



BIROn - Birkbeck Institutional Research Online

Dewe, Philip and Trenberth, Linda (2012) Exploring the relationship between appraisals of stressful encounters and the associated emotions in a work setting. *Work & Stress: An International Journal of Work, Health & Organisations* 26 (2), pp. 161-174. ISSN 0267-8373.

Downloaded from: <https://eprints.bbk.ac.uk/id/eprint/5879/>

Usage Guidelines:

Please refer to usage guidelines at <https://eprints.bbk.ac.uk/policies.html>
contact lib-eprints@bbk.ac.uk.

or alternatively

Exploring the relationship between appraisals and emotions in a work setting

Philip Dewe
Department of Organizational Psychology
Birkbeck, University of London
Malet Street
London WC1E 7HX
England

Email: p.dewe@bbk.ac.uk
Phone + 44 (0) 20 7631 6749

Linda Trenberth
Department of Management
Birkbeck, University of London
Malet Street
London WC1E 7HX
England

Email: l.trenberth@bbk.ac.uk
Phone +44 (0) 20 7631 6778

Abstract

Exploring work stress using a transactional perspective requires researchers to consider not just the role of appraisal but its relationship with emotions. This research sets out to explore the appraisal-emotion relationship in a work setting. Using data from 174 civic administrators from New Zealand, sequential tree analysis was used to create the pattern of appraisals associated with each of three emotions: anger, anxiety and frustration. The results suggest that if we are to advance our understanding of the appraisal-emotion relationship then future research needs to explore what common characteristics bind together and helps shape appraisal patterns, whether some appraisals are more complex than others and whether some appraisals are more potent than others. The results also raise the question of how best such relationships should be investigated. Future research may wish to consider the utility of more ecologically sensitive measures.

The transactional approach of Lazarus (2001) and the significance given within that approach to the role of appraisal in particular, has received a less than complete treatment when it comes to work stress research (Jones & Bright, 2001). Appraisals are a form of personal meanings that determine the significance of an encounter for well-being. With some notable exceptions (Fugate, Kinicki & Prussia, 2008; Fugate, Kinicki & Scheck, 2002; Scheck & Kinicki, 2000), failing to develop our understanding of the role of appraisal in work stress research fails to explore one of the most potentially powerful explanatory constructs (Dewe & Cooper, 2007; Somerfield & McCrae, 2000) and ‘pays only lip service’ (Lazarus, 1991, p. 2) to a construct that expresses the fundamental nature of work stress. In addition, the growth in importance of the affective revolution in the workplace (Barsade, Brief & Spataro, 2003) draws attention to the need to explore and better understand the role of emotions in organizational life. This development highlights the underappreciated role that appraisals play in the expression of workplace emotions, reinforcing the need to understand the inextricable link between the two and how exploring this relationship ‘provides a powerful analytic tool’ (Lazarus & Cohen-Charash, 2001, p. 75) for understanding workplace stress. Building on these developments, this research sets out to explore the relationship between appraisals and emotions in a work setting.

Trends in work stress research suggest a growing consensus that if we are to better understand the nature of a stressful encounter, then empirical investigations would be well placed to focus on appraisals as the level of analysis. This level of analysis becomes even more important if, as argued, the emotional nature of an encounter is based on the process of appraisal. In order to explore the appraisal-

emotion relationship, this research addresses two questions: (a) what pattern of appraisals organize in relation to a particular emotion? and (b) can the patterns of appraisals when considered together be said to reflect some sort of core or central meaning on which the emotion rests?

The added value of exploring appraisals

The role and importance of appraisal and the value it adds to our understanding of the work stress process is clear. The manner in which individuals appraise and give meaning to a stressful encounter is the trigger that initiates an emotional response. Stress always implies emotion (Lazarus & Cohen-Charash, 2001), with appraisal and emotions offering researchers a more direct ‘theoretically rich and important’ (Park & Folkman, 1997, p. 132) causal pathway. To ignore this pathway is to disregard the idea that it is appraisals that act as the bridge to how one feels in a particular encounter (Lazarus, 2001). To ignore the explanatory potential of appraisals could be to ignore the mechanism that for work stress researchers could well become the organizing concept for the future around which our understanding of the stress process is advanced. As Daniels, Harris and Briner (2004) argue, the contemporary workplace is now ‘more than ever’ based on the interpreting of information and although ‘understanding how individuals interpret and consequently enact their work environment has always been important, it is arguably more important now’ (p. 343-344).

Work exploring the concept of appraisal as distinct from measuring the presence of work stressors and its role in the stress process has already been taken up by researchers (Dewe, 1993; Dewe & Ng, 1999; Lowe & Bennett, 2003). What this work illustrates is that individuals can and do distinguish between the objective characteristics of work stressors and the significance of those characteristics in terms

of the meanings associated with them. These works reflect the dictum that it is ‘not simply *important* to examine the individual appraisals when studying organizational stress, it is *essential* in order to understand the stress process’ (Perrewe & Zellars, 1999, p. 749).

