When might framing work and not work?  
How construal level theory contributes to risk communication

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Risk communication is often studied through the formation of risk perceptions and empirical findings. This article explores the possibility of a theoretical basis for how risk communication relates to the audience, especially with respect to a growing interest in communicating with images. Framing is taken as a perspective on risk communication. The construal level theory is used to describe how congruence between an individual’s construal of a risk event and a frame affects the strength of the frame’s effects. The framework is developed from a literature review, and the implications for risk communication are illustrated through a concurrent study on the framing of flood risks. An implication of the framework is that information providers should pay greater attention to the risk perception of the audience when communicating to the public. Further research includes empirical testing of the relations proposed in the framework, and deriving more concrete determinants of a construal.

Keywords: Framing; construal level theory; risk communication; images; literature review

1. Framing in risk communication

Risk communication is an increasingly important field, especially as public perceptions become more integrated into risk management. Communication serves as a way to understand and influence risk perceptions and to link experts and the public. The use of thoughtful risk communication is particularly pertinent now, where growth in communication media enables a larger audience to access a greater volume of information more easily. Images are often used as communication tools to quickly convey a message and to capture an audience’s attention. Despite the interest in risk communication, much of our understanding is based on theories on risk perceptions or empirical research on communication techniques (e.g. Kellens et al., 2013; Bell and Tobin, 2007). A stronger theoretical basis can potentially improve the design and impact of risk communication. Framing is a possible theoretical perspective to be adopted, where different ways of presenting risk information can be viewed as framing of the issue.

Framing refers to the process of presenting logically equivalent options in semantically different ways (Tversky and Kahneman, 1981), and may be conveyed through both words and images. The premise is that multiple perspectives and frames may be used for the same issue (Chong and Druckman, 2007) and frames serve as a heuristic for making sense of an otherwise complex issue or situation. An understanding of framing mechanisms can be applied to the understanding of risk communication.
Levin et al. (1998) identify three frame types that are frequently adopted in framing research: attribute, risky choice, and goal framing. Attribute framing refers to the accentuation of particular characteristics of an object or event; risky choice framing refers to the presentation of options differing in risk levels; and goal framing refers to the presentation of the goal or outcome of an action or behaviour. However, framing research has grown since the seminal article by Levin et al. (1998) on the categorisation of frames. The variety of framing methods and studies has expanded.

The aim in this article is thus to explore a possible theoretical framework for the use of framing in risk communication, with an emphasis on the use of images. I take the construal level theory (CLT) as an integrative theory for the different aspects to be investigated. CLT explains that the interaction of psychological distance and construal level of an event or object affects an individual’s resulting evaluation, and has been proposed as relevant in almost all areas to do with perception (Trope et al., 2010). With the CLT, the message recipient or audience is taken as the reference point for the interpretation of a message (Trope et al., 2010), which is similar to how a reference point is used when evaluating gain/loss frames in framing (Levin et al., 1998).

The use of CLT enriches previous explanations of framing, such as prospect theory, where individuals perceive relative gains and losses differently (Tversky and Kahneman, 1981), or valence-consistent shift, where positive descriptions naturally lead to more favourable evaluations than negative descriptions (Levin et al., 1998). These two alternative frameworks fail to reconcile the inconsistencies that sometimes occur in empirical framing studies. The source of these inconsistencies is proposed to be perceptual heterogeneity in the frame recipients (Freling et al., 2014). Multiple studies have been done on the different aspects of CLT and the impact on decision-making and evaluation. This impact on evaluation is often used as a means of determining framing effects too (Chong and Druckman, 2007), although the CLT studies do not always explicitly describe their outcomes as framing effects.

The research question here is, “What is a plausible framework explaining the relation between risk communication and its recipient?” A suitable framework should account for both the interaction between a frame (used in risk communication) and its recipient as well as the influence of the visual versus verbal communication. Development of the framework is based on a review of relevant studies relating CLT to framing and visual communication. This is a timely review to consolidate the growing body of framing and CLT studies and to identify potential areas for further study. The framework would also further our understanding of risk communication.

