Aberystwyth University

Re-thinking the nature of decision making in outdoor extreme situations
Ivaldi, Antonia; Whitehead, Mark

Re-thinking the nature of decision making in outdoor extreme situations: Lessons from Britain's National Three Peaks Challenge

This study examines decision-making in outdoor recreation extreme events, through the example of Britain's National Three Peaks Challenge. This nature-based tourist activity requires hiking Scotland's, England's and Wales's highest mountain in twenty-four hours. Drawing from naturalistic decision-making theory and behavioural economics, critical discursive psychology is used to propose an alternative way of viewing decision-making by arguing that it is a socially constructed phenomenon; one that is continually managed and negotiated in response to the unpredictability of the mountains and dynamics of the walking group. Eleven semi-structured interviews with Three Peak Challengers and stakeholders were conducted to explore their perceptions and experiences of the challenge, and motivations for taking part. Data were analysed using critical discursive psychology in order to examine how decision making and rationality were socially and discursively produced. Three interpretative repertoires were identified: (1) positioning walkers as vulnerable (2) sharing accountability as a function of decision making, and (3) constructing questionable judgments. The findings show how the irrational push of outdoor recreation extreme events calls into question the extent to which rationality and good decision making is possible, illustrating the dilemmas that participants must resolve if they are to have a successful challenge. As participants are often inexperienced mountain walkers, the need for professional guides to lead such unique recreational activities is therefore reinforced. The analysis also raises broader issues for how we understand the nature of human decision-making in extreme situations.

Keywords: Outdoor challenge events; decision-making; bounded rationality; discursive psychology

Management implications

Outdoor recreation challenge events can be a management challenge in themselves for National Parks. As nature-based challenge activities increase in popularity, we urge organizers to recognize the often irrational nature of such events where typically inexperienced participants are expected to make good and rational decisions when fatigued and under time pressure. The need for professional guides to lead such challenges is therefore reinforced here as participants are particularly focussed on completing the challenge successfully, whatever the cost. Leaders must also recognize decision making as a socially produced phenomena and respond to the complexities of challenge event discourses and their role in the continual management and negotiation of the group. As participants react to the unpredictability of the event and mountain environment, these shifting discourses may be compromising participants' safety, whilst also testing group dynamics, relationships, and communication.

1. Introduction

There is a growing concern within the social, psychological and behavioural sciences with decision-making in sub-optimal circumstances. This interest draws attention to the role that limited cognitive capacity, bounded willpower, and various contextual constraints place on the decision-maker. The idea of *bounded rationality,* which is commonly used within the influential field of behavioural economics, is now routinely deployed to account for the constraints that finite cognitive capacities, uncertain and changeable environments, and limited willpower place on decision-making. While work on bounded rationality recognizes that rationality is often most limited in the context of decisions that are made on an infrequent basis, research tends to focus on everyday

habitual environments. We have chosen to explore decision-making in outdoor adventure challenge events as these are choice environments that are becoming more and more common with the simultaneous growth of the outdoor pursuits industry and organised challenge events (Bennett, Mousley, Kitchen & Ali-Choudhury, 2007; Boyes & O'Hare, 2007).

Much existing work on outdoor adventure activity, particularly in the field of Naturalistic Decision Making, acknowledges the constraints on decision making that emerge in such situations, but is primarily interested in how wise choices are made (particularly through the action of leaders and experts). We position our work between that of Naturalistic Decision Marking and bounded rationality, in order to explore the complex social processes that shape decision making in extreme challenge events. Our research explores the interplay of expert opinion, irrationality, and group dynamics within the discursive construction of decision making. While we focus on extreme challenge events, we believe that the discursive approach we employ has utility in other, more mundane, decision-making contexts.

The empirical focus of this paper is Britain's National Three Peaks Challenge, which involves climbing the three highest mountains in England, Scotland and Wales (Scafell Pike, Ben Nevis and Snowdon respectively) within a twenty-four-hour period. Participants walk a total distance of 23 miles, ascend 3064 meters of climbing, and drive 462 miles between the three mountains (National Three Peaks Challenge, 2019). Anecdotally, the Three Peaks can come under criticism as it attracts inexperienced and ill prepared walkers that show little awareness for the Countryside Code and are more often driven by the goal of raising money for charity (see, for instance, BMC, 2013). The Three Peaks, therefore, provides a variety and richness of discourses around

responsibility, safety, blame and accountability from the perspectives and experiences of both challengers (referred to hereon in as walkers) and stakeholders.