The emerging emphasis on emotions

Understanding the role of appraisals in work stress becomes even more crucial as attention is drawn to the need to explore and understand emotions in organizational life. Work stress research is now experiencing what has been described as ‘the beginnings of an affective revolution’ in the workplace (Barsade et al., 2003, p. 316). Work stress researchers should therefore give more attention to the view ‘that the discrete emotions experienced at work constitute the coin of the realm in our understanding of the struggle of employees to adapt to organizational life’ (Lazarus & Cohen-Charash, 2002, p. 45). Given that models of stress are essentially theories about emotional reactions (Lazarus, 1993), these ‘early stirrings’ and this ‘dramatic shift in momentum’ point researchers to the role of discrete emotions at work (Barsade et al., 2003, p. 33).

As attention shifts from the bluntness of the term stress to the more focused nature of discrete emotions, attention also needs to shift to the appraisals individuals construct around any stressful encounter, acknowledging the essential role appraisals play in the emotional process (Lazarus, 1999; 2001). The importance of considering appraisals rests on the view that particular types of appraisals may produce particular emotions. The question what types of appraisals underlie different emotions deserves explicit empirical attention. In this way an emotion is not simply a particular kind of feeling, but ‘a particular kind of feeling for a particular kind of reason’ (Clore, 1994, p. 185). As Lazarus (1994b) points out, it is the appraisal that becomes the emotion

generating process.

This paper contributes to our understanding of work stress in a number of ways. At the centre of the analysis is the concept of appraisal, the explanatory potential of which has largely been overlooked by work stress researchers. What distinguishes this research from others is that it shifts the focus from more generic based measures of appraisal (e.g. threat, harm, loss challenge), to a measure of appraisal that is more substance-based (Kaid & Wadsworth, 1989). It adopts an eclectic approach (cf. Scherer, 1999) designed to identify as many appraisal components as considered useful to capture the reality of the work situation, offering a richness of content missing from traditional generic approaches and allowing for more complex configurations of appraisal components to emerge, thus providing a more detailed understanding of the appraisal-emotion relationship. Building on the call to develop in work stress research a better understanding of the role of discrete emotions, this paper measures three emotions (anger, anxiety and frustration) that play a central role in organizational well-being and that are often fuelled by organizational practices and procedures.

To capture the appraisal-emotion relationship this paper uses sequential tree analysis, a statistical technique that through a system of hierarchical ordering presents appraisal patterns associated with each emotion. Through its patterned display this type of analysis operates as an aid that informs our understanding of what patterns of appraisals organize around a given emotion. The advantage of working at the level of individual appraisals components and, by having data hierarchically ordered, provides the opportunity to use the analysis informatively to explore ‘the theoretical logic of appraisals’ (Lazarus, 1991). Because of its focus on work and through the nature of the analysis this paper identifies a number of issues that can be drawn from the

results, which allows for a more structured basis for taking forward the role of appraisals in work settings.

METHOD

Population

The population was drawn from individuals working in civic administration in a large provincial city in New Zealand. The organization was responsible for the managing of the city and city services, the planning of city growth and development and the maintenance of city services including housing, transport, parks and recreation, community welfare, electricity and gas. Employees worked mainly in clerical, administrative and managerial positions. Job functions reflected the civic responsibilities of the organization including corporate and community services, city and regional planning and development, municipal services and human resource management. Questionnaires were distributed by the organization to all staff members. The questionnaire explained that researchers were concerned about the effects of stress at work, particularly during times of managed change. The aims of the project were described in terms of identifying how people are affected by what goes on at work, how they cope and how they were left feeling. Those wishing to participate were asked to complete the questionnaire and return it by post to the researcher in the envelope provided.

The 174 who returned questionnaires represented 39% of the sample. The survey was distributed just after the organization had initiated a major restructuring programme. The aim of this restructuring was to make the administration more client-focused in order to improve and make more effective the services they provided. As this was undoubtedly a stressful time, the moderate response rate may well reflect the fact that individual energies may have been more directed towards the issues

surrounding the restructuring than completing the questionnaire. The conditions surrounding the distribution of the questionnaire meant that it was not possible to determine the level of any response bias or whether the change programme had differential consequences for different job functions. However, it is interesting to note that 66% of respondents came from corporate services, community services or planning and development. Of the respondents, 97 (56.7%) were male and the average age of the sample was 37.4 years. Almost all (93.6%) worked full time, had been in their present jobs for an average of 2.96 years and had worked for the organization for an average of 6.22 years.

Measures

Smith and Lazarus (1993) present complementary ways of conceptualising and assessing the appraisals underlying different emotions. The first they refer to as the *molecular* level of analysis. This molecular level describes individual appraisal components and the patterns they form in order to generate an emotion. At this *molecular* level appraisal theory provides a set of questions about appraisals. In relation to a particular emotion these questions would include the type of appraisals involved, how many and whether some appraisals are more potent than others (Roseman & Smith, 2001; Scherer, 2001).

