**The Reconstructability of Persuasive Message Variables Affects the Variability of Experimental Effect Sizes: Evidence and Implications**

**Appendix**

This appendix provides background information about the classification of each message variation as fully reconstructable, semi-reconstructable, or unreconstructable. For each message variation, the definition of the variation (drawn from the report of the corresponding meta-analysis) and an assessment of its reconstructability are given.

To assess the reliability of the classification, a researcher who had not been involved in the project classified the message variations independently. The researcher was provided with (1) descriptions of what “fully reconstructable”, “semi-reconstructable”, “unreconstructable – categorical”, and “unreconstructable – continuous” entailed, (2) for each of the four categories one example of a message variable representing that category as well as the reasoning behind this classification, and (3) descriptions of the remaining 26 message variables. The coder indicated for each message variable whether she considered it “fully reconstructable”, “semi-reconstructable”, “unreconstructable – categorical”, or “unreconstructable – continuous”. The results revealed that she coded 24 of the 26 message variables in the same way (92%). The resulting Cohen’s kappa was .89. The two exceptions – argument explicitness (explicit vs. implicit) and conclusion (included vs. omitted) - were resolved through discussion.

*Appeal framing (gain vs. loss)*

The definition of the variation: “A gain-framed message emphasizes the desirable consequences of compliance with the advocated view; a loss-framed message emphasizes the undesirable consequences of noncompliance” (O’Keefe & Jensen, 2006, p. 6).

The reconstructability of the variation: Fully reconstructable. Given the gain-framed version (“If you do the advocated action, desirable outcome X will happen”) the loss-framed version can be deduced (viz., “If you don’t do the advocated action, desirable outcome X will not happen”), and vice versa.

*Argument explicitness (explicit vs. implicit)*

The definition of the variation: “Argument-completeness variation reflected variation in how explicitly the message spelled out the support for its overall conclusion; this included variation in whether the premises of supporting arguments were stated explicitly (including, e.g., whether premise-relevant supporting information was supplied) and variation in whether the conclusions of supporting arguments were stated explicitly” (O’Keefe, 1998, p. 64).

The reconstructability of the variation: Unreconstructable (continuous). Argument explicitness can vary in a continuous way (depending on the number of argumentative elements omitted). Given the explicit version of the message, it is not possible to construct the implicit version because one cannot know what material was omitted; given the implicit version of the message, it is not possible to construct the explicit version because one cannot be sure how the missing elements were supplied.

*Argument strength (weak vs. strong)*

The definition of the variation: “the study had to test a factorial experimental design in which those types of processing [central and peripheral] were induced and crossed with an argument quality induction with strong and weak arguments” (Carpenter, 2015, p. 509).

The reconstructability of the variation: Unreconstructable (continuous). Argument strength can vary in a continuous way (two messages might differ a lot or a little in argument strength). The strong-argument and weak-argument messages use substantively different arguments, hence it is not possible to reconstruct either message based on the other.

*“But you are free” (included vs. omitted)*

The definition of the variation: “In the control condition, the experimenter made a simple direct request: ‘Sorry, Madam/Sir, would you have some coins to take the bus, please?’ In the experimental condition, the experimenter added: ‘But you are free to accept or to refuse’” (Carpenter, 2013, p. 6).

The reconstructability of the variation: Fully reconstructable. Given the control-condition message (“but you are free” omitted), the experimental-condition message (“but you are free” included) can be reconstructed by adding the specified phrase. Given the experimental-condition message, the control-condition message can be reconstructed by deleting the specified phrase.

*Conclusion (included vs. omitted)*

The definition of the variation: Included studies “compared messages with or without a statement of the advocate’s overall conclusion. That is, what is compared are messages containing some explicit statement of the advocate’s overall point with messages in which the conclusion is omitted” (O’Keefe, 2002, p. 67).

The reconstructability of the variation: Fully reconstructable. Given the explicit-conclusion message, the implicit-conclusion message can be reconstructed by deleting the conclusion. And because the message’s conclusion follows straightforwardly from the arguments presented, the explicit-conclusion message can be reconstructed from the implicit-conclusion message.

*Cultural tailoring (deep-tailored vs. not tailored)*

The definition of the variation: Included studies “had to compare at least two consumer ads that differed only in whether their value appeals were culturally adapted or culturally unadapted to an audience” (Hornikx & O’Keefe, 2009, p. 43).

The reconstructability of the variation: Unreconstructable (categorical). Because substantively different appeals are involved, knowing what value is appealed to in one of the messages does not permit reconstruction of the value appeal in the other message. The message variation is categorical (not continuous), because the appeals are either adapted or unadapted.

