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Evaluating a visual timeline methodology for appraisal and coping research

Abstract

Theoretical models of stress have become increasingly sophisticated, recognising the importance of context and history, yet the principal data gathering method used by researchers remains the self-report questionnaire, a method which is conspicuously ill-suited to obtaining data which would allow for exploration of these factors. In this article we explore the use of visual methods as an alternative to traditional methods, presenting the findings of a study designed to test the utility of a visual timeline technique. A key contribution of this article is the application of an alternative technique for researching stress appraisal and coping. The technique conferred a number of benefits which may not have been provided by more conventional approaches, making it a suitable basis for the exploration of stress appraisal and coping. A further contribution is the identification of a straightforward process for analysing the visual data produced.

Practitioner Points

- Understanding appraisal and coping in terms of history and context is crucial to the design of effective stress interventions.
- The visual timeline method offers practitioners an alternative way of gathering data in order to inform the design of appropriate interventions.
- It may be especially useful in working with individuals and organisations coping with change: the method was positively evaluated by participants, who found the experience enjoyable and beneficial, so it may elicit more engagement than traditional methods for gauging employee responses to change, such as attitude surveys.

Introduction

Transactional models of stress frame our engagement with potentially stressful situations in terms of our assessment of the personal significance of situations (primary appraisal), our assessment of our available resources to cope with them (secondary appraisal) and our deployment of cognitive and behavioural efforts to manage and reduce the stress reaction to situations we appraise as significant (coping) (Dewe et al., 2010; Dewe & Trenberth, 2004; Lazarus, 2003, 1999; Dewe, 1992, 1991; Folkman & Lazarus, 1988; Folkman et al., 1986). Lazarus (1999) differentiated three types of appraisal: harm/loss (which deals with harm or loss that has actually taken place); threat (which has to do with harm or loss that has not yet taken place but is likely to do so); and challenge (which deals with knowing that although there are difficulties ahead, with a positive and optimistic attitude, they can be overcome). He suggested that a number of individual and environmental factors influenced the appraisal process including confidence in one's abilities, the situational demands and constraints, and the opportunities available, hypothesising that challenge was favoured in situations that are familiar, predictable and have clarity, and threat in situations that were imminent, of a long duration, and occurred at a time when other threats already existed or were imminent. The transactional approach therefore emphasises that stress does not reside solely in the individual or solely in the environment, but is relational in nature involving both the person and their context in a changing and adapting transaction (Lazarus, 1999; 1993). This paper reports a study designed to ascertain if a visual timeline method could be used to capture appraisal and coping in the same person over time and context, allowing us to gain insights into the individual and environmental factors that influence the stress process.

Stress Appraisal and Coping Research

Various individual and contextual factors will influence appraisal (Lazarus, 2003), and scholars argue that more innovative and creative research methods are required to capture the dynamic interaction of these factors (Dewe et al., 2010; Arthur, 2004; Briner et al., 2004; Dewe & Trenbeth, 2004; Dewe, 2003; Cooper et al., 2001; Lazarus 2000; O'Driscoll & Cooper, 1994; Somerfield & McCrae, 2000). Despite this, many studies continue to use techniques which lack the sophistication to explore this complex and subjective process (see Dewe et al., 2010 for an overview of some notable exceptions). Overreliance on self-report questionnaires has drawn particular criticism, as they only capture a static moment in time, assuming any given stressful encounter is representative of an individual's life situation (Lazarus, 1999; 1993), resulting in 'bits' of the process being taken out of their relational context (Bicknell & Liefooghe, 2006; Arthur, 2004; Aldwin, 2007; Lazarus, 1993; Dewe 1992). Exploring the complexity of appraisal and coping requires research designs which capture the process again and again, allowing us to understand stressful encounters in all aspects of the person's life over time (Lazarus, 1999). In seeking to design such a study we considered using diary study methods, which are suited to obtaining "estimates of within-person change over time" and "causal analysis of within-person changes and individual differences in these changes" (Bolger et al., 2003: 581), however they have a number of limitations. Diary studies place great demands on participants, so they typically last for relatively short time periods and have high levels of participant attrition, as illustrated by the studies reported in a 2005 special issue of this journal on diary studies and experience sampling (e.g. Miner et al., 2005). A later study by Totterdell et al. (2006) showed somewhat better participant retention, but even here a cohort of 65 participants had dwindled to just 10 by the end of the full 26 week diary commitment. Studies tend to show an inverse relationship between intensity of data gathering (frequency and duration), and sample size and participant retention, and researchers have sought to address problems of participant

retention by making the process more straightforward for participants. However in doing they necessarily made it more formulaic (e.g. by constraining the responses available to the participants), thus reducing the richness of the data (e.g. Butler et al., 2005). As Poppelton et al. (2008) note, though structured diary questions encourage participants' recall of their experiences, they also to some extent shape them.

