The structure of attributional style: Cognitive styles and optimism–pessimism bias in the Attributional Style Questionnaire

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ABSTRACT

Explanatory style models of optimism focus on three aspects of attributions for the causes of positive and negative events: stability, pervasiveness, and internal–external control. These three aspects are predicted to cluster within each valence forming explanatory-style factors and these in turn are predicted to correlate negatively, in line with attributional accounts of depression. Here we report the first test of this full structure controlling for response non-independence. Discovery and replication samples of Chinese subjects completed the Attributional Style Questionnaire (ASQ). Negative event attributions fitted a three-dimensional structure as did positive events. Joint modeling of positive and negative events revealed that attributional biases to positive and negative events were uncorrelated. Moreover, three valence-independent cognitive styles (global–local, stable–unstable, and internal–external) explained much of the variance in responding. The ASQ should be interpreted within this framework.

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1. Introduction

Attributional style refers to the explanations people provide for the causes of positive and negative events in terms of their stability, globality, and internality (Peterson et al., 1982). As these explanations are predicted to influence behavior and mood – in particular depression – they are of clinical as well as theoretical importance (Buchanan & Seligman, 1995; Peterson & Steen, 2009). The present study set out to accomplish two main goals. First we wished to examine the structure of the Attributional Style Questionnaire (Peterson et al., 1982) using structural equation modeling of attributions for positive and negative events simultaneously. Second, we wished to test the role of cognitive style (such as global versus local explanations) that might play a role over and above explanatory bias. For instance, attributions of instability may apply to both positive and negative events. The literature motivating these aims is reviewed below.

The ASQ was developed to assess the habitual explanation of life events in terms of the stability, globality, and internality of the causes of positive and negative events (Seligman, 1991, 2011), This self-report questionnaire includes six positive events (e.g., "You do a project that is highly appraised") and six negative events (e.g., "You have been looking for a job unsuccessfully for some

time"). Respondents generate an explanation for each event and then rate this explanation along dimensions of internal–external, stable–unstable, and global–specific. These dimensions are defined respectively as "factors within the person or within the environment", "the degree of temporal consistency of the cause" (Heider, 1958), and "the extent to which the cause is perceived to recur in other situations" (Abramson, Seligman, & Teasdale, 1978).

The ASQ assigns subjects an optimistic or a pessimistic explanatory style. An optimistic explanatory style consists of explaining positive events as enduring, global and internally generated, while also explaining negative events as unstable, specific, and externally caused (Forgeard & Seligman, 2012). Optimistic explanatory style scores have been linked to protection from depression (Peterson & Seligman, 1984) and physical illness (Model, 2006) as well as higher academic achievement, subjective and physical well-being, and career achievement (Forgeard & Seligman, 2012).

If we are to understand the mechanism by which these clinical and life outcomes are influenced by explanatory style, it is important that we understand the structure of the ASQ, decomposing the complex admixture of attributions, valences and events. These components may have effects that are not apparent in a simple summing up of positive and negative scores.

Within attributional models of depression, the attributions are seen to cause heavy distinct behavioral consequences. For instance, low self-esteem is predicted to flow from internal attributions regarding negative events, while chronic depression is suggested to result from stable attributions for negative events (Peterson

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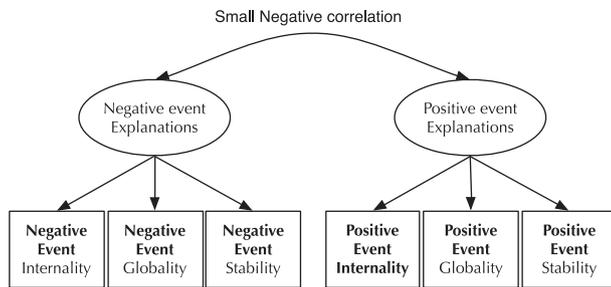
Fig. 1. Proposed model of attributional style based on learned helplessness theory of responses to experience of negative events.

Fig. 2. Proposed model of attributions in terms of valence-independent cognitive styles, rather than valenced biases.

et al., 1982). In this learned helplessness model, depression emerges as a consequence of experience with uncontrollable negative events (Abramson et al., 1978). Concept of attributional style however also predicts that the three types of explanation are correlated each other within at least within each valence. This is shown graphically in Fig. 1.