Using a discursive framework, this paper's novelty is in addressing some of the methodological and epistemological limitations of bounded rationality and naturalistic decision making perspectives. In this content it positions decision making and rationality as social and discursive constructions. This line of enquiry is often lost within the quantitative analyses that are preferred within the current work in this field. This perspective also enables us to consider the social dynamics of decision-making within a field which tends to have an individualistic focus.

2.   Literature review

Decision making in extreme events situations: A review of relevant decision-science research

This study examines the concept of *Bounded Rationality* through a *Critical Discursive Psychology* lens. In doing so it builds on work in behavioural economics and *Naturalistic Decision Making* (hereon in NDM), but also seeks to understand the construction of rationality within social discourses. In this section we contrast these contributions and position them within the field of outdoor adventure challenge events in order to understand the role that this pressurised and unpredictable environment can have in the social construction of decision making. These perspectives not only allow us to show the foundations for effective and ineffective behaviours, but that decision making is discursively complex. For example, there is the potential to see how novices could discursively position themselves as experts and experts as compromised decision makers.

One of the main reasons, according to Trayers (2004), that those engaging in outdoor adventure and challenge events get into difficulties is due to a lack of practice in good decision making in critical moments, in contrast to spending much time in physical and equipment preparation, and skills training. Trayers argues that wilderness-based accidents are actually a product of a clinical condition he terms *"acute bad judgment syndrome"* (p.1). While the basis of Trayers' elevation of poor decision-making in wilderness-based situations to a clinical status is unclear, it provides a helpful point of departure for our analysis. Acute bad judgment syndrome assumes two common decision-making scenarios which tend to emerge in outdoor adventure environments. The first is a "loss of situational awareness" (Trayers, p.1), whereby the changing nature of the environment (including climate and terrain) means that individuals start to lose connection with the true parameters under which they are making a decision, and the possible implications of related decisions. The second is a tendency to overestimate your own ability in extreme environments: a process that cognitive psychologists would no doubt describe as optimism bias (Trayers, 2004).

While Trayers' diagnostic of poor decision-making effectively depicts patterns of sub-optimal decisions that often characterise outdoor challenge activity, it is opposed by another branch of decision-making theory concerning human behaviour in remote, and potentially hazardous outdoor environments, that of Naturalistic Decision Making (Boyes & O'Hare, 2007; Lipshitz, Klein, Orasanu & Salas, 2001). NDM research examines decision-making in high pressure situations (characterised by high levels of risk, uncertainty and change), that include search and rescue, the fire service, and aircraft pilots (Gore, Flin, Stanton & Wong, 2015; Lipshitz et al., 2001). Unlike the notion of *acute bad judgment syndrome*, NDM is interested in the ways in which

experts develop forms of situational awareness that facilitate successful decision-making in unfamiliar conditions of high stress and uncertainty.

NDM draws attention to the role of expertise in guiding effective decision-making in extreme situations. Three Peaks Challenge groups often use trained guides who are employed to channel and shape the decision-making of the event. In their NDM-based analysis of outdoor decision-making, Boyes and O'Hare (2007) explore how expert guides can engage in important forms of instinctive pattern recognition processes to support effective judgment, particularly in the balancing of both risk and safety. In outdoor challenge situations the presence of too much risk aversion can itself present problems to those seeking the thrill of adventure. NDM as an approach has been developed to specifically study decision-making in contexts of changeable goals, uncertainty, dynamic environments, time pressures, and multiple agents—all of which are common features of the Three Peaks Challenge (Gore et al., 2015).

In this paper we seek to challenge the focus on effective decision-making in outdoor challenge events, as promoted by NDM, in order to emphasise the importance of considering the forces driving errors of judgment. To do so we find significant scientific insights in the field of bounded rationality (see Kahneman, 2011; Kahneman, Slavic & Tversky, 1982; Thaler, 2015; Jones, Pykett & Whitehead, 2013; Whitehead, Jones, Lilley, Pykett & Howell, 2017). In stark contrast to NDM, work on bounded rationality is suspicious of claims to expertise and is primarily interested in the bases for consistent errors in decision making rather than judgmental success (Kahneman & Klein, 2009). The bounding of rationality derives from two processes: the lack of available, relevant information that is routinely furnished by the environments which we find ourselves in; and the limited cognitive capacities that humans have to process the information that they do have access to (Simon, 1957; Jones et al., 2013). Crucially, in

the context of this paper, behavioural economics suggest that rationality becomes most acutely bounded in situations that we are unfamiliar with and which are characterised by time pressure.