The research method is described in the next section, followed by the details of the conceptual framework. To illustrate the relevance of this review as a descriptive framework, I then use the framework to discuss the findings of a study on visual flood risk communication. The article concludes with implications for information providers and framing researchers.

2. Research method

For an overview of the state-of-the-art research in framing, I first conducted a literature search on Google Scholar (www.scholar.google.com) with the search terms: framing; framing effects; review. Risk communication was subsequently added as a search term to refine the search. A few literature reviews were selected for further study based on the impact factor (e.g.
Levin et al. (1998), Chong and Druckman (2007)). Most research studies were found to focus on the construction of a frame. The gap regarding the interaction between a frame and its recipient is addressed through a search specifically on framing and construal level theory. The search returned articles that are relatively more recent (post-2000s) and relevant studies were selected based on corroboration with other studies, so that a coherent framework can be developed when the findings of the studies are integrated.

The relevance of the developed framework to risk communication is illustrated with findings of a concurrent study on the public perception of flood risks (Yam, 2015). The study was carried out in the Houston/Galveston Bay, Texas in 2015. This example is used because the study is a direct investigation of public perception as expressed through images, thus involving all components of the developed framework. The study uses the Q method, which is a structured approach for measuring subjectivity in a statistically interpretable way. Q method is typically conducted with verbal statements, but this study uses 24 colour images for the sorting exercises (printed on 60mm x 95mm plastic-laminated cards), as has been done in a few previous studies (e.g. Sleenhoff et al. (2014); O’Neill and Nicholson-Cole (2009)). The Q method results are substantiated with the respondents’ comments made during and after the sorting exercises. Further methodological details are available in Yam (2015).

3. Developing a framework for risk communication

The relations between CLT and framing are discussed in this section, as may be applied in risk communication. Figure 1 shows the resulting conceptual framework. In brief, congruence between a frame and a recipient’s perception of a risk event explains the strength of the framing effects. That is, people typically respond preferentially to messages that match their expectations. This assertion is in line with the conclusion of the meta-study on framing by Freling et al. (2014). This framework builds on that study by adding nuance to the construction of a frame, which comprises of both the message and the visual/verbal representation, and elaborates on how CLT contributes to the understanding of framing effects. Each part of the framework is elaborated in the rest of the section.

![Figure 1. Conceptual framework relating perception, frame and response](image-url)
3.1 Formation of perception

Perception, in line with CLT, is based on the construal level of an event or object, which is affected by the individual’s psychological distance to that event or object (Trope and Liberman, 2010). Construal level refers to the internally perceived representation of an event or object by an individual. Low construal levels are concrete, contextualised representations. In contrast, high construal levels are de-contextualised or abstract representations. Psychological distance refers to an individual's perceived personal relation to the event or object in question. The concept of psychological distance can be seen as egocentric – the individual at the current point in time and space is taken as the reference point. Eight dimensions of psychological distance have been proposed: temporal, spatial, affective, experiential, informational, social, hypothetical, and perspective, of which temporal and spatial dimensions are more widely studied (Fiedler, 2007; Trope et al., 2007).

Psychological distances (as a whole and along each dimension of distance) are broadly categorised as high or low, as no justified means for more specific measurement has yet been found in the literature. However, psychological distances are recognised to lie on a spectrum and this simplification should be taken as a limitation of the current framework.

According to CLT, high psychological distance contributes to a high construal of an event, and conversely, low psychological distance contributes to a low construal of an event (Trope et al., 2007). Additionally, as psychological distance increases, mental representations emphasize features that are central to the event or object, and deal less with features that are secondary or incidental (Rim et al., 2013). This association holds as long as a higher distance is associated along any of the eight dimensions, because a decontextualized construal level is better able to capture and remain invariant to any incidental changes that occur to the object (Amit et al., 2008). In other words, more contextualised and concrete features are more likely to change, thus maintaining as high a construal of the event or object as possible increases stability of an individual’s perception.