These problems do not prevent diary studies from being a valuable research method, but they do indicate they are unlikely to provide a basis for a research design aimed at exploring individuals' appraisal and coping over an extended period of time. An alternative approach is to adopt a *faux* longitudinal research design, gathering data relating to an extended period, but doing so retrospectively at a single point in time (Blenkinsopp, 2010). There are inevitably challenges for such an approach in terms of the accuracy and completeness of participants' recollection, and various techniques have been developed which produce better recall, notably day reconstruction method (Kahneman et al., 2004) and event reconstruction method (Grube et al., 2008), however these methods are not well suited to eliciting the life histories required to explore individuals' patterns of appraisal and coping over extended periods. Chell (2004) used a simple visual timeline to facilitate participants' recall and ordering of events within interviews, and we speculated recall and accuracy might be further enhanced if participants drew the timeline themselves, rather than merely describe the events to an interviewer. As early experiments with this approach proved very positive, we sought to develop it into a fully visual methodology.

Visual Methods

Visual research methods encompass the use of photographs, video and 'lived' visual data (Emmison & Smith, 2000; Pink, 2007; Sweetman, 2009), internet pages (Warren, 2009; Pink,

2007), diagrams and computer graphics (Meyer, 1991), drawings, visual representation, visual displays and visual metaphors (Barner 2008; Stiles, 2004; Kearney & Hyle, 2004; Vince, 1995; Meyer, 1991). Although visual research methods have been used for some time in sociological and anthropological research (Warren, 2009; Pink, 2007; Kearney & Hyle, 2004; Emmison & Smith, 2000), they have had limited use in organisational research (Warren, 2009; Stiles, 2004). This may be linked to concerns about subjectivity in the interpretation of results, leading to questions over the validity of such methods (Broussine, 2008; Stiles, 2004) as visual data are still regarded as inferior to words and numbers (Stiles, 2004). Research designs using visual methods involve images either as the data source for analysis (for example interpretation of photographic images), or as part of the production of data for subsequent analysis (for example the use of drawing) (Warren, 2009). Proponents of drawing as a means of producing data suggested it is an ideal method for researching issues which are complex, multifaceted, emotive, and dynamic (Warren, 2009; Broussine, 2008; Barner, 2008; Stiles, 2004; Meyer, 1991). Drawing provides an outlet for our unconscious, deeply-help beliefs and assumptions, which may not be surfaced by more traditional research methods, either because they are difficult to express and articulate verbally (Broussine, 2008; Stiles, 2004; Vince & Broussine, 1996; Vince, 1995) or because of organisational restrictions and taboos regarding emotional expression (Barner, 2008; Sturdy, 2003). Visual methods may therefore elicit more honesty by allowing us to explore and express our underlying beliefs, assumptions, and emotions, free from emotional restrictions and biases (Vince, 1995; Nossiter & Biberman, 1990). Drawing also facilitates the interpretation and understanding of complex change events as it enables us to bring together interrelated thoughts and experiences which we may find difficult to synthesise and articulate verbally, consistent with the evidence that we can cognitively process more copious and meaningful information than we are capable of communicating verbally (Barner, 2008; Meyer, 1991).