Central to this line of inquiry is an interest in human biases and heuristics, which refer to the cognitive shortcuts that are routinely used to make-up for the limits that are associated with bounded rationality. While behavioural economists recognize that biases and heuristics often provide effective ways of making decisions within the complexities of everyday life, (that is indeed why they have evolved), they also consider how biases can lead to consistent errors and systemic patterns of bad judgment (Jones et al., 2013). For example, in outdoor research, McCammon (2004) found that six heuristic "traps" (which he defines as 'rules of thumb' that are not relevant or suited to a particular situation) influenced the decision making of avalanche victims: familiarity (reliance on past experiences or actions to influence decisions when in familiar territory), consistency (keeping to the original decision, despite new or contradictory information that might suggest otherwise), acceptance (wanting to be liked and respected), the expert halo (overestimation of the skills of the perceived leader/most experienced member of the group), social facilitation (being influenced by the presence of others) and scarcity (taking windows of opportunity, before they are lost). Heuristic traps, according to McCammon, are most likely to occur when individuals lack time and expertise to make decisions. Novices, and in this instance walkers, are more likely to fall into these traps because they lack both the mountaineering experience and time – by virtue of the 24-hour limit set for the challenge.

Compared to knowledge-based decisions, McCammon (2004) concludes that these heuristic traps are fast and convenient ways to making decisions for novices; indeed four (familiarity, consistency, social facilitation and scarcity) are particularly key

to the Three Peaks Challenge. Knowledge-based decisions require time and have the potential to introduce ambiguity – factors that would hinder the success of a timed challenge event. Zweifel and Haegeli (2014) further highlighted that factors such as intuition, blind trust in park bulletin warnings, and an over-commitment to pre-existing plans are strategies not suited to such high-risk recreational environments. Whilst the Three Peaks Challenge is a lower risk environment compared to avalanche terrains, our data show how the presence and construction of these heuristics in participants' discourses are shaping their decision making. Behavioural economics can thus provide a much more sensitive diagnosis of the different decision-making errors that may emerge in outdoor adventure situations, rather than simply merging them into an undifferentiated field of adventurous error.

Two of the leadings figures in the work on NDM (Klein) and bounded rationality (Kahneman) have, however, suggested that these two theories may have many (hidden) compatibilities as neither approach would deny the simultaneous presence of both effective and ineffective decision-making in everyday life (see Kahneman & Klein, 2009). While NDM is interested in how intuitive judgment skills can emerge out of experience and expertise, bounded rationality considers how poor intuition can arise in the context of more limited forms of experience (Kahneman & Klein, 2009). In the context of outdoor adventure and challenge an appreciation of both the bases for effective and ineffective behaviours could therefore be valuable, particularly as the combination of NDM and bounded rationality perspectives could potentially reveal the ways in which expert decisions may sometimes be compromised, and inexpert judgment be effective.

What both NDM and bounded rationality do have in common is a belief that effective decision-making is conditioned by the nature of the environment in which a

decision is made, and the extent to which that environment is able to be understood, and its regularities interpreted (Kahneman & Klein, 2009). This concern with the decision-making environment is particularly significant in relation to outdoor adventure where the environment is not just a context for action, but an object of interpretation and judgement itself. It appears that the more qualitative, field-based methods of NDM could provide suitable tools to study the often *wicked environments* that are associated with outdoor adventure and challenge, while the nuanced models of errors developed within theories of bounded rationality could help to explain the nature of the mistakes that these environments induce and what can be best done to prevent them. What both NDM and theories of bounded rationality appear to lack is a broader concern with the notion of context beyond the immediate environmental and social group in which decisions are made. Given that broader social and institutional factors may be important in guiding decision-making in outdoor adventure and challenge situations (see Kortenkamp, Moore, Sheridan & Ahrens, 2017), this is a significant lacuna. It is in these contexts that we claim there is much to be gained from a fusion of NDM and theories of bounded rationality when attempting to develop accounts of decision-making in outdoor adventure situations. We use a critical discursive psychology methodology in order to enable us to better understand the socially produced nature of decision-making in outdoor adventure and challenge situations and as a context within which to explore the complex interplays of bias and expertise in extreme decision-making environments.

