	.59
Retailer is obligated to act this way							
Egoism	alpha	.368	.583	.543	.438	.678	.556
Self promoting for the retailer	r	.23	.41	.38	.29	.51	.39
Personally satisfying for the retailer							

Note:
(a) First value ($alpha_{all}$) is for all eight items; second value ($alpha_{four}$) is for first four items only.
(b) First value ($alpha_{all}$) is for all five items; second value ($alpha_{three}$) is for first three items only (Personal Relativism only).
(c) Item is reverse coded (i.e., 1=7, 2=6, 3=5, 4=4, 5=3, 6=2, 7=1).

Table 7 shows the results of confirmatory factor analyses for the MES-R1–comprised of fourteen items and five dimensions–and the MES. A principle components factor analysis with varimax rotation was run on data for each scenario. Because theory and scree test results suggested five factor solutions for the MES-R1 and three factor solutions for the MES, factor loadings for those solutions are reported. Of 84 item-factor pairs for the MES-R1 (i.e., six scenarios x fourteen items), only one pair is wrong; however, of 48 item-factor pairs for the MES (i.e., six scenarios x eight items), one item loads on the wrong factor five of six times and four other pairs are wrong.[6] Clearly, these results favor the MES-R1 over the MES.

Table 7 Confirmatory Factor Analysis						
	Factor Loading (a)					
	S1a	S2a	S3a	S1b	S2b	S3b
MES-R1						
Utilitarian						
OK because action can be justified by its consequences	.710	.665	.735	.625	.693	.821
On balance, tends to be good	.790	.711	.728	.463(b)	.708	.632
Maximizes benefits while minimizes harm	.791	.845	.796	.859	.820	.758

Table 7 Confirmatory Factor Analysis						
Leads to the greatest good for greatest number	.712	.788	.798	.768	.833	.733
Personal Relativism						
Acceptable to me	.820	.763	.756	.803	.690	.632
Acceptable to the people I most admire	.791	.778	.837	.807	.871	.856
Acceptable to my family (of whose values I approve)	.797	.782	.882	.828	.835	.838
National Relativism						
Culturally acceptable in the U.S.	.830	.872	.903	.665	.913	.854
Traditionally acceptable in the U.S.	.895	.887	.917	.882	.845	.918
Religion						
Violates my religious beliefs	.852	.888	.893	.896	.866	.910
Violates teachings of most religions	.894	.915	.913	.818	.796	.912
Violates the Golden Rule (“Do unto others . . .”)	.731	.739	.748	.708	.712	.651
Contractualism						
Violates an unwritten contract with customers	.835	.800	.797	.841	.746	.821
Violates an unspoken promise to customers	.839	.817	.827	.641	.876	.736
MES						
Moral Equity						
Unjust to customers (g)	.756	.819	.758	.903	.867	.803(c)
Fair to customers	.677	.870	.794	.892	.845	.764(c)
Retailer morally obligated to act otherwise	-.637	-.023(d)	.048(d)	-.191(e)	-.270(d)	-.199(f)
Acceptable to my family (of whose values I approve)	.424(c)	.757	.776	.584	.564	.494(c)
National Relativism						
Culturally acceptable in the U.S.	.864	.892	.913	.775	.915	.902
Traditionally acceptable in the U.S.	.895	.902	.902	.788	.915	.901
Contractualism						

Table 7 Confirmatory Factor Analysis						
Violates an unwritten contract with customers	.838	.780	.682	.885	.879	-.759
Violates an unspoken promise to customers	.925	.702	.651	.813	.833	-.793

Note:

(a) = The ratio of scale items to observations exceeds 5.00 for S1a to S3a (scale items=24 and n=161) and equals 5.00 for S1b to S3b (scale items=24 and n=120).

(b) = Item loaded with personal relativism items; number in cell is a cross loading.

(c) = Item loaded with relativism items; number in cell is a cross loading.

(d) = Item loaded with contractualism items; number in cell is a cross loading.

(e) = Item loaded with national relativism items; number in cell is a cross loading.

(f) = Item loaded on separate factor; number in cell is a cross loading.

(g) = Item is reverse coded (i.e., 1=7, 2=6, 3=5, 4=4, 5=3, 6=2, 7=1).