Developing a Visual Method for Stress Research

In order to test the utility of a visual timeline methodology for investigating the dynamics of appraisal and coping, we needed to design a study which focused on significant life events that could be compared across participants and which had the potential to be positively or negatively appraised depending on context. Career transitions were identified as an obvious category of event, as they are likely to be both significant and widely experienced, since changes in employment patterns have led to the decline of the traditional 'job for life' and the growth of a more discontinuous career path characterised by transitions and interruptions (Khapova et al., 2009; Sullivan & Baruch, 2009). This shift in the nature of careers has become a major contemporary stressor (Cooper et al., 2001), causing uncertainty (Jimmieson et al., 2004) not only because organisational changes are rarely implemented effectively (MacKay et al., 2004), but also because during periods of transition we have to engage in identity work – repairing, strengthening or revising our identity (Ibarra & Barbulescu, 2010; Blenkinsopp & Stalker, 2004; Ibarra, 2003; Sveningsson & Alvesson, 2003) – which is likely to have the effect of depleting our coping resources (Baumeister et al., 1999). Career transitions can have far reaching consequences which extend beyond the workplace, influencing family life and relationships (Dewe et al., 2010; Cooper et al., 2001), and may impact on one's sense of purpose, creating feelings of self-doubt, worry and scepticism (Sveningsson & Alvesson, 2003).

Participants

Sixteen volunteers, selected through snowball sampling, participated in the project. We circulated an outline of the project to personal, business, and research networks, resulting in an initial sample of ten volunteers, who then recommended another six people. The sixteen

participants were from a variety of occupations, equally split in gender, and from a wide age range. Prior to the interviews we circulated an outline of the proposed research which specified the project's objectives and the rationale for adopting a visual approach. Participants were invited to take part in a one-to-one interview, and it was made clear that the only output from the process would be the visual 'timeline', as the interviews would not be recorded and no identifiers would be used on the charts. The decision not to record the interviews was taken for reasons of confidentiality, and to enable participants to talk freely and frankly about their experiences of career events, and how these disruptions had been appraised and coped with. We reflect on this decision later in the paper.

Interview Process

Each interview was arranged at a time and venue to suit the participant, always in a quiet and confidential setting. The researcher provided the participant with a large sheet of flipchart paper and a selection of marker pens in a variety of colours. The interview lasted approximately two hours and followed the format outlined below:

Introduction: The researcher presented an overview of the process and confirmed with the participant that they wished to proceed with the interview (approx. 10 minutes);

Timeline Production: The participant engaged in producing the timeline (approx. 60 minutes);

Timeline Review and Interpretation: The researcher and participant discussed the timeline and annotated it as necessary (approx. 30 minutes);

Reflection: The researcher invited the participant to give feedback on the process (approx. 10 minutes).

The timeline approach was selected in order to give a structure to the interview (Bagnoli, 2009; Chell, 2004), and participants were invited to start the timeline when they had first started thinking about career (which for many was at a point in childhood) and then to progress with the timeline by adding key career events including role entries, exits, transitions, and relevant life events. They were then asked to consider how these events had been appraised and coped with. Participants were encouraged to use imagery, in the form of emoticons (happy faces ☺ for positively appraised events; sad faces ☹ for negatively appraised events), visual metaphors, or drawings. Throughout the interview the researcher and participant interacted with one another in discussion of the timeline. Participants were asked to include as much detail as possible but were not pressured to include or expand on any sensitive issues. Structuring from the researcher was intentionally limited and at no point did the researcher challenge participants' interpretations (Broussine, 2008; Meyer, 1991).

On completion of the timeline, the researcher and the participant reviewed it together and discussed the meanings assigned to drawings, symbols, and emoticons. The researcher annotated the timeline to include these interpretations, always using the words of the participant. This review served three purposes. First, it ensured the participant's interpretation (and not the researcher's) was accurately captured (Stiles, 2011; 2004; Broussine, 2008). Second, it enabled the researcher and the participant to pull the 'threads' together (Broussine, 2008). Finally, it enabled the researcher and the participant to reflect on the research methodology (Broussine, 2008). Murphy & Dingwall (2001) note that participants' feelings regarding the interview process can change after the event, and the researcher therefore sent a follow-up email a few weeks after the interview to elicit further feedback on the process.

The Visual Data Produced

Participants produced a diverse and fascinating set of timelines which were presented in a variety of formats (linear, wave, spiral), adopted variations in colour use (some solely in black, others multi-coloured), and varied in the use of words and imagery. Participants used drawings and metaphors to symbolise a range of things including people, events, organisational cultures, emotional feelings, and coping strategies. Presented below is an example timeline (see Figure 1) chosen for its typicality, in that it follows a linear format, includes a mix of image and words, begins in childhood, and extends into the future. A number of identifiers have been removed from this chart including names, dates, and locations, to protect the identity of the participant. We have superimposed a grid to facilitate discussion of the timeline's key features.