In addition to this level, Smith and Lazarus (1993) suggest a second, *molar* level of analysis that addresses the question of whether particular patterns of appraisal, when taken as a whole, reflect some holistic coherence or core relational meaning or theme that transcends individual component meanings. Lazarus uses the term 'core relational meaning' to describe what unifies the separate appraisal components into a 'single, terse, holistic meaning that can instantly be grasped' (2001, p. 57). Core relational meanings are built around the idea of what it is a person

must think to feel a given emotion and in this way raise the question of whether different emotions have their own core relational themes. These complementary ways of thinking about appraisals will be used here as a framework for exploring the two research questions.

Appraisal. A 23-item appraisal measure, designed specifically for a work setting, was used to assess the meanings individuals gave to a stressful encounter. This measure and its development are described in Dewe (1993). The appraisal items included for example: ‘you feeling you would lose the respect of someone important to you; you feeling you would not achieve an important goal; you appearing in the wrong; you feeling that you had lost your credibility; you being made to take the blame; you failing to meet the expectations of others.’ The development of this measure followed an eclectic approach, the aim of which was to identify as many appraisal items as considered useful to help differentiate between emotions. Respondents were first asked to think about an event or situation at work that had been the most stressful for them during the last month. They were then asked to write and describe that event. The instructions then asked participants to take the situation they had described, focus on it and then, using the appraisal measure, indicate what they believed that situation meant to them (1 = not at all to 5 = a great deal).

Because appraisals are not just causes of emotions but may be components of the emotions themselves (Roseman & Smith, 2001), the 23 appraisal items were reviewed by two independent researchers to identify those scale items deemed most likely to be a component of emotion. Both reviewers identified the same four items (‘you feeling embarrassed,’ ‘you feeling threatened,’ ‘you feeling uncomfortable,’ ‘you feeling a sense of urgency’). These were removed from the scale. The remaining 19 items were used to capture the richness of appraisals, to avoid artificial barriers

between items that may result from factor analysis of the scale, and to reflect the more natural way in which appraisals may be made and relate to one another.

Emotions. Three emotions were selected. Each of these tells a different story about how an encounter is experienced. They were *anger* (“irritated and annoyed”), *anxiety* (“fidgety or nervous”) and *frustration* (“frustrated with what goes on at work”). Participants were asked to think about the stressful situation they had experienced and to indicate the degree to which the experience left them feeling in terms of each of the three emotions (1 = not at all to 5 = a great deal). The items were taken from a measure developed by House and Rizzo (1972). Anger and anxiety were selected as they reflected the ‘nasty emotions’ (Lazarus, 1999, p. 216) and are ‘unequivocally relevant to organizational settings’ (Lazarus & Cohen-Charash, 2001, p. 62). Anger is described as one of the most powerful emotions, socially important and one fuelled in organizational settings by the theme of being slighted or demeaned (Lazarus, 1991).

Lazarus (1991) described anxiety as a unique emotion because of its characteristic association with ambiguity and uncertainty. It plays a central role in terms of an individual’s sense of well-being and is often regarded as ‘the key emotion’ in adaptation (Lazarus, 1991). The contrast between anger and anxiety lies in one (anger) being openly expressed with the other (anxiety) being more concealed. These contrasting characteristics of expression and concealment are often magnified by organizational practices and cultures. Frustration was in contrast to such ‘nasty emotions.’ While it shares the same organizationally relevant qualities, it is frequently associated with goal expectations (Frijda, 1994). In this sense it represents a qualitatively different type of focus and the classically evoked emotion resulting from the blocking of goal directed behaviours (Scherer, 2001).

Statistical analysis

In order to identify patterns of appraisals associated with different emotions this research used sequential tree analysis to profile appraisal items (SPSS, 1998). The technique originates in the work of Morgan and Sonquist (1963) and is frequently used in the context of data mining. It is an exploratory data analysis method that studies the relationship between a dependent variable (i.e. emotion) and a series of predictor variables (i.e. appraisal) that may themselves interact. It produces a data-partitioning tree showing how patterns formed by the predictor variables (appraisals) differentially predict the dependent variable (emotion). Sequential tree analysis presents summarized data showing ‘natural’ patterns of the predictor variables in relation to the dependent variable. The advantage offered by sequential tree analysis lies in its system of hierarchical ordering. It presents the analysis in a visual display that highlights appraisal patterns in much the same way as a map offers ‘guided paths for visiting various regions’ (Li, Lue & Chen, 2000, p. 598).

Sequential tree analysis adopts a parametric approach to divide the sample sequentially into homogenous groups (nodes). The aim of this technique is to determine whether splitting the sample based on the predictor variables leads to a statistically significant discrimination in the dependent variable. Using the *F* statistic it first identifies the best predictor (appraisal) variable of the dependent variable (emotion) to form the first branch of the tree. It then merges those scale values of the predictor variable that are homogenous into subgroups (nodes). Then, based on other significant predictor variables, each of these nodes are split into smaller nodes (subgroups). This sequential process of selecting the best predictor variable and the best grouping of scale values of that variable continues until no more significant predictors can be found. Two user-defined values determine the size of the tree and

the size of the sample in a node. In this case no further splits were made in a branch of the tree if the significance of F was $> .05$ or if the sample size of the node was < 10 .