3.2 Relation between risk perception and frame

A frame in communication refers to a particular definition and interpretation of an issue. I distinguish a frame into the idea of the message itself and the representation. The message refers to the idea or emphasis in the information communicated, while the representation refers to the presentation of the message, whether verbal (through words) or visual (through images). The relation between construal levels and these two components of a frame have been studied separately in other research studies.

3.2.1 Relation between construal and message

Strength of framing effects increases with congruence between the message and the individual’s construal (Freling et al., 2014). Different aspects of an event or object are associated with higher and lower construal representations, and so emphasizing particular aspects can increase congruence with the individual’s level of construal. The relation between construal and different ways of framing a message is summarised in Table 1.
Table 1. Overview of the relation between construal and message

<table>
<thead>
<tr>
<th>Frame type</th>
<th>High construal of event/object</th>
<th>Low construal of event/object</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attribute</strong></td>
<td>Primary features</td>
<td>Secondary features</td>
</tr>
<tr>
<td></td>
<td>Abstract features</td>
<td>Concrete features</td>
</tr>
<tr>
<td></td>
<td>Pros</td>
<td>Cons</td>
</tr>
<tr>
<td><strong>Risky choice</strong></td>
<td>Risk-averting (to increase risk perception in audience)</td>
<td>Risk-taking (to increase risk perception in audience)</td>
</tr>
<tr>
<td><strong>Goal</strong></td>
<td>Desirability/Why/Cause</td>
<td>Feasibility/How/Effect</td>
</tr>
<tr>
<td></td>
<td>Idealistic, value-oriented goals</td>
<td>Pragmatic, instrumental concerns</td>
</tr>
</tbody>
</table>

Relation between construal and attribute framing

As described, high construal levels are abstract mental representations that less variant than lower construal levels. This implies that primary, central features of an event or object are associated with a higher construal, while secondary and more specific features are associated with a lower construal. When understood from the perspective of framing, this assertion suggests that greater congruence between message and construal is achieved when primary/secondary features are emphasised for events and objects perceived at a high/low construal respectively (Trope et al., 2007).

Additionally, most events and objects have both concrete and abstract features. Similar to primary and secondary features, concrete features are more specific and subject to change, while abstract features are likely to be more invariant. Thus stronger framing effects are expected with emphasis on concrete features of an event or object at a low construal level, and abstract features for high construal level (Arvai and Rivers, 2013).

A similar line of reasoning holds for the framing of pros and cons. Cons are taken to be subordinate to pros during decision-making processes (Trope et al., 2007). This relation between pros and cons arises because when evaluating options, the consideration of pros or benefits is not dependent on the existence of cons. Conversely, consideration of cons is valid or reasonable only when the option has some pros. In other words, if an option only has cons, it is assumed that the option does not need to be considered. Thus, pros are associated with a higher construal level, and cons with a lower construal level. Notably, empirical study of this relation has only been found for construal determined by temporal distance (Herzog et al., 2007; Liberman et al., 2004).

Relation between construal and risky choice framing

The framing of a risky choice is stronger if the frame matches and extends the individual's perceived level of risk. If an individual has a low construal of a risky event, the individual has a higher perceived risk. Thus the effects of framing are proposed to be stronger when a negative, or risk-taking frame is used to make the perceived risk seem even more threatening (Chandran and Menon, 2004). Conversely, if an individual has a high construal of the same risk event, the risks are perceived as more distant. The individual is then likely to prefer a reference to 'success' or positive aspects, since such a frame emphasizes how distal or unlikely the risk is. Thus, positive framing where risks are averted are expected to be more effective for high construal risk events (Chandran and Menon, 2004).
Finally, high construal levels are more congruent with goal-oriented frames, or why something happened. In contrast, low construal levels are congruent with means-oriented frames, or how something happened. Similar to the relation between pros and cons, causes are central to the meaning of an event, while effects can only follow the occurrence of a cause. This places causes at a higher level of representation, and effects relatively lower. Greater psychological distance and higher construal are found to trigger greater focus on causes than on effects (Rim et al., 2013). Thus desirability or goal-oriented framing is preferred over feasibility and means-oriented framing as construal level increases (Todorov et al., 2007).