<<< INSERT FIGURE 1 ABOUT HERE >>>

Moving from left to right across the timeline, this participant added a number of key career events including childhood aspirations regarding future career (A3); entry into chosen profession (B3); a series of promotions, organisation entries and exists within that profession (B3-F3); a resignation (F3); a period of time out of work (F3-G3); re-entry into the profession (H3); and, aspirations for the future (I3-K3). The participant drew a number of visual metaphors including a tall building with a small stick person and an arrow pointing upwards (B2-B4) symbolising the participant's entry into a professional hierarchy; a stick person behind bars (D3/E3) to represent feeling trapped; and a gravestone with the words 'RIP Me' (F4/F5) to symbolise a period of depression. Recurring themes in this timeline include: the use of the words 'FREEDOM' and 'FOCUS'; the use of ticks and question marks to represent periods of certainty and uncertainty respectively; and the use of 'clusters' of faces to represent family and work relationships. The participant has linked some events together, the first a series of events occurring over a 10 year period (columns B-D) and the second over a 6 year period (columns E-G). These periods do not exactly align with the start/end of a

career event, highlighting the importance of the participant rather than the researcher making judgements on links and time aggregations. We return to this point in the discussion section. The participant drew various emoticons, both positive and negative, some embellished for emphasis. For example 'sun' emoticons to represent feeling really positive (A1/A2 & J1/J2) and tears to represent feeling depressed (E2/F2). The participant also includes a hybrid emoticon to symbolise a period of feeling under pressure because of time and work demands, but an underlying feeling of positivity despite these pressures (I2). The participant symbolised how feelings of negativity/positivity can develop over time through the use of 'growing' emoticons (D1-F2; H1-J2), indicating how stress can worsen/improve over time as a result of a series of events rather than one specific event. The participant included examples of both emotion-focused coping (alcohol (C1, F3), exercise (D4), running away (C2; G1)) and problem-focused coping (working with a positive role model (E5; H5-I5), making plans for the future (H5-J5)), and a period when he/she was unable to cope resulting in a period of time away from work (column F).

Data Analysis

Stiles (2004) suggests the limited use of visual methods stems from a view that images are an 'eccentric' means of data capture, being 'elusive' and difficult to categorise, making them inferior to numbers and words, and creating a need to translate the visual into the written in order to produce work which can contribute to the advancement of a field (Pink, 2007; Collier & Collier, 1986). To demonstrate that visual methods can make a contribution to our understanding of the appraisal and coping process we had to establish how the rich, complex, and often messy timelines might be analysed and interpreted. The only tangible output of the data gathering process was the visual timeline, so we needed a data analysis technique which could be applied to non-textual data. We identified template analysis as an appropriate

technique (King, 2004), because this process for thematically organising and analysing data offers an ideal method for exploring the perspectives of different groups of people, identifying themes, and enabling comparison of individual case studies in ways which can contribute to the development of theory and practice (Chell, 2004). We developed an initial template with which to code the timelines (see Table 1), based on *a priori* assumptions (derived from the literature) as to the themes that might emerge from our analysis (King, 2008). In considering what factors might influence appraisal we expected the following to be most influential: event type - whether it has an impact on identity (Barton et al., 2008; Thoits, 1991), and whether it is individually triggered or externally driven by others (Chudzikowski et al., 2009); the situational demands of the event – its familiarity, predictability, and clarity (Lazarus, 1999); and temporal factors – whether the event is occurring at a 'good' or 'bad' time (Lazarus, 1999). We coded each of the timelines, using the emoticons as a guide to positive/negative appraisal. In the next section we illuminate the data analysis process through presentation of the findings of the study, before reflecting on process in the discussion section.

<<< INSERT TABLE 1 ABOUT HERE >>>

Project Findings

Although the purpose of the project was to test the visual methodology, it also provided some illumination of the *a priori* themes, as well as highlighting additional themes. Lazarus (1999) suggested a number of situational and personal factors would influence our appraisal of an event and various factors emerged from our data as being influential in the appraisal process. We anticipated impact on identity would be a key factor in the appraisal of career events, however we had not anticipated the range of identity disruptions that would be discussed. For

example, several participants discussed the loss of professional identity they had experienced after episodes of long-term illness, accidents resulting in incapacity to work, or redundancy. One participant highlighted the loss of organisational identity after a company merger, and two participants discussed loss of national identity as a result of relocation. A recurring image was the use of wavy lines or barriers to indicate such 'breaks' in personal, professional, or national identity highlighting the impact such events can have on an individual and how difficult it can be to cope with them (Barton et al., 2008) .