Table 8 shows a multitrait-multicontext matrix similar to the one in Reidenbach & Robin (1990) (i.e., over the same three scenarios). The evidence for convergent validity is strong; the correlations on the validity diagonal all differ from zero at the 0.01 level of significance. However, the evidence for discriminant validity is mixed.

Two comparisons support discriminant validity: (1) the correlations on the validity diagonal are higher than the correlations in the same row and column of the heterocontext block in all but three cases (the correlations on the validity diagonal are less by 0.001 in two cases and less by 0.002 in one case), and (2) the patterns of correlations are similar across heterotrait triangles. Regarding the latter comparison, the correlations are always (1) highest between utilitarian and personal relativism subscales, (2) in the lowest third between national relativism and utilitarian, contractualism, and religion subscales, (3) in the top half between contractualism and either utilitarian or religion subscales, and (4) of a middle value for other subscales. Also, ranking the correlations within each heterotrait triangle, listing these ranks by column and then row (i.e., rankings of correlations in the first column of the triangle listed first through fourth, rankings of correlations in the next column of the triangle listed fifth through seventh, and so forth), and then computing a correlation between listings, yields an average correlation of 0.88.

One comparison fails to support discriminant validity: the correlations on the validity diagonal are often less than the associated correlations in the heterotrait-monocontext triangles. However, Churchill (1979) implies that context variance may depress diagonal

correlations in monocontext blocks. The univariate ethics measure ranged from 1.86 to 2.73 for S1a, S2a, and S3a, which suggests that context varied meaningfully and the failure of this last comparison should be discounted.

Table 8
Multitrait-Multicontext Matrix

	S1a					S2a					S3a				
	Util.	**Pers. Rel.**	**Nat'l Rel.**	**Con-tract.**	**Reli-gion**	**Util.**	**Pers. Rel.**	**Nat'l Rel.**	**Con-tract.**	**Reli-gion**	**Util.**	**Pers. Rel.**	**Nat'l Rel.**	**Con-tract.**	**Reli-gion**
S1a															
Util.	.822														
Pers. Rel.	.685[b]	.912													
Nat'l Rel.	.368[b]	.456[b]	.794												
Con-tract.	-.555[b]	-.511[b]	-.291[b]	.830											
Relig-ion	-.404[b]	-.434[b]	-.229[b]	.495[b]	.837										
S2a															
Util.	*.316[b]*	.263[b]	.141	-.285[b]	-.184[a]	.873									
Pers. Rel.	.241[b]	*.283[b]*	.182[a]	-.241[b]	-.215[b]	.714[b]	.920								
Nat'l Rel.	-.056	-.018	.231[b]	.036	.027	.380[b]	.408[b]	.803							
Con-tract.	-.228[b]	-.257[b]	-.156[a]	*.415[b]*	.347[b]	-.467[b]	-.608[b]	-.129	.818						
Relig-ion	-.249[b]	-.235[b]	-.164[a]	.308[b]	*.633[b]*	-.407[b]	-.500[b]	-.138	.598[b]	.892					
S3a															
Util.	*.594[b]*	.427[b]	.242[b]	-.467[b]	-.323[b]	.376[b]	.216[b]	-.073	-.282[b]	-.286[b]	.849				
Pers. Rel.	.426[b]	*.425[b]*	.169[a]	-.413[b]	-.224[b]	.238[b]	*.309[b]*	-.037	-.218[b]	-.211[b]	.615[b]	.888			
Nat'l Rel.	.135	.066	.339[b]	-.061	.108	.158[a]	.128	*.317[b]*	-.010	-.013	.290[b]	.323[b]	.867		
Con-tract.	-.345[b]	-.381[b]	-.226[b]	*.466[b]*	.312[b]	-.133	-.188	.117	*.499[b]*	.316[b]	-.505[b]	-.530[b]	-.173[a]	.736	
Relig-ion	-.232[b]	-.245[b]	-.127	.279[b]	*.668[b]*	-.224[b]	-.246[b]	.007	.302[b]	*.710[b]*	-.381[b]	-.334[b]	-.125	.361[b]	.845

Note:
a = **r** is significant at the 0.05 level or better (2-tailed test)
b = **r** is significant at the 0.01 level or better (2-tailed test)