The sequential tree format is used here as an explanatory tool. It is best thought of as a didactic device to aid and instruct our understanding of the theory of appraisal. This sequential unfolding of appraisal components and their patterns achieves a number of outcomes (Dewe & Brook, 2000). It provides a richer description of the relationship between appraisal and emotions, it offers insights into the patterns of appraisals, and it presents a visual display and a way of thinking about appraisals and emotions that adds to our understanding of their explanatory potential.

RESULTS

The results of the tree analyses are presented in Table 1 (anger), Table 2 (anxiety) and Table 3 (frustration). The initial node at the top of each table shows the summary statistics (mean and standard deviation) for the whole sample, relative to the emotion being measured. The numbers 1 to 5 above the nodes that follow represent the grouping of those scale points (1 = not at all to 5 = a great deal) into homogenous nodes. Each node represents the strength of meaning associated with the appraisal item. The figures within each node that follow the initial node represent the mean emotion score, standard deviation and number of subjects for that subgroup (node). The results are outlined below.

Turning first to Table 1 (anger), the mean anger score for the total sample was 3.11. Reading Table 1 downward and focusing first on the right hand branch of the tree, the average level of anger experienced rises to 3.74 when the situation is appraised more in terms of 'feeling a sense of injustice.' When this appraisal is made in combination with 'feeling hostility from others', the mean anger scores for that subgroup rise to 4.38. An inspection of the left hand branch of the tree suggests that

where the situation is appraised less in terms of ‘a sense of injustice’ and more in terms of either ‘not getting enough resources’ or ‘being made to look silly’, such appraisals appear less potent in the anger they produce, with mean score for those subgroups reaching only 2.96 and 2.55, respectively. Two not mutually exclusive points emerge from these results and those that follow. First is the number of appraisal components. In this case, for one group the only appraisal component involved is a ‘sense of injustice’, whereas in most instances a number of appraisal components are involved. Secondly, some appraisal components appear to be more potent than others in relation to the level of emotion. Note that these points cannot be separated from the way different appraisal components combine, thus raising the issue of whether some appraisals are more cognitively complex than others.

Table 1 about here

Table 2 presents the findings for anxiety. The mean anxiety score for the total sample was 2.20. Reading down the right hand branch of the tree, the mean anxiety score increases to 2.50 for those respondents who appraise the situation in terms of ‘being made to take the blame’. A more complex pattern of appraisals emerges when tracing the right hand branch of the tree downwards. Apparently, increases in the mean level of anxiety depend on the extent to which the situation is further appraised in terms of ‘feeling a sense of responsibility’, with mean anxiety levels (3.06) increasing only for that subgroup who feel a great sense of responsibility. For the other subgroup the results suggest that especially when these first two appraisals are combined with more of a ‘feeling you would not achieve an important goal’ that average anxiety levels increase, but this time for this subgroup the average level of anxiety is only 2.61. What emerges from these results is that it is not just the *pattern* of appraisals that must be considered but also the *potency* of each appraisal within that pattern, with some

suggestion of an ‘appraisal threshold level’ operating for different appraisals to the effect that the emotional experience seems to intensify once the threshold is reached.

Table 2 about here

Finally, Table 3 presents the findings for frustration. The mean score across the whole sample was 3.34. Turning to the right hand side of the tree, the mean level of frustration increases to 4.19 when the situation is appraised in terms of ‘not feeling you are getting enough resources.’ When this appraisal is combined with ‘being made to take the blame’ and ‘feeling hostility from others’, the average levels of frustration for these subgroups increase to 4.52 and 4.95, respectively. The left hand side of the tree presents a different picture. In this case it appears that the appraisal of ‘feeling a sense of injustice’ is responsible for increasing the feeling of frustration. This result raises again the issue of the potency of different appraisals in relation to particular emotions.

Table 3 about here

DISCUSSION

This research explored at the *molecular* level the individual appraisal components and their particular pattern in relation to three specific emotions, and whether at the *molar* level these patterns of appraisals taken as a whole reflect a core or central meaning on which these emotions rest.

Molecular Level Issues

The results suggest that our understanding of the first research question concerning the pattern of appraisals that organize in relation to a particular emotion appears to be contingent on our understanding of what it is that binds a particular pattern of appraisals together, whether some appraisals are more complex than others and whether some appraisals are more potent than others. These three issues function as an indicator of the direction for future research and each is accompanied by a more

detailed discussion of possible routes such investigations may wish to follow.

What is it that binds patterns of appraisals together?

Three issues emerge when considering what it is that binds patterns of appraisals together. These are: do different appraisal patterns share possible common characteristics do these common characteristics operate in some way in relation to one another so as to generate and shape an appraisal pattern, and do such common characteristics remain stable across different emotions. Lazarus (2001) suggests that the common characteristics shared by appraisals may reflect forms of either 'goal incongruence' or 'ego-involvement.' Inspecting the tree for anger, for example, then one way to understand these results could be to think of appraisals like 'a sense of injustice' and 'not getting enough resources' as reflecting issues of goal incongruence while 'feeling a sense of hostility from others' and 'being made to look silly' reflect types of ego-involvement involving the protection of one's self esteem. Similar interpretations could be made when inspecting the different appraisals in relation to anxiety and frustration. If this were the case and the different appraisals elements could be interpreted in this way then this could provide a framework for future research when attempting to understand why different appraisals may combine.