Several participants included events such as a new manager, organisational restructure, or the implementation of new working procedures, and the impact these had had on their sense of professional efficacy, indicating the importance that individuals may place on what might be considered small-scale organisational changes. For example, one participant described how the restructure of a project was a significant threat to her professional identity and credibility. She was not consulted about the change, the decision being made at a more senior level, and therefore felt she had lost a sense of control over the project. She also had to develop new relationships with teams who worked within a different and unfamiliar organisational culture. She was working nights and weekends to complete her tasks and during this sustained period of uncertainty and long hours she described the lack of support from her managers, and her feelings of (for the first time) not enjoying work and feeling unappreciated. She considered leaving her position but family commitments prevented her from doing so, and she was still considering her options at the time of the interview. Some participants included very individually specific and indeed sometimes quirky events (such as 'bought a bicycle', 'started driving lessons', and 'served dinner to the Queen'), which they nonetheless highlighted as significant in their career story. In some cases participants described (and drew) a series of incremental issues which led to an increasing feeling of stress, rather than one single event.

Adopting the timeline approach enabled us to observe the same kinds of career event (e.g. change of employer) occurring at different stages in the participant's life, thus enabling examination of the situational and temporal factors that influenced appraisal. For some an event initially appraised as challenging was subsequently re-appraised as threatening when the situational context changed. For example, one participant had initially considered her new career as challenging and exciting. On her timeline she included a drawing of a tall building with a medal marked '1st' and a happy self at the top, noting that at this stage she considered she was 'moving up'. After several years however, she started to consider the new career as very stressful. On her timeline she described her job as 'a prison with no release' and added the words 'fear of falling' to her drawing. This change in her appraisal of her work situation had occurred as a result of a number of situational factors including the deterioration of her health, a growing uncertainty about her ability to stay at the top in such a demanding environment, and a lack of support from her organisation. Another participant discussed how she had initially positively appraised her promotion, which enabled her to lead a 'Dallas lifestyle', but noted that this initial excitement was followed by a period of uncertainty. The role was not what she had expected, the organisation was about to restructure, and she was unclear as to how she would fit into this new structure. She decided to accept voluntary redundancy, but this only compounded her feelings of uncertainty and loss.

The visual nature of the timelines provided participants with the opportunity to observe consistencies in their behaviour over time, which highlighted the importance of individual attitudes to change. One participant highlighted a series of change events in his childhood and as he progressed through the timeline, he reflected on how these early experiences had influenced his attitude to change. He rarely instigated change and changes outside of his

control were always appraised negatively. In contrast, another participant described himself as ‘restless’, a ‘serial re-inventor’, and talked about his positive attitude to change. Throughout his career he had experienced a significant number of changes which had been appraised positively. He noted his strategy of ‘moving ahead of forced change’ as a key factor in his appraisal of change events.

In addition to our *a priori* themes, a further three factors were highlighted as significant in the appraisal of career events – significant others, emotions, and coping strategies – and we have incorporated these additional factors into a revised template (see Table 2). A number of participants included working relationships as either a significant positive event or as a significant stressful encounter and although there is a significant body of research that attests to the role of support in mitigating negative appraisal (Dewe et al., 2010), and the negative impact of poor working relationships (Cooper et al., 2001) this process enabled the participants to express the significant personal impact of such encounters. As an illustration of this point, one of the participants highlighted the introduction of a new line-manager as a significantly stressful event in her career. She described the manager as ‘patronising’, and felt she had lost some of her autonomy as a professional. During this ‘low point’ in her career, her timeline changed in language tone (positive to negative/emotive language) and colour (the introduction of red). She drew a picture of a very small stick person and included the words ‘made me feel small’ and a picture of a crying emoticon with the words ‘one person, big impact’.