Similar relations explain the association of idealistic values with higher construal levels and pragmatic instrumental concerns with lower, as found with respect to temporal and spatial distances (Fujita et al., 2008).

3.2.2 Relation between construal and representation

Construal levels do not only affect a person’s response to a message, but to the representation used too. Representation could be verbal (words) or visual (images). The relation between representation and construal level extends from research on the relation between representation and psychological distance (Amit et al., 2009; Amit et al., 2013).

Words are generally associated with high construal levels and images with low construal levels as different processing mechanisms are used for each type of representation (Rim et al., 2014). A word is interpreted as a category that encompasses a range of ideas, while images portray a specific instance or narrower category. Representing risks in words thus generates more abstract, decontextualized thinking, akin to a high-level construal, while a visual representation results in a relatively contextualised, concrete construal (Rim et al., 2014).

This is further supported by the natural preference that people are found to have toward the use of images for lower construal events and objects, and words for higher construal (Rim et al., 2014). The psychological distance-representation association is automatic in terms of cognitive processing and people respond optimally to images depicting concrete features and to words describing abstract ideas (Amit et al., 2008). Congruence between construal and representation thus encourages intuitive cognitive processing.

In terms of framing, stronger effects are experienced when the level of representation matches the construal level of the event or object. In general, images are more effective in conveying messages appealing to a lower construal (Amit et al., 2008). Such messages are also typically negative, and deal with how something happens, as the more abstract ideas of why an event occurred and its benefits are typically more difficult to capture in an image. This association should be further qualified, as both representations can vary in level of abstraction. An image can be designed to be more abstract than a verbal descriptor, and vice versa. Thus it is still possible to elicit responses associated with high construal levels through images, and vice versa with words (Rim et al., 2014).

3.3 Direction of influence between perception and frame

As indicated in Figure 1, all relations are bi-directional. Dillard et al. (2007) propose that perception serves as a causal antecedent to the actual impact of a message, based on controlled
empirical studies. This conclusion suggests that incongruence between the frame and perception, for example, is more likely to reduce the strength of the framing effect rather than to affect the perception, thus implying a uni-directional relation between perception, frame and response. However, the authors also acknowledge that further, longitudinal studies are needed to improve the strength of their conclusion.

Indeed, perceiving greater psychological distance indicates a higher construal of an event or object, but deliberately influencing the construal level externally can affect individuals' psychological distance too, e.g. by encouraging interpretation on varying time scales. This bi-directional relationship was observed by Liberman et al. (2007) and McCrea et al. (2008) on the impact on and of temporal distance. Furthermore, the dimensions of psychological distance are interrelated (Stephan et al., 2011), such that changing the communicated psychological distance on one dimension may influence the perceived psychological distance on another dimension. This bi-directionality limits the prescriptive use of the framework in composing a frame, but does not necessarily reduce the descriptive aspect of explaining the interaction between a frame and a recipient.

4. Implications for risk communication: Example of flood risks

In this section, the conceptual framework is used to make sense of an empirical case study where Q method was used to identify the public’s perceptions of flood risks. To reiterate, this example illustrates how the conceptual framework can guide our understanding of flood risk communication, and should not be interpreted as a controlled test for framing flood risks. The main result of the Q method study is briefly introduced, followed by a discussion of the framework’s implications for the interpretation of the Q method study.

Analysis of the Q sorts surfaced three distinct ways of expressing the salience of flood risks (also called factors in Q terminology). Although each factor is composed of different characterising images that portray different aspects of flood risks, a common trend is the dominant depiction of the negative impact of floods across all factors. These images tend to be more concrete and affective than the other images also available in the Q sample. The results of the study are described in greater detail in Yam (2015).