The second issue concerns whether these common characteristics operate in some way in relation to one another so as to generate an appraisal pattern. Using anger as an example, it could be that the link between 'a sense of injustice' and 'feeling hostility from others' stems from the fact that if the former expresses a type of goal incongruence then the 'ego involved' consequence following on from this incongruence could be a sense of 'feeling hostility from others' illustrating how an appraisal pattern begins to take shape. Again these results point to the idea that if we are to understand the complexities of what links one appraisal component to another,

then this understanding is contingent upon exploring further whether appraisals do possess some ‘higher order’ quality that acts as the mechanism that binds the different appraisal patterns together.

The third issue concerns whether common characteristics remain stable across different emotions. The results of the sequential tree analysis point to the same appraisals being associated with different emotions, For example, the appraisal ‘a sense of injustice’ is associated with both anger and frustration. Could it be that ‘a sense of injustice’ is more likely to reflect goal in congruency issues in relation to frustration, whereas it might reflect a type of ego-involvement with respect to anger? Again this idea reaffirms the complexity that seemingly accompanies appraisal patterns and as suggested above, can only be answered as we begin to identify and better understand the nature of such ‘higher order’ meanings.

Are some appraisals more complex than others?

The results also raise the question of whether some appraisal patterns are more complex than others. In this respect Lazarus (1994a) raises the question of ‘the minimal cognitive prerequisite for an emotion’ and goes on to suggest that the ‘bottom cognitive line’ that must prevail for an emotion to occur is that a goal must be at stake. A review of the appraisal patterns for each emotion identifies a branch of each tree that involves only one appraisal. Whether this represents Lazarus’s notion of a ‘minimum bottom line’ remains a moot point but presents itself as an issue for future research. However, simply considering the number of appraisals in each branch of each tree does leads to the possible conclusion that different levels of ‘cognitive complexity’ are associated with the same emotion; a conclusion that could now also form the basis for future research.

Are some appraisals more potent than others?

The third issue concerns whether some appraisal components are more potent than others. While there appears to be some general agreement (at least at the theoretical level) that appraisals may vary in their potency, there has been little formal treatment of this issue (Scherer, 2001). It appears when our results are inspected that what may be a potent appraisal in relation to one emotion may not be as potent in relation to another. As an example, ‘feeling a sense of injustice,’ seems to play a less potent role in relation to frustration than it does when anger is the emotion being measured. This finding raises further questions concerning how contextually embedded these concerns are in relation to an emotion and how best they should be measured; questions that act as signposts pointing to the direction future research may wish to take.

Two points emerged when exploring these different issues.. The first is that in order to understand patterns of appraisals analysis must now extend beyond the appraisal meanings themselves to what may be higher order meanings. The second issue leading on from this and also emerging from these findings is just how context-dependent such higher order meanings may be reinforcing the need for future research to systematically explore ‘how appraisals interact, or how appraisal information is combined, integrated, or assimilated to a pattern’ (Roseman & Smith 2001, p. 14).

Molar level issues

Molar level analysis (where the focus is on whether the patterns of appraisal reflect some sort of over arching core relational meaning) offers another type of higher level of analysis, because arriving at that meaning requires ‘a terse synthesis of the separate components into a complex, meaning-centred whole’ (Lazarus, 2001, p. 64). *Molar* level of analysis provides additional information to any molecular analysis in ‘much the same way a sentence captures a complex idea that goes beyond the meanings of its

individual words' (Smith & Lazarus, 1993, p. 237). So, the issue here is whether when appraisal patterns are considered as a whole does some sense of a core relational meaning emerge. We explore this issue in relation to each of the three emotions.

Turning first to anger, Lazarus suggests that the core relational meaning commonly associated with this emotion is one of 'a demeaning offence against me and mine' (Lazarus, 1991, p. 122). If anger is 'a consequence of the desire to preserve or enhance self and social esteem' (Lazarus, 1999, p. 92), then an inspection of the appraisals in Table 1 when taken as a whole could be interpreted in terms of prompting a need to preserve self or social esteem, hence their association with anger. Similarly, if the core relational meaning associated with anxiety focuses on 'facing an uncertain, existential threat' (Lazarus, 1999, p. 96), then an inspection of the results in Table 2 may well represent some sort of uncertainty that has implications for one's identity accounting for their association with feelings of anxiety. Frustration is also associated with a core relational meaning that embodies some sort of threat to one's being in the world and the results in Table 3 could be interpreted as reflecting aspects of disappointment, hindrance and failure directed not just at oneself but at others, in this way producing a sense of frustration. Nevertheless, this approach still begs the question of what are the underlying higher order meanings that flow from the pattern of appraisals and whether and how they reflect some sort of coherent whole that in relation to a particular emotion reflects some form of core meaning.. Any attempt at explanation cannot ignore the fact that some appraisals are common across all three emotions, raising further questions about the nature of core meanings and the role of appraisals and the emotional context in defining them.