<<< INSERT TABLE 2 ABOUT HERE >>>

A range of coping strategies were referred to, such as seeking support and advice from family and friends, religious worship, confrontation, resignation, study, alcohol, and, gambling. Lazarus (1999) noted that it is not always possible to distinguish between problem-focused

and emotion-focused coping, with both often being used in response to a stressful encounter, and this complex overlap was highlighted by a number of the participants. For example, four of the participants had initially described their decision to leave an organisation as a means of 'taking control' to enhance their careers. However during the reflection stage of the interviews participants suggested that rather than 'taking control' perhaps they had been 'running away' or 'putting off'. Thus strategies which initially seemed to be problem-focused coping were revealed to be emotion-focused strategies, and potentially a distraction from tackling the deeper underlying reasons for their decisions (e.g. a poor working relationship with a line-manager, ill-health, conflicting home-work demands).

The participants described (and often expressed) a range of emotions including happiness, anger, shame, and guilt, and they conveyed these emotions visually through the use of emotion shapes (for example, a jagged irregular shape to symbolise anger and frustration), colours (for example, yellow for happiness and red for anger), size and style of writing (for example, bold capitals, large letters), and onomatopoeia (for example, AAGGHH to convey a feeling of wanting to scream). Some participants chose to embellish their emoticons, for example adding tears to illustrate particularly traumatic events. The participants often used visual metaphors as a means of visually communicating complex emotional states which were difficult to communicate verbally (Ortony, 1993). For example one participant drew a jigsaw puzzle to symbolise feeling overwhelmed, undervalued and disconnected, and another drew a grave to symbolise feelings of hopelessness and worthlessness. Using metaphors provided an opportunity for participants to express these complex emotional experiences, which may be a particularly significant benefit of this methodology given the importance of emotion to the coping process (Lowe & Bennett, 2003).

Discussion

Benefits of the Visual Method

The purpose of this project was to establish if visual methods could offer an effective means of researching the dynamics and complexity of stress appraisal and coping. We suggest the visual nature of the project provided an insight into the complexity of life as it is lived by the individuals involved, a complexity which cannot readily be captured by more traditional research methods. The visual methodology adopted in this study facilitated participants' sense-making, by enabling them to identify gaps, and consider the impact of career transitions, life events, peer and family pressures, and organisational change. Citing Cochran (1990), Cohen and Mallon (2001, p.61) differentiate between a curriculum vitae and a career story – although chronology is central to both, a curriculum vitae lacks 'the meaning of a career as lived'. Several participants noted that the timeline they had produced was very different to their curriculum vitae. The timeline was their career story, more than just a list of dates and job titles, and telling the story of one's career brings all the obstacles, significant events and relationships together to make sense of career decisions (Bujold, 2004). In their review of the work stress literature, Cooper et al. (2001) emphasise the need for a more explicit focus on context, taking into account the individual as a whole person and not just assessing one aspect of life in isolation from others. Throughout this project, participants noted examples of life events which significantly influenced career decisions and the appraisal of career success or failure and, vice versa, how career transitions had influenced personal happiness, personal relationships, and identity. Although the link between work and life would be discussed in a qualitative research interview, the use of a visual timeline, embellished with symbols of emotion and 'felt' experience, offered a vivid representation of conflicting work, family and personal demands, and of how difficult it is to separate life and work. Often events (both positive and negative) had happened in quick succession over a

relatively short period of time, and participating in the research led some individuals to realise they had experienced major life changes without the space needed to adjust to these changes, a realisation which helped them make sense of poor career decisions, feelings of self-doubt or frustration, and relationship difficulties.

The process also enabled participants to amend or expand on earlier events and even to change the order of events. The process therefore facilitated the ordering of events, enabling chronology to be established far more accurately than could be achieved in a narrative interview – see Cohen and Mallon (2001) for a discussion of the importance to interview participants of establishing a clear chronology. Time is an essential ingredient informing our experiences (George & Jones, 2000). Our 'present self' is informed by our past encounters and influenced by our future aspirations and goals (George & Jones, 2000; Faulconer & Williams, 1985). Our 'histories' and 'futures' shape our understanding and thinking (Briner et al., 2004; George & Jones, 2000; Faulconer & Williams, 1985) and as appraisal occurs at points between these 'histories' and 'futures', it is informed by what happened in the past and what we anticipate in the future (Dewe et al., 2010; Briner et al., 2004). Appraisal is therefore adaptive and changes over time and context, with coping in response to earlier events influencing subsequent appraisals and stress intensity (Lazarus, 1993). The past and future are embedded in the present (George & Jones, 2000) and we therefore cannot meaningfully isolate time into artificial units for the purposes of analysis (Faulconer & Williams, 1985). The visual timeline enabled participants go back readily to past events to clarify sequence and convey a clearer sense of the time and timing of relevant events, in particular to illustrate how earlier events influenced later events and appraisals. The process also enabled participants to extend their timelines into the future and many of the participants included future events, aspirations, and goals. The process also enabled the participants to make their own time