*Depicted response efficacy (high vs. low)*

The definition of the variation: Witte and Allen (2000) did not explicitly describe the coding of this message feature, but their description of their results included reference to it, such as “the stronger the efficacy message, the stronger the perceptions of response efficacy and self-efficacy” (p. 597). (See also their Table 1, p. 598, concerning effects of “response efficacy” messages on perceived response efficacy.)

The reconstructability of the variation: Unreconstructable (continuous). Depicted response-efficacy can vary in a continuous way. Given a single message describing response efficacy (e.g., “this treatment is 75% effective”) one cannot tell whether the message is the high-response-efficacy version or the low-response-efficacy version.

*Depicted self-efficacy (high vs. low)*

The definition of the variation: Witte and Allen (2000) did not explicitly describe the coding of this message feature, but their description of their results included reference to it, such as “the stronger the efficacy message, the stronger the perceptions of response efficacy and self-efficacy” (p. 597). (See also their Table 1, p. 598, concerning effects of “self efficacy” messages on perceived self efficacy.)

The reconstructability of the variation: Unreconstructable (continuous). Depicted self-efficacy can vary in a continuous way. Given a single message describing self-efficacy, one cannot be sure whether it is the high-self-efficacy version or the low-self-efficacy version, and one cannot tell what the other message is like.

*Depicted threat severity (high vs. low)*

The definition of the variation: Experimental messages were coded for “severity: the seriousness of the negative consequences of a certain behavior” (De Hoog et al., 2007, p. 266).

The reconstructability of the variation: Unreconstructable (continuous). Depicted threat severity can vary in a continuous way. Given a single message, one cannot tell whether it is the high-depicted-severity message or the low-depicted-severity message, and one cannot tell what the other message is like.

*Depicted threat susceptibility (high vs. low)*

The definition of the variation: Experimental messages sere coded for “vulnerability: the probability of experiencing, or feeling susceptible to negative consequences of a certain behavior” (De Hoog et al., 2007, p. 266).

The reconstructability of the variation: Unreconstructable (continuous). Depicted threat susceptibility can vary in a continuous way. Given a single message, one cannot tell whether it is the high-depicted-susceptibility message or the low-depicted-susceptibility message, and one cannot tell what the other message is like.

*Disrupt-then-reframe (vs. reframe-only)*

The definition of the variation: “To be included in the meta analysis, the effectiveness of a disrupt-then-reframe message had to be compared to a reframe-only message in respect to a dichotomous complied/did not comply dependent variable” (Carpenter & Boster, 2009, p. 57).

The reconstructability of the variation: Fully reconstructable. The “disrupt” element takes the form of an unusual unit of expression (pennies vs. dollars, seconds vs. minutes). Hence given the “disrupt-then-reframe” message, one can reconstruct the reframe-only message and vice versa.

*Evidence amount (high vs. low)*

The definition of the variation: “a number of studies manipulated the amount of supporting information by either including or excluding evidence in the persuasive message . . . Other studies altered the number of arguments offered in support of the message recommendation” (Stiff, 1986, p. 81).

The reconstructability of the variation: Unreconstructable (continuous). The amount of evidence can vary in a continuous way. Given a single message, one cannot tell whether it is the high-amount-of-evidence message or the low-amount-of-evidence message, and one cannot tell what the other message is like.

*Evidence type (narrative vs. statistical)*

The definition of the variation: “A study was included in the meta-analysis if there was a comparison between the effect of quantitative claims used as evidence compared to the use of nonquantitative claims (examples, narratives, etc.). The key was that the argument or conclusion advanced was based on the evidence provided as a justification for accepting the claim” (Allen & Preiss, 1997, pp. 126-127).

The reconstructability of the variation: Unreconstructable (categorical). Given the narrative-evidence message, one cannot reconstruct what the statistical-evidence message would be, and vice versa.

*Humor (humorous vs. non-humorous)*

The definition of the variation: To be included, studies had to “provide a direct comparison between a humor message and a humorless message on the same topic, rather than two identical messages that differ only with respect to the inclusion of humor. That is, the contrast of interest was between a humorous message and a parallel nonhumorous (i.e., serious) message” (Walter et al., 2018, p. 352).

The reconstructability of the variation: Unreconstructable (categorical). Given the humorous message, one cannot reconstruct what the non-humorous message would be, and vice versa.

*Information-source identification (included vs. omitted)*

The definition of the variation: “Information-source-citation variation reflected the contrast between a message that explicitly identified the sources of (at least some of) the message's information (facts, opinions, and the like) and a message that presented the same information without such identifying source information” (O’Keefe, 1998, pp. 63-64).

The reconstructability of the variation: Semi-reconstructable. Given the message in which the source is identified, the message without such information can be reconstructed, but not vice versa.