Predictive Validity of the MES-R1 Versus the MES

Table 9 shows the correlations between the univariate ethics measures and subscales of the MES-R1 and MES. The instruments share the (national) relativism and contractualism subscales. All but the (national) relativism and moral equity subscales (average *r* of 0.25 and 0.38 respectively) are equally good predictors of the ethicality measure (average *r* ranges from 0.51 for the personal relativism subscale to 0.55 for the religion subscale). However, the (national) relativism subscale is the best predictor of the *forecasted behavior of others* measure (average *r*=0.43); seemingly, respondents' sense of the national ethical standard best reflects their forecasts of others' behaviors. The utilitarian and personal relativism subscales are the best predictors of the behavioral intent measure (average *r* of 0.63 and 0.60 respectively); seemingly, these subscales best reflect the family and educational experiences that set a respondent's internal moral compass. The moral equity subscale, the one scale unique to the MES, is the second worst predictor of the ethicality measure and the third worst best predictor of both the behavioral intent and the *forecasted behavior of others* measures; thus, the moral equity subscale has lower predictive validity than most new subscales of the MES-R1.

Table 9
Correlations Between Univariate Measures and MES-R1 Scales

	MES-R1 Scales						**Univariate Scales**			**Adjusted R^2 (a)**			
				MES Scales						**MES-R1**		**MES**	
	Util.	Pers. Rel.	Relig-ion	Nat'l Rel.	Con-tract.	Moral Equity	Ethical	I would do	Other would do	Scales	Factor Scores	Scales	Factor Scores
S1a													
Ethical	-.605[b]	-.553[b]	.560[b]	-.169[a]	.599[b]	-.309[b]	1.000			0.595	0.527	0.366	0.405
I would do	.567[b]	.587[b]	-.448[b]	.315[b]	-.466[b]	.326[b]	-.544[b]	1.000		0.429	0.415	0.299	0.290
Others would do	.255[b]	.225[b]	-.270[b]	.336[b]	-.239[b]	.086	-.153	.201[a]	1.000	0.136	0.136	0.111	0.113
S2a													
Ethical	-.520[b]	-.534[b]	.613[b]	-.137	.655[b]	-.446[b]	1.000			0.531	0.501	0.474	0.421
I would do	.551[b]	.607[b]	-.408[b]	.377[b]	-.434[b]	.494[b]	-.428[b]	1.000		0.413	0.431	0.356	0.383
Others would do	.126	.099	-.078	.343[b]	.109	.133	-.028	.374[b]	1.000	0.137	0.140	0.137	0.125
S3a													
Ethical	-.449[b]	-.512[b]	.455[b]	-.240[b]	.550[b]	-.331[b]	1.000			0.416	0.387	0.364	0.400
I would do	.566[b]	.577[b]	-.266[b]	.220[b]	-.571[b]	.422[b]	-.367[b]	1.000		0.457	0.401	0.409	0.384

Table 9 Correlations Between Univariate Measures and MES-R1 Scales													
Others would do	.130	.149	-.142	.421[b]	-.137	.153	-.143	.110	1.000	0.163	0.159	0.182	0.161
S1b													
Ethical	-.603[b]	-.437[b]	.578[b]	-.410[b]	.430[b]	-.387[b]	1.000			0.478	0.488	0.327	0.333
I would do	.713[b]	.622[b]	-.509[b]	.360[b]	-.593[b]	.418[b]	-.676[b]	1.000		0.621	0.562	0.412	0.459
Others would do	.333[b]	.302[b]	-.267[b]	.501[b]	-.143	.194[a]	-.381[b]	.292[b]	1.000	0.232	0.237	0.211	0.175
S2b													
Ethical	-.472[b]	-.486[b]	.456[b]	-.299[b]	.442[b]	-.435[b]	1.000			0.383	0.336	0.312	0.314
I would do	.682[b]	.615[b]	-.435[b]	.338[b]	-.389[b]	.447[b]	-.448[b]	1.000		0.547	0.452	0.287	0.269
Others would do	.291[b]	.279[b]	-.175	.529[b]	-.099	.355[b]	-.299[b]	.406[b]	1.000	0.266	0.218	0.265	0.197
S3b													
Ethical	-.392[b]	-.505[b]	.606[b]	-.255[b]	.551[b]	-.381[b]	1.000			0.455	0.399	0.307	0.343
I would do	.726[b]	.592[b]	-.301[b]	.234[a]	-.482[b]	.404[b]	-.428[b]	1.000		0.474	0.501	0.249	0.339
Others would do	.167	.234[a]	-.011	.434[b]	.030	.154	-.118	.312[b]	1.000	0.241	0.179	0.185	0.175

Note:
a = **r** is significant at the 0.05 level or better (2-tailed test).
b = **r** is significant at the 0.01 level or better (2-tailed test).
(a) = *Adjusted R^2 for Scales* is for regressions against scores created by averaging all items that comprise a scale; *Adjusted R^2 for Factor Scores* is for regressions against factor scores for each dimension.