aggregations as the participants could go forward and backward in time to 'bracket' together meaningful periods of time in their exploration and sense-making (George & Jones, 2000). More traditional methods present participants with time aggregations as designed for the convenience of the researcher which may not be aligned to the aggregations of the participants, and therefore present events out of their relational context (George & Jones, 2000).

Participant Feedback on the Process

The participants agreed that the process had been an enjoyable and positive experience and they highlighted three key benefits to the visual nature of the process. First, the visual nature of the data gathering provided a useful outlet for emotional expression and many participants commented that the activity felt therapeutic, consistent with the idea that taking part in qualitative research should offer an opportunity for participants to engage in personal reflection (King, 2000):

> *''The process was like therapy. I could feel my emotions being released as I wrote down the words.''* (Feedback from participant)

Second, it also enabled participants to amend or expand on earlier events and even to change the order of events. Participants frequently backtracked to add events they considered important in understanding how their 'story' had unfolded, or which had been influential in their career decision. Many participants drew arrows to link events together. Sometimes the links were obvious, in other cases participants stated they had only noticed the links in the process of producing the timeline. Looking at the whole of the 'picture' enabled the participants to be more precise in the chronology and sequence of events:

> *'It was an excellent structure to the discussion, and enabled us to go up and down the timeline, and engage in diversions, without losing the main thread.'* (Feedback from participant)

Finally, the process enabled participants to reflect on their life and career 'journey' and make sense of the journey they had taken:

> *''I was so proud of my journey and they were sweet memories. I had never thought about that till that date and it is like a biography. I am so glad that I gave the interview otherwise I would not have looked back. Thank you so much for that chance.''* (Feedback from participant)

Improving the Process

The open nature of the data gathering process led to some difficulties at the data analysis stage. Our research design sought to allow participants to develop their timelines in a largely unstructured manner, to minimise the potential for the researcher to bias the results. Although this relative lack of structuring in the interviews led to fascinating timelines, including some highly creative and non-linear timelines (for example waves and spirals), this variety in the 'finished product' led to some problems with analysis. In his review of visual data in organisational research, Meyer (1991) commented on this methodological trade-off between participant freedom of expression and researcher input. On the one hand, allowing the participants to work unassisted minimised the potential for researcher bias to influence the visual output produced. On the other, it may produce 'ambiguous and idiosyncratic' outputs which are open to various interpretations, and which reduce opportunities for comparing data across participants. We therefore highlight the significance and importance of the review stage in the interview process in enhancing participant/researcher collaboration in the meaningful interpretation of the visual output (Warren, 2009).

Questions of validity and reliability are frequently raised in respect of qualitative methodologies (Cassell & Symon, 2011; 1994) and our decision not to record the interviews might lead to particular criticism. However, reflecting on the rich data and on participant feedback we feel the benefits of not recording the interviews greatly outweigh the disadvantages. In research which elicits life histories it is important that neither the richness of the data nor the participants' anonymity are compromised (Musson, 2004) and the very richness of transcribed data may risk revealing the identity of the participant (Stiles, 2004). In this study participants disclosed very personal episodes in their lives, so it was essential they were confident their identity would not be exposed. One benefit of using a visual timeline alone, without interview transcripts, is that it makes it possible to elicit data which is simultaneously extraordinarily rich yet also wholly anonymous. The greater assurance of anonymity and confidentiality provided by not taping the interviews allowed participants to be more honest and frank during the interview and to talk more freely about their experiences and to 'meander' and be less ordered in their responses. A number of participants commented that being recorded would have made them more guarded, and reluctant to explore some of the more sensitive episodes.