A critical discursive psychology approach to understanding decision making in extreme situations

Our paper adopts a novel approach to understanding behaviours in outdoor adventure situations by taking the position that decision making is a social practice that has a performative function – that is, how Three Peak challengers and their guides "do" decision making in extreme situations. Discursive psychology is a branch of discourse analysis that enables researchers to take traditionally known psychological states such as attention, memory, and emotion to explore – instead – how they are constructed and negotiated in talk (Reynolds & Wetherell, 2003; Wiggins & Potter, 2008). (See also Edwards & Potter, 1992, 2001, for the origins of discursive psychology.) Discourses are social practices that come from talk and text. There are three theoretical principles that underpin DP, as defined by Edwards and Potter (2001) and Wiggins and Potter (2008): Firstly, that it is situated – discourses are embedded within interactional sequences and are therefore understood in the context of what proceeds and follows it. This context also extends to the setting in which the interaction is taking place. Secondly, that it is action-orientated – discourse is viewed as having a performative function and is therefore not separate to action. Individuals do things in their talk, such as blaming, inviting, agreeing etc. Thirdly, that it is constructed. Discourse is not only built from words, metaphors, descriptions, and stories etc. (i.e., is construct*ed)* but also positions our understanding of the world as a product of talk itself (construct*ive*). In other words, it does not exist separately to talk. For Edwards and Potter (2001) and Wiggins and Potter (2008) these three features must form part of the analysis, and so in order to understand how discourses are situated, action-orientated and constructed analysts must turn to language as the focus of study itself.

However, due to its focus on local level interactions, this approach has been criticized for not taking into consideration the wider historical, social and cultural contexts in which such phenomena are constructed (Locke & Budds, 2020; Wiggins, 2017). To address this, we adopt a *critical* discursive psychology (hereafter CDP) approach in recognition of the fact that participants' discourses may be constructed within wider ideological beliefs around group dynamics and leadership, mountain safety, and conservation. With CDP, analysts can gain breadth and depth as it bridges critical social psychology with conversation analysis inspired discursive psychology (Tileagă, 2007; Locke & Budds, 2020; explained further in the next section). By examining discourses in this way, we can see where accountability is placed, cohesiveness within groups, and how walkers are positioned as experts or novices. These factors are key to reducing risks and ensuring safe engagement and, whilst insight from discourses cannot be generalised, they can have transferability and applicability to other similar domains and decision-making contexts.

Our use of CDP also extends the methods used in behavioural economics research, where Gordon (2011) argues that "each time a decision has to be made it is newly constructed and depends on context – who, how, when, where?" (p.174). However, there is very little research within behavioural economics that shows how decision making – a traditionally cognitive, realist state – is socially produced. This constructionist approach challenges behavioural economics' more limited focus on how social context may change behaviour, by highlighting the role that social interaction itself has in shaping people's understanding of its key concepts of decision-making and rationality. The mountain environment is unpredictable (e.g., through poor weather, unknown obstacles, path closures etc.) and in response to these changes it is not only walkers' decision making and behaviours that need to be managed, but that their

discourses must also be negotiated around the conditions of the hills. Furthermore, "Peakers" must continually evaluate their progress and reconstruct their discourses within the pressure of the 24-hour time limit and the capabilities of the walkers themselves.

In positioning decision making and judgment in extreme contexts (through the Three Peaks Challenge) as social products, we ask: (1) How are walkers positioned in discourses, by self and other, in ways that assist the discursive construction of rational decision making? (2) How do challengers themselves negotiate and manage decision making within the event and thus construct (in)effective decision making? and (3) how are decision making and rationality discursively bounded, and how may this lead to constructions of errors of judgment and emerging expertise? In examining these questions, we seek to highlight the ease with which decisions are made in challenge events, and the extent to which they are constructed as rational/irrational and considered/questionable.

3. Method

Participants and recruitment

Using purposive sampling, eleven participants (three females, 9 males) over the age of eighteen took part in semi-structured interviews. Six were walkers who had taken part in the challenge (two of which had mountain leadership experience), and five were stakeholders, that is, those that were involved in the challenge in a professional capacity, or were impacted by the challenge in some way. They consisted of wardens, professional guides and a guest house owner. The experiences and perspectives of both challengers and stakeholders (those with an invested interest, be it from the stance of mountain safety, park management, or tourism) were sought in order to see how

decision making was discursively understood and managed, and also to understand how the challengers were positioned in the event, by themselves or by others. The sample size was deemed appropriate for the methodological standards of discursive analysis where large quantities of data are not necessarily required (or, indeed, not recommended as they become unmanageable – see Goodman, 2017) due to the focus on language rather than themes more broadly across a dataset. Furthermore, methodological norms in the field emphasise that the size of the discursive sample should be determined by the extent to which the data address the research question and support the claims being made (see, further, O'Reilly, Kiyimba, Lester & Edwards, 2020).