Table 9 also compares the variance in three univariate ethics measures (which included a *No Ethical Dilemma* option) explained by additive indices and factor scores produced by the MES-R1 and MES. It is well known that R^2 is an improper criteria for selecting among non-nested models (Bass 1975; Bass & Clarke 1975; Bass, Tigert, & Lonsdale 1968). Although the MES is not strictly nested in the MES-R1, both scales contain identical (national) relativism and contractualism subscales and one moral equity item of the MES appears in the personal relativism subscale of the MES-R1. Given this degree of overlap, adjusted R^2s provide a tenable criterion for model selection.

The MES-R1 explains more variance in the univariate ethics measures than does the MES. In all but one case the adjusted R^2 for the MES-R1 exceeds or equals the adjusted R^2 for the MES. For the ethicality measure, the average adjusted R^2s for the MES-R1 and MES are 0.48 and 0.36 respectively; for the behavioral intent measure, 0.49 and 0.36 respectively; and for the *forecasted behavior of others* measure, 0.20 and 0.18

respectively. (Note: These results are for the additive indices.) Interestingly, the average adjusted R^2s for the MES and the ethicality measure are far lower than those in Reidenbach & Robin (1990) (0.72), Flory et al. (1993) (0.67), Humphreys et al. (1993) (0.61), and Reidenbach, Robin, & Dawson (1991) (0.56); also, the average adjusted R^2s for the behavioral intent measure are lower but similar to those in Flory et al. (1993) (0.61), Humphreys et al. (1993) (0.48), Reidenbach, Robin, & Dawson (1991) (0.37), and Reidenbach & Robin (1990) (0.34).[7]

Conclusion

Clearly, use of the trailblazing MES improved ethics research. However, continuing progress requires a revamped MES. The preceding critique of Reidenbach & Robin (1990) and the MES exposed ambiguities in scale items, faulty scale development procedures, unexpected factor structures, and omitted ethical rationales.

A revised MES–the MES-R1–was developed in accord with the procedures delineated in Churchill (1979) and the concerns about the MES expressed in Cohen, Pant, & Sharp (1993), Hansen (1992), Jones & Ponemon (1993), and Skipper & Hyman (1993). Derived from properly transformed data, the MES-R1 includes five subscales: utilitarian, personal relativism, and religion subscales were added to the relativism and contractualism subscales of the original MES. Results of confirmatory factor analyses and tests of predictive validity against three univariate ethics measures showed the superior predictive and face validities of the MES-R1.

Again, this article was meant to elevate researchers' sensitivity to the psychometric details of proper scale development. Critique and revalidation studies, by ensuring the continuing soundness of scales created for use in empirical research, can certify the tools that marketing scholars use to create marketing knowledge. Subsequent related research could further contribute to the marketing literature by either

(1) providing a comprehensive typology of the psychometric details requisite for proper scale development, or
(2) revealing scale developers' tendencies to disregard specific psychometric details.

Caveats

MES-type scales are limited in two ways. First, MES-type scales cannot assess *right versus wrong*; rather, such scales can only assess community standards (Skipper & Hyman 1993). Although Flory et al. (1993) claims that the MES is a good scale "if the explanation, prediction, and *control* of unethical behavior is the objective" (p.418, italics added), results of studies based on MES-type scales cannot dictate an ethical course of

action. Second, MES-type scales are susceptible to the same social desirability bias that distorts much self-report data collected by ethics researchers (Fernandes & Randall 1992; Izraeli 1988; Randall & Fernandes 1991). Because the promise of anonymity may not reduce such bias (Fernandes & Randall 1992), and forecasts of others' behaviors can be "the best predictor of respondents' ethical behavior" (Izraeli 1988, p.270), researchers may gain by asking MES-R1 respondents to "answer from the perspective of a good friend."