*Language intensity (high vs. low)*

The definition of the variation: “*Intensity* is a stylistic feature of language that is conveyed through the properties of emotionality and specificity. . . . Emotional intensity is the degree of affect reflected in the source’s language, ranging from mild to intense. . . . Linguistic specificity is the extent to which a marker denotes a narrow or broad semantic category” (Hamilton & Hunter, 1998, p. 100).

The reconstructability of the variation: Unreconstructable (continuous). Language intensity varies in a continuous way. Given a single message, one cannot tell whether it is the high-language-intensity message or the low-language-intensity message, and one cannot tell what the other message is like.

*Legitimizing paltry contributions (included vs. omitted)*

The definition of the variation: “LPC messages were operationally defined as messages that included an explicit sentence making it clear that a very small contribution would be acceptable (i.e., ‘even a penny will help’)” (Bolkan & Rains, 2017, p. 983).

The reconstructability of the variation: Fully reconstructable. Given the message that includes the LPC phrase, the LPC-omitted message can be reconstructed and vice versa.

*Metaphorical (vs. not-metaphorical)*

The definition of the variation: The relevant inclusion criteria were as follows: “First, the study consisted of two or more verbal experimental conditions. Second, at least one of the independent variables in the study was metaphorical framing. . . . Finally, the study included a non-metaphorical message condition as a baseline for comparison in the meta-analysis” (Brugman et al., 2019, p. 49).

The reconstructability of the variation: Semi-reconstructable. Given the metaphorical message, it would be possible to reconstruct the non-metaphorical message. But given the non-metaphorical message, one cannot reconstruct the metaphorical message (if only because one cannot know what metaphor would be employed).

*Narrative (vs. non-narrative)*

The definition of the variation: The relevant inclusion criteria were as follows: “First, the article must have had narrative messages on a health issue as the main stimuli. . . . The narratives could be in the form of stories, anecdotes, or testimonials. Second, the study must have been a lab experiment or a field study that compared the effects of narratives against a control group. If an experiment used two control groups, one with a nonnarrative message and the other with no messages at all, we took a conservative approach by designating the group receiving nonnarrative message as the control group for our meta-analysis. All the subsequently selected studies had nonnarratives as the controls” (Shen et al., 2015, p. 107).

The reconstructability of the variation: Unreconstructable (categorical). Given the non-narrative message, one could not reconstruct the narrative message (if only because of the variety of narrative forms). And given the narrative message, one could not reconstruct the non-narrative message (e.g., one could not tell what arguments might be deployed in the non-narrative message).

*Political advertising tone (positive vs. negative)*

The definition of the variation: The meta-analysis included “studies of specific instances of negative campaigning (e.g., a single television advertisement) as well as characterizations of entire campaigns. . . . . To qualify for inclusion here, an actual or hypothetical campaign setting had to feature variability in tone, so that every research finding considered here is based on comparison of negative ads or campaigns to positive, neutral, or at least less negative ads or campaigns” (Lau et al., 2007, p. 1178).

The reconstructability of the variation: Unreconstructable (continuous). The message contrast arises from an underlying continuum of positivity-negativity. Given a single message, one cannot tell whether it is the relatively-more-negative message or the relatively-less-negative message, and one cannot tell what the other message is like.

*Recommendation specificity (specific vs. general)*

The definition of the variation: “The comparison contrasts messages that provide only a general description of the advocate’s recommended action with messages that provide a more specific (detailed) recommendation; that is, both messages contain an explicitly-stated conclusion (in the form of an explicitly-identified desired action), but one conclusion is more detailed” (O’Keefe, 2002, p. 67).

The reconstructability of the variation: Unreconstructable (continuous). The message contrast arises from an underlying continuum of specificity. Given a single message, one cannot tell whether it is the relatively-more-specific message or the relatively-less-specific message, and one cannot tell what the other message is like.

*Rhetorical questions (vs. statements)*

The definition of the variation: Gayle et al. (1998) did not provide a straightforward description of the message variation of interest, but the focus was “the persuasive effects of rhetorical questions” and hence a study was included if it was “an experimental investigation” that “reported a relationship relevant to the persuasiveness of rhetorical questions” (p. 195). Presumably, then, included studies provided a comparison of messages with rhetorical questions and messages with parallel statements.

The reconstructability of the variation: Fully reconstructable. Given a message that includes a rhetorical question, one can reconstruct the message that uses a statement in its place, and vice versa.

*Sexual content (vs. non-sexual)*

The definition of the variation: “A study was eligible if one group was exposed to . . . ad content containing violence, sex, or both violence and sex, and the other (control) group was exposed to . . . ad content containing no violence or sex” (Lull & Bushman, 2015, pp. 1026-1027).