Stakeholders were initially recruited through the Snowdonia National Park via the warden service and by word of mouth. The walkers were recruited through the Three Peak Partnership's website, which hosts information dedicated to the Three Peaks Challenge, and the Park twitter feed, the local university's staff bulletin, and word of mouth.

Procedure

Participants were interviewed either in person or via Skype, within interviews lasting between 37 and 80 minutes. Questions centred on what the Three Peaks Challenge meant to them, their own involvement and account of the challenge (if they participated), how they prepared, or would advise someone to prepare, how they thought others viewed the event, what they would do differently, and how the participant has changed their engagement with the outdoors, if at all, as a result of participating.

The research was approved by the Department of xxxxxxx Research Ethics Committee at xxxxxxxx University. Participants were informed of withdrawal procedures and were assured that their data and any quotes used would be fully anonymised so that they could not be identified in the research in any way.

Data analysis

The breadth of CPD comes from its central concepts of *interpretative repertoires*, *ideological dilemmas* and *subject positions* (Edley, 2001). Analysis is focussed on interrogating the data in a way that highlights the presence of one or all of these aspects. Interpretative repertoires originated from the work of Potter and Wetherell (1987) and, previously, Gilbert and Mulkay (1984). They are culturally familiar ways of talking that draw on recognisable themes, arguments, descriptions and evaluations that help produce shared understanding (Edley, 2001; Wetherell 1998, Reynolds & Wetherell, 2003).

Ideological dilemmas are also a means of sense making, but they focus more on the contradictory nature of common sense or the way in which individuals understand the world (rather than dilemma or conflict in choice making; see further, Billig et al., 1988). Finally, subject positions are the locations in talk that people take up, or position others, within a particular discursive repertoire. Davies and Harré (1990, 1999) state that whilst discourses may be organized around shared understandings where speakers – on appearance – may hold similar positions, speakers may accept or resist these positions (and subsequently, repertoires), or take up a different vantage point, and, in so doing, help to reconstruct both the discursive repertoire and their identity.

The depth of CDP comes from the study of language itself. Discursive psychology draws on the more micro level inspired principles of conversation analysis by placing focus on discursive devices. Therefore, while CDP begins with a social

constructionist stance, it also requires the study of language to see how the discourses are situated, orientated to and constructed.

Whilst ideological dilemmas were less evident in the data, subject positions were more prominent. Examples of where the participants placed themselves and/or others in their talk were sought, for example, positioning the individual as either guide or novice, regardless of their actual role. One key discursive device that helped achieve this was in the interviewees' pronoun use. Pronouns – and the changes between them – enable the speaker to make clear reference to themselves and/or others, and are key to helping the management and negotiation of identities, whilst also constructing accountability and apportioning blame (see further, Wiggins, 2017).

The audio recordings were transcribed verbatim from which collections and patterns were then identified by first reading and re-reading the transcripts, and then making notes in the margins of any *noticings* or patterns that may have also included images, metaphors, or specific ways of talking about the challenge. Such occurrences were then collated using the Qualitative Software NVIVO in order to identify which interpretative repertoires were present. The coding and analysis were conducted by the first author.

Credibility and reflexivity

In order to reduce subjectivity in the design of the research, open ended interview questions were utilized so that participants could determine their answer based on their views and experiences, without being led into providing particular or assumed responses driven by more direct questioning. Previous knowledge of the Three Peaks permeating the question design was also minimized; whilst the first author had previous experience of climbing the three mountains separately, they had not engaged in the

challenge – or similar challenges – themselves. This allowed for a more open enquiry as to the heightened mental, physical and emotional states experienced by the walkers, and in the leadership, advising and support roles taken up by the stakeholders.