Finally, the MES-R1, like the MES, lacks several face-valid subscales. One obvious candidate is an egoism subscale. Although dismissed by Reidenbach & Robin (1995), the seven deadly sins suggest additional subscales (Skipper & Hyman 1993). Furthermore, ethics researchers should revalidate the MES-R1 and calibrate future versions of the scale with scenarios from different business domains and of differing degrees of ethicality.

Appendix: Limitations of Strictly Factor-Analysis-Based Item Distillation

Reidenbach & Robin (1990) mentions a procedure for deleting pool items via a rule-based examination of factor patterns. Although Reidenbach & Robin (1990) omits the rules used, the following two sets of rules fit the general procedure described in Reidenbach & Robin (1990); in an effort to reproduce the MES, they were applied to a series of principal components factor analyses with an eigenvalue<1.0 stopping rule and varimax rotation. (Note: To avoid two confounds, this analysis was limited to the three scenarios and factor analysis procedures described in Reidenbach & Robin 1990.)

Rule Set #1: Examine the factor patterns of all scenarios jointly and eliminate items that:

(1) load on single-item factors for two or more scenarios;

(2) load with different sets of items across all scenarios; and

(3) have a communality less than 0.50, the minimum recommended by Hair et al. (1995), for two or more scenarios.

Rule Set #2: For items not eliminated by Rule Set #1, examine the factor pattern of each scenario separately and apply these rules iteratively until no pool item qualifies:

(1) eliminate the item with the lowest loading less than 0.5;

(2) if no item has a loading less than 0.5, eliminate the item with the highest cross loading greater than 0.4;

(3) if no item has a loading less than 0.5 or a cross loading greater than 0.4, eliminate the item with the lowest loading less than 0.6;

(4) if no item has a loading less than 0.6 or a cross loading greater than 0.4, eliminate the item with the lowest loading less than 0.7; and.

(5) stop when all items have loadings greater than or equal to 0.7 and no cross loading greater than 0.4.

Rules (1) and (2) of Rule Set #2 follow from Hair et al. (1995); factor loadings above 0.45 are significant for n 150. Rules (3) to (5) purge enough items to create a MES-sized measure.

Applying Rule Set #1 to data for S1a, S2a, and S3a eliminated eight of 32 pool items. The results of Rule Set #2 are summarized in the Appendix Table. For each scenario, the successive columns represent the successive iterations of Rule Set #2. An 'x' in a cell indicates the iteration in which that item was dropped; a number in the right-most column indicates the factor on which the item loaded upon satisfying rule (5). After applying Rule Set#2, two religion items, the Golden Rule item, and one egoism item were retained across all scenarios; two justice items, one egoism item, one deontology item, and two utilitarian items, were eliminated across all scenarios. Although Rule Set #2 always produced a four-factor solution, it retained different items and different numbers of items for each scenario.

Appendix Table
Results of Strictly Factor-Analysis-Based Item Distillation

Item	S1a–Iteration #							S2a–Iteration #						S3a–Iteration #							
	1 2	3 4	5 6	7 8	9 10	11 12	13 14	1 2	3 4	5 6	7 8	9 10	11	1 2	3 4	5 6	7 8	9 10	11 12	13 14	15 16
1					x					x							x				
2					x						x					x					
3							2						2				x				
4			x					x													2
5				x						x											2
6							2						2			x					
7	x								x												2
8							4						4								4
9		x						x						x							

Appendix Table
Results of Strictly Factor-Analysis-Based Item Distillation

10				x									4							4
11	x												1						x	
12						x							x	x						
13							1						1					x		
14							4		x						x					
15							1						1				x			
16		x											1				x			
17							1					x						x		
18							1						1							x
19							1						1						x	
20						x						x								x
21			x								x				x					
22							x						1							1
23							x						1							1
24							3						3							3
25							3						3							3
26							3						3							3

Note: 'x' denotes step in which item was eliminated; a number in the right-most column indicates the factor on which the item loaded on last iteration.

Hair et al. (1995) asserts that factor analysts should "ensure that the observed patterns are conceptually valid and appropriate for study with factor analysis, because the technique has no means to determine appropriateness other than the correlations among variables" (p.375). Clearly, Rule Sets #1 and #2 produced inconsistent results; although Reidenbach & Robin (1990) certainly relied on different elimination criteria, the failure of these atheoretical rule sets discredits all strictly factor-analysis-based item elimination methods.

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