Research based on this model has resolved in findings that are somewhat counterintuitive. The earliest data on this question was collected by Peterson et al. (1982). They reported that attributions for positive events and attributions for negative events were essentially uncorrelated ($r = .02$). This lack of correlation between explanatory styles for positive and negative events has been found in other work. For instance, Corr and Gray (1996) investigated the factor structure of the ASQ in two independent samples using Varimax rotated principal components analysis. They found that positive and negative explanatory styles were independent. In addition, whereas for negative events, internality ratings were largely independent of stability and globality ratings, for positive events these three dimensions formed a single factor, suggesting that explanations for positive and negative events might have different structures.

Subsequent studies have used larger samples, and incorporated confirmatory structural equation modeling (SEM), allowing a better understanding of the structure of attributions by contrasting competing theoretical models. For instance, Higgins, Zumbo, and Hay (1999) reported a confirmatory factor analysis of the ASQ identifying three-correlated factors in over 1000 subjects. This model fitted well (RMSEA = .02) for negative event attributions and for positive events as well (RMSEA = .02). Consistent with several other previous studies, the stability and globality factors correlated strongly ($r = .61$ for negative events, $r = .67$ for positive events), with internality-externality being more independent of the globality ($r = .35$ for negative events, $r = .28$ for positive events). Though different patterns appeared for negative and positive events regarding the correlation between internality and stability factors ($r = .20$ and $r = .55$ respectively).

The next major advance in modeling attributional style was the realization that, because subjects are generating multiple responses to each event, analyses must incorporate multi-method analytic strategies. This is an important innovation, as misleading results can arise in analyses of data generated from multiple correlated responses based on each item (as is true in the ASQ where all three attributions are samples for each event).

Using a multi-trait multi-method (MTMM) model, Hewitt, Foxcroft, and MacDonald (2004) found that the three-factor structure of attributional style still provided a good account of responses to negative events in terms of correlated latent factors of internality–externality, stability–instability, and globality–locality. Contrasting, however, with previous studies, and reflecting the importance of correct modeling of the multiple assessments of each event, this model indicated higher correlations between internality and the other two factors ($r = .52$ for internality and stability and .45
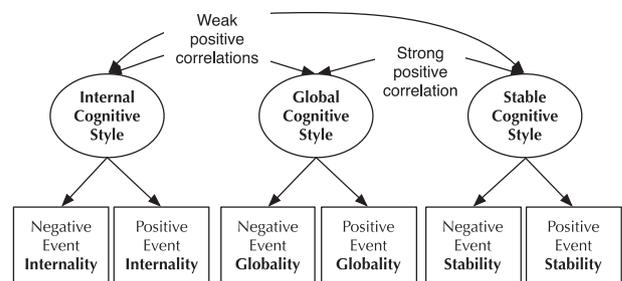
between internality and globality). Here only negative event attributions were tested in this study.

The possibility of modeling both positive and negative event attributions jointly raises the possibility of addressing two questions. First, such data can establish whether attributions regarding the causes of positive events and negative events are negatively correlated i.e., do individuals giving optimistic explanations for positive events tend to give optimistic explanations for negative events?

Secondly, a very different model of the ASQ and of attributions can be posed and tested. Rather than clustering around event valences to create an attributional style in which good and bad events are attributed to different types of causes, instead, subjects may have cognitive styles which apply independent of event valence, and these style factors may account for a preponderance of variance in the ASQ. This is shown graphically in Fig. 2.

As shown in Fig. 2, a cognitive style model predicts that the tendency to apply global–local, internal–external and stable–unstable explanations to events may be independent of event valence: The same person who tends to ascribe, say, an internal cause to negative events may apply a similar internal explanation to positive events in their lives. It is, therefore, important to distinguish between a cognitive style model, which would apply to events independent of valence, versus affect-linked attributional style models.

To summarize the findings to date, it is clear that adequate analyses of the structure of the ASQ require use of structural equation modeling and, in particular, of multi-trait multi-method modeling to account for the repeated entry of events into explanations (Campbell & Fiske, 1959; Hewitt et al., 2004). For negative events, research confirms a three-correlated factor structure. However no study in which both positive and negative events examined jointly have been conducted within models controlling for correlated event structure. This leaves the structure of the full ASQ unclear. In addition, a majority of studies to date have been conducted in Western samples, and it is not known whether the structure of explanatory style is invariant across culture.

After having examined relevant findings in current literature, we next outline in detail the two major research questions explored in the present study.

2. Research questions

Our first analyses sought to replicate the three correlated factor structure for negative events reported by Hewitt et al. (2004) using the MTMM model and the similar factor structures for positive events revealed by Higgins et al. (1999). These analyses can confirm (or disconfirm) that correlated factors of globality, stability, and internality emerge for both kinds of event. However, analyses of the different event valences in separate models miss the opportunity to test competing models incorporating attributions for the