To enhance the credibility of the findings, a detailed analysis has been provided with supporting extracts so that readers can see the interpretations made. Potter (1996) considers that these 'readers' evaluations' are the most important method for validating the analysis and that the use of rich and extended extracts is essential to this process. Individuals' experiences cannot be replicated or generalized due to their uniqueness, inconsistencies, and variability, however, insight gained from the analysis may have relevance for other similar contexts. Finally, the research questions themselves were open and non-leading, and thus did not direct the analysis to particular phenomena or discourses.

4.   Analysis and discussion

Decision making and rationality as a social practice is produced in Three Peaks Challenge participants in discourses surrounding pressure, expectations, group dynamics and achievement, and is understood through three interpretative repertoires: (1) positioning the three peak challengers as vulnerable (2) sharing accountability as a function of decision making, and (3) constructing questionable judgments. The ease with which decisions were made varies; for the walkers, any difficulty in making decisions is not typically related to the weighing up of the risks associated with their own and other's safety, but in the careful management and negotiation of the group members' expectations around whether the challenge will be completed. This focus on challenge completion reflects what behavioural economists would describe as a form of task completion bias: the pleasure associated with the formal completion of a task. For

the guides (and stakeholders in general), constructions of expertise around risk and safety are more evident, in addition to having to manage the group's expectations of providing a service, that is, a successful challenge.

Positioning Three Peak challengers as vulnerable

The first research question asks how are walkers positioned in discourses, by self and other, in ways that assist the discursive construction of rational decision making. It is addressed by the guides positioning the group as vulnerable in a way that shows that (rational) decisions need to be made on their behalf. It is in this repertoire that we see expert judgment, as described within NDM, at play. Much of the poor decision making was attributed to lack of experience, fitness and preparation, and so the perceived need for a guide was reinforced. By employing a guide, the walkers would be more likely to have a successful challenge and reduce the risks to themselves and their party. The consequence, however, is that decision making is essentially out-sourced to a "trusted rational actor", which could conceivably lead to the challenge being aborted. The guide is placed in a difficult position as both the responsibility of a successful challenge and the walkers' safety rests with them.

In Extract 1, the guide discusses the difficulty of managing the group when one member wanted to turn back. In making the final decision, he places himself in a position of authority whilst positioning some of the group as vulnerable:

Extract 1

This chap had a er (.) his wife was quite a pushy woman (.) erm the guy in charge of the group and er anyway we got (.) I sort of carried this guy up to over a thousand metres on Ben Nevis you know in pretty poor weather and

17

she announced that this time that she was going to turn back with him (.)

and (.) the visibility was very poor that day so I tried to explain you know

listen if we're going if you're going back we are all going back (Int:

mhmm) because I am not going to let you walk back by yourself……I was

quite worried about getting him down as well to be honest because of the

way he was walking and stuff this older chap and (.) it it took ten minutes I

think to convince the whole group that we all had to go back together so it

was quite a difficult (.) erm we got down to the bottom eventually and erm

so this guy decided to sit Scafell Pike out…and then when we got to

Snowdon there there I think there was only two or three of them still fit

(Jim, Stakeholder).

In his decision making the guide must manage both the wellbeing of the male walker

and the group's expectations in terms of turning back. The walker's vulnerability, as

constructed through his reliance on support for much of the climb, calls into question his

capability in completing the challenge. Vulnerability is further constructed by both the

guide's reference to his age and his concerns for the way he is walking, but also the

wife's taking up of that position in her own decision to turn back. This has had to occur

on behalf of her husband who at no point makes the decision for themselves. The rest of

group are now brought into the guide's dilemma of dealing with a potentially split

group. Here the guide's discourse is situated within that of mountain guiding ideology;

the importance of keeping the group together.

The guide's reference to the poor conditions and lack of visibility serves to

strengthen his argument by now positioning all participants as vulnerable, but the 10-

minute negotiation suggests some difficulty and resistance from the group to take up this

position. He further confirms his decision as being the right one in his use of

"eventually" getting to the bottom, which serves to continue to construct the difficulty the walker was experiencing, reinforced further still by his decision to sit the second mountain (Scafell) out. Most of the group is now positioned as vulnerable on account of there being only a few challengers left who were fit enough to climb the third and final mountain.

Finally of note is the guide's own reference to the participant being in charge of the group, yet there is nothing in the guide's discourse that positions him as such. Indeed, by employing a guide the group has shifted the leadership, and therefore accountability, to an external source which the guide asserts in his decision making ("I am not going to let you walk back by yourself"). This ultimately leads to a failed ascent of the first mountain, and consequently the challenge overall. The success of the guide in stopping the group's ascent of Ben Nevis reflects the form of expert judgement described within NDM. The account of the internal dynamics of the group conversely reveals the forms of irrationality that theories of bounded rationality would expect. The use of CDP here, however, helps to position both rational and irrational impulses within social dynamic of a group.