Summary

The findings from this research point to three issues that help to instruct our

understanding of the appraisal-emotion relationship. Each acts as an indicator of the direction future research may wish to take. The first requires researchers to consider the question of measurement.. Coyne and Gottlieb (1996) suggest that stress research should explore the use of what they describe as more ‘ecologically sensitive’ measures. Sequential tree analysis coupled with a more eclectic measure of appraisal components provided the opportunity to search for and systematically explore patterns of appraisals in relation to three emotions. Using the analysis as a didactic device to aid and instruct our understanding, it was possible from the hierarchical ordering of the appraisals and the patterns that emerged to identify a number of questions that raise issues about the nature and structure of the patterns, their relationship to the different emotion and possible directions for future research.

The second points researchers to the need in future research to distinguish between the objective characteristics of work stressors and the significance of those characteristics in terms of the way in which they are appraised. It is clear that greater recognition now be given by work stress researchers to the idea that appraisals represent a ‘valuable tool’ in providing a ‘critical and more detailed knowledge’ (Fugate, Kinicki & Prussia, 2008, p. 32) of the stress process. The third issue for researchers is to recognise that to understand the role of appraisals in the stress process it is necessary to work at different levels of meaning. The first level concerns the way events are appraised in terms of the meanings they assume as these are intimately linked and fundamental to the ‘emotional quality’ of an event (Lazarus, 2001) and an important area of research in itself. However, this level of understanding is different from and not necessarily sufficient to understand why different appraisals combine, the patterns they form and what binds them together. To understand the nature and structure of those patterns requires searching for higher order levels of

meaning. Future research now needs to go that step further and consider not just the appraised meanings but also their higher order meanings. Meanings that help not just to explain why different appraisal components combine and the patterns they form but also those that express the core relational meaning on which an emotion rests.

REFERENCES

- Barsade, S. G., Brief, A. P., & Spataro, S.E. (2003). The affective revolution in organizational behavior: The emergence of a paradigm. In J. Greenberg (Ed.), *Organizational behavior: The state of science* (pp. 3-52). Mahwah, NJ: Lawrence Erlbaum Associates.
- Brief, A. P., & George, J. M. (1991). Psychological issues and the workplace: A brief comment on Lazarus's outlook. In P. L. Perrewe (Ed.), *Handbook on job stress. Journal of Social Behavior and Personality*, 6, 15-20.
- Cooper, C., Dewe, P., & O'Driscoll, M. (2001). *Organizational Stress: A review and critique of theory, research, and applications*. Thousand Oaks: Sage.
- Daniels, K., Harris, C., & Briner, R. (2004). Linking work conditions to unpleasant affect: Cognition, categorization and goals. *Journal of Occupational and Organizational Psychology*, 77, 343-364.
- Clore, G. L. (1994). Why emotions require cognitions. In P. Ekman and R.J. Davidson (Eds), *The nature of emotion: Fundamental questions* (pp. 181-191). New York: Oxford University Press.
- Coyne, J. C., & Gottlieb, B. H. (1996). The mismeasure of coping by checklists. *Journal of Personality*, 64, 959-991.
- Dewe, P. (1993). Measuring primary appraisal: Scale construction and directions for future research. *Journal of Social Behavior and Personality*, 8, 673-685.
- Dewe, P. & Brook, R. (2000). Sequential tree analysis of work stressors. Exploring score profiles in the context of the stressor-stress relationship. *International Journal of Stress Management*, 7, 1-18.
- Dewe, P., & Cooper, C. (2007). Coping research and measurement in the context of work related stress. In G. Hodgkinson and K. Ford (Eds), *International Review of Industrial*

- and Organizational Psychology*, 22, (pp. 142-191). Chichester: John Wiley & Sons.
- Dewe, P. J., & Ng, H. A. (2000). Exploring the relationship between primary appraisal and coping using a work setting. *Journal of Social Behavior and Personality*, 14, 397-418.
- Frese, M., & Zapf, D. (1999). On the importance of the objective environment in stress and attribution theory: Counterpoint to Perrewe and Zellars. *Journal of Organizational Behavior*, 20, 761-765.
- Frijda, N. H. (1994). Emotions requiring cognitions, even if simple ones. In P. Ekman and R. J. Davidson (Eds), *The nature of emotion: Fundamental questions* (pp. 197-223). New York: Oxford University Press.
- Fugate, M., Kinicki, A. J., & Prussia, G. E. (2008). Employ coping with organizational change: An examination of alternative theoretical perspectives and models. *Personnel Psychology*, 61, 1-36.
- Fugate, M., Kinicki, A. O., & Scheck, C. (2002). Coping with an organizational merger over four stages. *Personnel Psychology*, 55, 905-928.
- House, R. J., & Rizzo, J. R. (1972). Role conflict and ambiguity as critical variables in organizational behavior. *Organizational Behavior and Human Performance*, 7, 467-505.
- Kaid, L. L., & Wadsworth, A. J. (1989). Content analysis. In P. Emmert and L. C. Barrer (Eds), *Measurement of communication behavior* (pp.197-217). New York: Longman.
- Jones, F., & Bright, J. (2001). *Stress: Myth, theory and research*. London: Pearson/ Prentice Hall.
- Lazarus, R. S. (1991). *Emotion & adaptation*. New York: Oxford University Press.
- Lazarus, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review of Psychology*, 44, 1-21.