The reconstructability of the variation: Unreconstructable (categorical). Given the non-sexual message one could not reconstruct the sexual message (e.g., one could not tell just what the sexual content might be), and given the sexual message one could not reconstruct the non-sexual message (because the non-sexual message was not simply a version of the sexual message with the sexual content removed).

*Sidedness (one-sided vs. two-sided)*

The definition of the variation: “First, the study had to compare a one-sided message with a two-sided message without intentionally confounding the sidedness manipulation with other distinct manipulations or with the advocated position. A one-sided message contains only supporting arguments or considerations (that is, arguments or considerations supporting the advocated position). A two-sided message both (a) offers supporting arguments or considerations and (b) at least acknowledges possible opposing arguments or considerations” (O’Keefe, 1999, p. 213).

The reconstructability of the variation: Semi-reconstructable. Given the two-sided message, the one-sided message can be reconstructed (by deleting the opposing arguments); however, one cannot reconstruct the two-sided message based on the one-sided message (because one does not know what opposing arguments were discussed in the two-sided message).

*Speaking rate (faster vs. slower)*

The definition of the variation: “An experiment had to: investigate comprehension, credibility, persuasion, and rate of speech; contain a quantitative estimate of the rate’s impact on comprehension, credibility, and persuasion” (Preiss et al., 2014, p. 15).

The reconstructability of the variation: Unreconstructable (continuous). Speaking rate forms a continuum. Given a single message, one cannot tell whether it is the relatively-faster message or the relatively-slower message, and one cannot tell what the other message is like.

*“That’s not all” (included vs. omitted)*

The definition of the variation: “In order for a study to be included in this meta-analysis, it had to meet the following inclusion criteria: each study should (1) have a TNA technique condition in which the requester makes an initial offer and then renders a better deal by reducing the price or adding extra items at no additional cost before the targets respond to the initial offer, (2) include an independent control condition in which the requester makes the offer that is identical to the final offer made in the TNA technique condition” (Lee et al., 2019, p. 29).

The reconstructability of the variation: Semi-reconstructable. Given the TNA-technique message, the non-TNA version can be reconstructed by removing the TNA material. However, because there are two forms of TNA messages (based either on reducing the price or on adding items), one cannot reconstruct the TNA message given the non-TNA message.

*Threat appeal strength (strong vs. weak)*

The definition of the variation: “We here supply results for studies that used a behavioural measure as the outcome variable and compare the effects of a high-fear with a low- or no-fear comparison condition” (White & Albarracín, 2018, p. 147).

The reconstructability of the variation: Unreconstructable (continuous). The message contrast arises from an underlying continuum of strength (fear). Given a single message, one cannot tell whether it is the relatively-stronger message or the relatively-weaker-specific message, and one cannot tell what the other message is like.

*Victim description (identifiable vs. not-identifiable)*

The definition of the variation: “For a study to be included, it had to meet the following inclusion criteria: each study had to (1) have a treatment condition that presented an identified victim through personally identifiable information such as age, name, picture, or personal narrative (i.e., an identified condition), (2) have a control condition that presented anonymous or statistical victims (i.e., an unidentified condition), . . . ” (Lee & Feeley, 2016, p. 202).

The reconstructability of the variation: Unreconstructable (categorical). Given the identifiable-victim message one could not reconstruct the non-identifiable-victim message (e.g., one could not tell whether statistical information was presented, anonymous victims, etc.), and given the non-identifiable-victim message one could not reconstruct the identifiable-victim message (because of he variety of ways in which a victim might be identified).

*Visual materials (text-plus-visual vs. text-only)*

The definition of the variation: “First, studies must use visual images as the main stimuli. Visual images are various static pictorial presentations in print or web-based forms, including photographs, pictures, illustrations, infographics (e.g., figures or graphs), cartoons, and so forth. . . . Second, studies must utilize an experiment or field study design that compared a treatment group receiving messages of visual+verbal information and a control group reading no-image, verbal text-only messages. This criterion was imposed to examine relative effectiveness or ineffectiveness of visual image on persuasion compared to non-image message” (Seo, 2020, p. 182).

The reconstructability of the variation: Semi-reconstructable. Given the text-plus-visual message, the text-only version can be reconstructed (by deleting the visual material). But given the text-only version, the text-plus-visual message cannot be reconstructed.

*Vividness (vivid vs. pallid)*

The definition of the variation: “studies had to use an experimental and factorial design including random assignment to a low (or pallid, or non-vivid) versus a high (or vivid) condition of vividness. Second, studies had to manipulate vividness depending on informations presented in the message” (Blondé & Girandola, 2016, p. 114).

The reconstructability of the variation: Unreconstructable (continuous). The message contrast arises from an underlying continuum of vividness. Given a single message, one cannot tell whether it is the relatively-more-vivid message or the relatively-less-vivid message, and one cannot tell what the other message is like.

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