In Extract 2, another guide is also required to make a decision to end the challenge for some participants due to their vulnerability:

Extract 2

….haven't let people out of the bus in the car park, because maybe they've been carrying an injury, like a very sore knee and they took four hours to descend Ben Nevis. And you get to Scafell Pike, and they're like right so are we going again? And you're like well with your knee in that sort of condition, and with the amount of time it took you to descend Ben Nevis

no. You know, for your for your kind of wellbeing my advice would be to sit this one out (Amy, Stakeholder).

The severity of one walker's fitness is determined by not being allowed off the bus, and by confirming their capability by implying they took longer to descend Ben Nevis than it ought to have done. The exact details of how long are not made relevant; what is of import for the guide is that they took longer than necessary in their judgement, and it is this observation that assists in justifying the advice given. The walker is positioned as having a lack of awareness, evidenced by having to point out the injury and by them asking "are we going again?" In contrast to Extract 1, the guide leaves the ultimate decision making to the walker as it is presented as advice, rather than a requirement. It is unclear as to whether the challenger accepts or resists this position of vulnerability by choosing to continue or not.

Throughout this repertoire risk and safety, and effective decision making are managed by responding to the weaknesses within the group. Vulnerability is also indirectly achieved in their account of the walkers' responses where we see an initial resistance of those positions (i.e., not vulnerable). By noting this resistance, the guides are able to frame the walkers' inability to view the situation rationally. Here, again we see the bounded rationality of the group (with their clear task completion bias at play) interacting with the rationality of the guides. In this context, we can also see the intuitive expertise that is anticipated within NDM (see Kahneman & Klein, 2009) interacting with the irrationality of pressurized situations that is predicted within behavioural economics. Crucially, CDP analysis helps us to see how socially negotiated courses of decision making emerge out of

these interplays of rationality and irrationality, and in partial independence from decision-making states themselves.

Sharing accountability as a function of decision making: the case of sacrificing

This repertoire is driven by the need to share accountability in decision making, and by making attempts at collective group wisdom, rather than individual expertise that is expected in NDM. For a few of the unguided groups there was a point in the challenge when they realised they might not make a successful attempt (due to the weather conditions and/or the overall fitness/slowness of group members), and so a decision had to be made on whether or not to continue, and in what form. Groups were therefore required to self-manage this dilemma of deciding which aspect of the challenge was going to be compromised:

> *Extract 3*
>
> We thought on all three that Mandy wasn't going to make it …..but Snowdon we did leave her. (Int: okay) and she, it was her idea as well to say look go yourselves because I don't want you failing the challenge. So individually obviously we want to do it, we want to do it as a team but if there was someone holding us back as a team it was agreed that obviously we would, we would sacrifice that in terms of doing it. But I wasn't sure if there was a rule where your whole team has to finish it. (Int: okay). But we we decided as individuals, just as personal individual achievements that we would finish it and sacrifice someone if they were okay with us obviously sacrificing them………..it was about half hour [[on the last mountain Snowdon]] in where we could see she was struggling. So she said just go on ahead.

Because we always did keep someone behind and then we'd keep her in view

so she was alright…... Everything's in front of you, you can still see

everyone. It's not like it's winding. You can still see everyone in front of

you. Erm we just kept each other in each other's sights. (Huw, Walker)

The use of pronouns in this extract, and throughout the repertoire, is key to the sharing

of accountability as to who observed that one challenger (Mandy) was struggling

throughout the entire challenge ("all three"), the decision that was made next, and

Mandy's involvement in this process. Through the use of "we" the decision-making not

only illustrates group cohesion, but also the management of the potential difficulty of

leaving a group member on their own. Wiggins (2017) argues that pronouns can also be

used to make the speaker's account credible, by offering facts to support their claims.

Here, Huw provides justification for the decision that does not just come from the group

but by Mandy herself, thus helping to diminish his role in the decision that was made. It

is interesting in this context that expert judgement appears to still rely on group consent

for legitimacy. In group challenge contexts then it appears that it is not enough just to

have an expert opinion. That expert opinion must also be able to successfully unbound

the irrationality of group desire, or risk itself be overridden.