- Lazarus, R. S. (1994). Appraisal: The long and the short of it. In P. Ekman and R. J. Davidson (Eds), *The nature of emotion: Fundamental questions* (pp. 208-215). New York: Oxford University Press.
- Lazarus, R. S. (1994b). Universal antecedents of the emotions. In P. Ekman and R. J. Davidson (Eds), *The nature of emotion: Fundamental questions* (pp. 163-171). New York: Oxford University Press.
- Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. London: Free Association Books.
- Lazarus, R.S. (2001). Relational meaning and discrete emotions. In K. R. Scherer, A. Schorr, and T. Johnstone (Eds), *Appraisal processes in emotion: Theory, methods, research* (pp. 37-67). Oxford: Oxford University Press.
- Lazarus, R. S., & Cohen-Charash, Y. (2001). Discrete emotions in organizational life. In R. L. Payne and C. L. Cooper (Eds), *Emotions at work: Theory, research and applications for management* (pp. 45-81). Chichester: John Wiley & Sons.
- Li, K. C., Lue, H. H., & Chen, C. H. (2000). Interactive tree-structured regression via principal hessian directions. *Journal of the American Statistical Association*, 95, 547-560.
- Lowe, R., & Bennett, P. (2003). Exploring coping reactions to work stress: Applications of an appraisal theory. *Journal of Occupational and Organizational Psychology*, 76, 393-400.
- Morgan, J. N., & Sonquist, J. A. (1963). Problems in the analysis of survey data, and a proposal. *Journal of the American Statistical Association*, 58, 415-434.
- Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of General Psychology*, 1, 115-144.
- Perrewe, P. L., & Zellars, K. L. (1999). An examination of attributions and emotions in the

transactional approach to the organizational stress process. *Journal of Organizational Behavior*, 20, 739-752.

Roseman, I. J., & Smith, C.A. (2001). Appraisal theory: Overview, assumptions, varieties, controversies. In K. R. Scherer, A. Schorr, and T. Johnstone (Eds), *Appraisal processes in emotion: Theory, methods, research* (pp. 3-19). Oxford: Oxford University Press.

Schaubroeck, J. (1999) Should the subjective be the objective? On studying mental processes, coping behavior, and actual exposure in organizational stress research. *Journal of Organizational Behavior*, 20, 753-760.

Scheck, C. L., & Kinicki, A.J. (2000). Identifying the antecedents of coping with an organizational acquisition: A structural assessment. *Journal of Organizational Behavior*, 21, 627-648.

Scherer, K. R. (1999). On the sequential nature of appraisal processes: Indirect evidence from a recognition task. *Cognition & Emotion* 13, 763-793.

Scherer, K. R. (2001). The nature and study of appraisal: A review of the issues. In K. R. Scherer, A. Schorr, and T. Johnstone (Eds), *Appraisal processes in emotion: Theory, methods, Research* (pp. 369-391). Oxford: Oxford University Press.

Somerfield, M. R., & McCrae, R. R. (2000). Stress and coping research: Methodological challenges, theoretical advances. *American Psychologist*, 55, 620-625.

Smith, C. G., & Lazarus, R. L. (1993). Appraisal components, core relational themes, and the emotions. *Cognition & Emotion*, 7, 233-269.

SPSSX (1998). *Answer Tree* (version 2.0.1). Chicago: SPSS Inc.