Before discussing the Q method results, a comment is to be made about the use of images in this study. Images are found to be better at concretising messages than conveying abstract messages. Hence, respondents are expected to prefer images depicting concrete, relatable messages (e.g. image of a house under water) over images depicting abstract ideas (e.g. graph of water levels under different modelling simulations). The Q method results match this expectation.

The conceptual framework also accommodates the possibility of having differing responses to the same frame, since the reference point for interpretation of a frame is the individual's perception, which can vary in a group. Thus, the identification of multiple factors in the Q method study is possible and to be expected. The derivation of each factor may also be explored in greater depth through the different dimensions of psychological distances to flood risks. This would provide a richer understanding of why the respondents perceive flood risks as such.
Next, the Q method results provide insights to how flood risks are construed by the respondents in the study. Since the results reflect the preferences of the respondents, the characterising images found are expected to be congruent with the respondents’ perception of flood risks. The found preference for the depiction of concrete features and consequences of flood risks, such as property damage and traffic congestion during evacuations, suggests that the respondents perceive flood risks at a lower, more personal construal level. These images increase the perceived personal relatability of flood risks.

This interpretation of the Q method results has subsequent implications on the potential framing of flood risks. Through the framework, I proposed that congruence between frame and perception results in stronger framing effects. Returning to Table 1, given the expectation of flood risks as a low construal event, I would expect stronger framing effects when the secondary, concrete features and the cons of flood risks are emphasised. When presenting risky choices for flood risk-related actions, risk-taking emphasis is expected to be more congruent with the public’s flood perception than risk-averting options. Lastly, addressing pragmatic, instrumental concerns and feasibility is expected to have stronger framing effects than idealistic appeals. Therefore, an implication is that affective images that highlight such characteristics of flood risks are better at communicating the salience of flood risks. Individuals are likely to find such images to be on a level congruent to their construal of flood risks, and so, easier to understand. The empirical findings thus largely corroborate with the theoretical expectations.

However, it is uncertain whether participating in the Q survey primed respondents to respond to the images in a certain way, such that the results are not a true reflection of their perceptions. This affects the relevance of the framework’s contribution to the analysis. To return to the direction of relation between frame, perception and response, framing may also influence perceptions. Therefore, the conceptual framework provides a means of discussing the framing of flood risks but not the eventual design and choice of framing.

5. Conclusions and future research

In this article, I developed a conceptual framework to describe the interaction between a frame and its recipient. CLT is introduced as an integrative theory that mediates the effects of framing, relative to each individual. The framework brings together different research studies and shows how each contributes to the understanding of framing, and has yet to be explicitly applied in risk communication. Improvements to risk communication may be further studied based on the proposed framework. The example of the Q method study in flood risk communication shows that the framework can be an interesting tool for describing and analysing risk communication in a scenario with respect to the frame recipients.

The topic of framing is especially relevant to the growing prominence of risk communication. An implication of this literature review is that information providers can pay greater attention to the risk perception of their target audience when framing an issue, so as to produce more meaningful and effective communication. The deliberate use of verbal versus visual representations is highlighted in particular.

Notably, the framework proposed in this article is a simplified view of communication. Other factors that are not accounted for in CLT may affect the outcomes of framing and communication. These include contextual factors such as cultural and political environments.
Trust in the information provider, for example, is an oft-cited as factor for communication effectiveness (Kellens et al., 2013). Other characteristics, e.g. frequency and use of on/offline media, are likely to influence how people respond to frames too.

Furthermore, the validity of the framework depends on the validity of the previous research it is based on. A natural limitation of psychology studies is that the studies are conducted in a controlled environment, and it is uncertain that the conclusions of earlier research are universally applicable. Causal relationships are also indeterminate, as reflected in the bi-directionality of the relations in the framework. The framework remains an exploratory integration of current research, and could be used in future framing research. Improvements to the framework can be made with more concrete determinants of a construal or an approach to determining a construal. Further research includes the testing the validity of the framework by using different images for framing an issue in a controlled setting for risk communication.

References


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