The templates used in the present study were intentionally rather basic, and we recognise for future studies, additional themes may be required. For example it would be helpful to capture more effectively the discrete emotions that participants experience to develop an enhanced understanding of the critical role that emotions play in stress appraisal and coping (Dewe et al., 2010; Lazarus, 1999). It would also be helpful to explore participants' perceptions of the effectiveness of the coping strategies they adopted (Dewe et al., 2010; Aldwin, 2007; Folkman & Moskowitz, 2004). Future research could also draw upon hierarchical and parallel coding (King, 1998) to allow for more sophisticated analysis, identifying

relationships between different factors, and also analysing potential clusters of participants (for example, grouped by occupation, age, gender, nationality, sector) to see whether their timelines show similar patterns of appraisal and coping. We are not suggesting that template analysis is the only analysis method which could be used for this style of data, we have simply tried to present a worked example and highlight some of the practical issues we encountered. Other methods of qualitative data analysis could also be applied to this type of data, for example thematic content analysis, or narrative and semiotic approaches, depending on the research question being addressed – see Warren (2009) or Broussine (2008) for detailed discussions of visual data analysis techniques.

Implications for Further Research and Practice

The visual timeline method could be appropriate for other similar research projects. For example, in their systematic review of three decades of research on leadership style and employee well-being, Skaton et al. (2010) highlight the need for research techniques which can examine how strained relationships develop over time, enabling both leaders and employees to present their own accounts of the relationship and their own perceptions of the channels which provide the conduit for stress. We suggest that this visual approach would be appropriate to such an investigation enabling the participants to consider both issues of timing and specific encounters which have influenced their appraisal of the relationship. The method could also be appropriate for investigating the interaction of appraisal and coping and time. For example, whether stress spirals, accelerates, or decelerates over time, and what factors are influential in this process (George & Jones, 2000). We also suggest the visual approach has practical applications. Attitudes to change can be deeply-embedded and this method could be adopted by organisations considering change initiatives (both large and smaller scale) to investigate employee attitudes to change. The process could also be used by

organisations to capture the ‘bigger picture’ enabling organisations to gather data on contextual factors which influence the appropriateness and success of stress intervention strategies (Dewe et al., 2010; La Montagne et al., 2007). The visual timeline method may also offer practitioners working with individuals an alternative way of gathering data in order to understand their stress response and inform the design of appropriate individual interventions.

Conclusion

The purpose of this study was to test the viability of a visual timeline method as a potential solution to the limitations of traditional research methods in illuminating the dynamic and subjective processes involved in appraisal and coping. The visual approach offered an ‘alternative perspective’ (Symon & Cassell, 2006) on the phenomena, and added value to more traditional methods by supporting participants in working out the chronology and sequencing of events, providing an outlet for emotional expression, and offering the opportunity for personal reflection and sense-making which created lasting impact for those involved. The study has confirmed that template analysis offers an ideal method for systematically coding and interpreting visual data (or at least this particular type of visual data), allowing us to gain insights into the complexity of stress appraisal and coping. Events (such as the career changes examined here) need to be set in this temporal and social context which considers the type of event, the sequence of events, and the people involved. The use of the visual enabled all of these factors to be presented together to show the ‘bigger picture’ and therefore gain a better understanding of how appraisal and coping evolve over time and context.

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Table 1: Initial Template, for coding data (themes identified *a priori*)

Factors	**Negative Event** ☹	**Positive Event** ☺
Event Type		
Impact on identity	Likely to threaten identity	Likely to enhance identity
Perception of control	Externally driven by life events / others	Internally driven by the individual
Situational Dimensions		
	Novel / unfamiliar / unpredictable / unclear / ambiguous	Familiar / predictable / clear / unambiguous
Temporal Factors		
	Occurring at a 'bad' time / expected to last a long time / imminent.	Occurring at a 'good' time / expected to be over relatively quickly / not imminent.

Table 2: Final Template

Factors	**Negative Event** ☹	**Positive Event** ☺
Event Type		
Impact on identity	Likely to threaten identity	Likely to enhance identity
Perception of control	Externally driven by life events / others	Internally driven by the individual
Situational Dimensions		
	Novel / unfamiliar / unpredictable / unclear / ambiguous	Familiar / predictable / clear / unambiguous
Temporal Factors		
	Occurring at a 'bad' time / expected to last a long time / imminent.	Occurring at a 'good' time / expected to be over relatively quickly / not imminent.
Significant Others		
	Unsupportive relationships	Supportive relationships
Emotions		
	Negative emotions	Positive emotions
Coping Style and Effectiveness		
	Emotion-focused	Problem-focused