Table 1
Sequential Tree Analysis: Appraisals and Anger

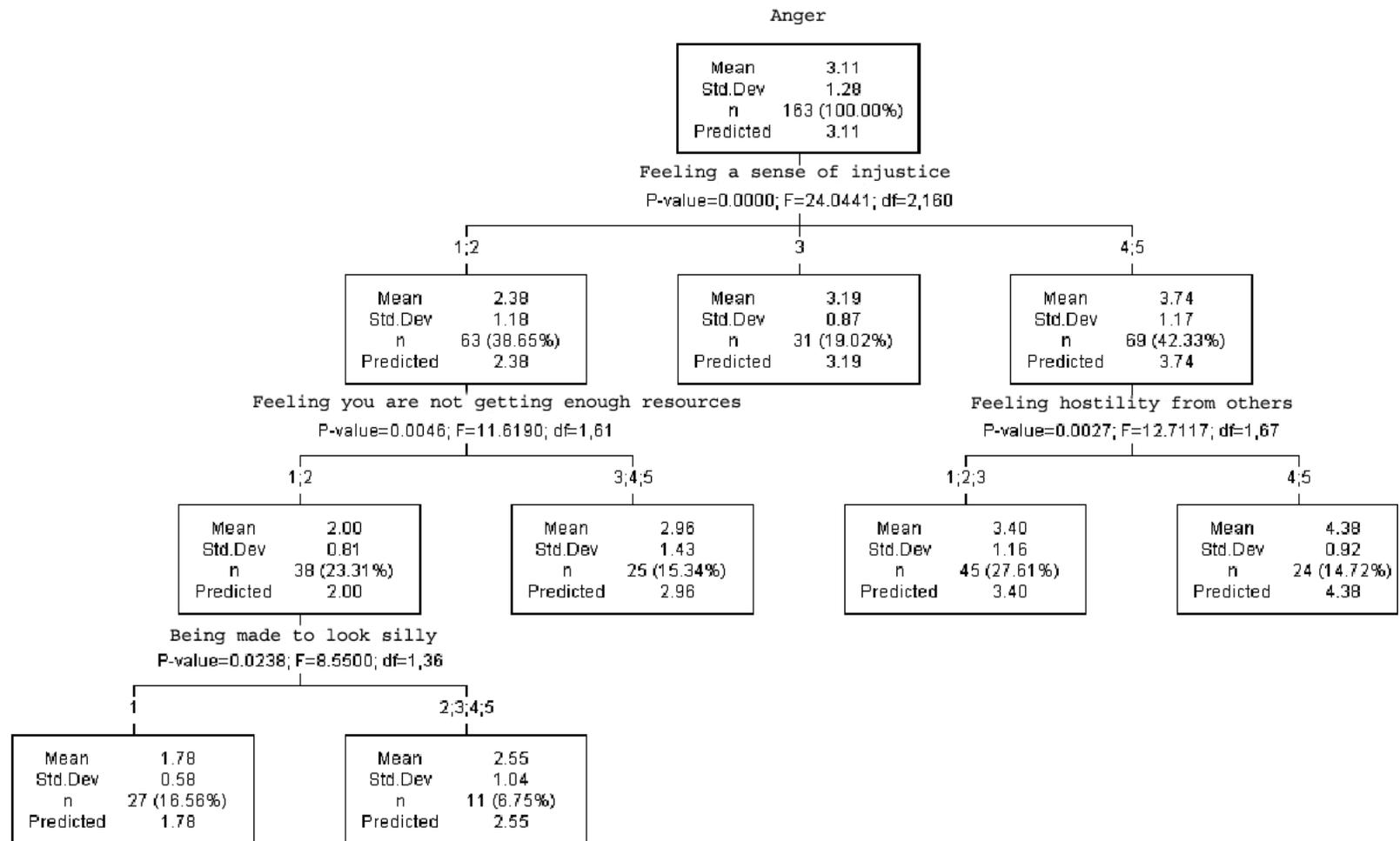


Table 2
 Sequential tree Analysis: Appraisals and Anxiety

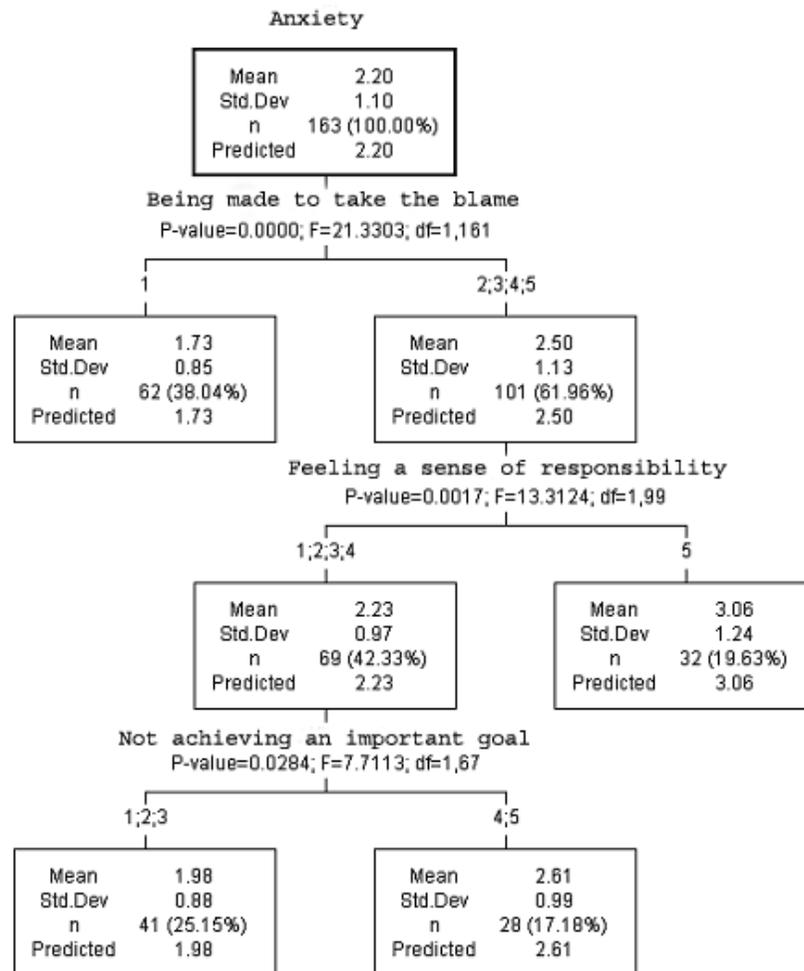


Table 3
 Sequential Tree Analysis: Appraisals and Frustration