    The agreed decision to sacrifice any member also serves to inform us of the rules

that the group had set for themselves, therefore perhaps removing any judgment of the

group's treatment of Mandy. This is made easier by Mandy's permission for the group

to go on without her, thus serving to manage her own autonomy in the decision. Huw

positions the challenge as more important than the group members as he questions the

legitimacy of their participation if they were not to complete it as a group, thus

emphasising the potentially critical role that Mandy has in making the challenge

successful (i.e., her presence may be needed for it to count, but this – in turn – might slow the group down enough to fail the challenge).

Despite the goal to complete the challenge becoming an individual one, they must still work as a group, to a degree, in order to ensure that their remaining group member is not left vulnerable. This is achieved by the careful description of the path that serves to tell us that Mandy's safety was not compromised.

In Extract 4 a similar situation is presented, however the group is in more of a dilemma due to their desire to remain as a team:

Extract 4

two people came walking down and said they got lost at the top for an hour with the fog (.) and that just set alarm bells off then and you just like OK this probably isn't worth like none of us were experienced enough I would say to combat that situation……three of us wanted to continue three of us didn't and er and it was I think there was like a five ten minute debate and then it was just more we we started together and without sounding too cheesy there I was (Int: yeah) we all think it was a none decision shall we say that's how adamant the three didn't want to continue (Pete, Walker)

The group's collegiate-ness of starting together wins through over not completing the challenge but, similarly to Extract 1, a debate ensues suggesting that reaching a decision is not clear cut. Its resolution is not unanimous as the lack of negotiation ("none decision") undermines the equal role that group members had in this decision. The cliché, as it is presented, of staying together is therefore given as a justification for the

decision rather than group cohesion itself shaping the decision. What is of note is the walker's ambiguity in positioning himself in one of the groups of three ("three of us wanted to continue three of us didn't"). As it is not clear as to which sub-group he was aligned, some accountability in the final decision is removed and works in a similar way to Huw's account (Extract 3). Therefore, in order for sacrificing – as part of decision making – to be managed, some degree of group accountability needs to occur in order to diffuse any potential blame or judgement.

Whilst the outcome is different to that in Extract 3, there still remains a sense that, discursively at least, group members are not working together. Thus, we see in this repertoire that a significant challenge of the 3 peaks is in the discursive management of decisions that will impact the group and challenge.

Ultimately, what appears to be occurring within these extracts is a kind of pre-determined use of the group as a rationality checker, whose collective consent is needed to proceed in risky situations (here we see the forms of expertise expected in NDM but not in an individual expert, rather, a form of collective group wisdom). At one and the same time, however, we see forms of reciprocity occurring, as a desire to keep the groups intact compromise the group's safety and/or ability to complete the task. It is clear that when the biases and social pressures that are present in situations of reciprocity are at play, strong collective discourses of reason and rationality have to be constructed to override them.

Constructing questionable judgments
It is within this final interpretative repertoire that the importance of a successful challenge is fully realised – the extent to which participants will continue, no matter

what. It is here that we see McCammon's (2004) heuristic traps of familiarity, consistency, social facilitation, and scarcity in outdoor decision making at play.

Extract 5

On the way down Grant's feet were were gone. Like his toenails were coming off and everything. (Int: Urgh) yes and we thought Mandy was going to not make it as well. So four of us went ahead. I turned my ankle as well. I had to take some dodgy painkillers off someone else on the mountain…..I quickly strapped it up and just sort of set back on it because obviously I wanted to finish. And when we were back on the flat we just had to run for it. (Huw, Walker)

The pressure of completing the challenge is constructed by telling us how close to the 24-hour deadline they were, which in turn helps us to understand how the decision making is compromised and consequently constructed as questionable (through the (willing) acceptance of losing body parts, twisted ankles, and digesting unknown painkillers from a stranger). The significance of the challenge as a mechanism for constructing questionable judgments was further highlighted in an accommodation owner's account of a couple who had got into difficulty:

Extract 6

we had been in touch with them we advised them not to start it [[due to the weather]] and they were in Scotland already and they went ahead (.) they got taken off Scafell Pike (Int: Ah) by mountain rescue (Int: okay) and then they still came to Snowdon and and still came down here and did it took them

25

forty-eight hours to do it all and I you know because and I felt the pressure

was because they were raising money for a little boy with cancer …….I am

pretty sure this little boy and his family would not want to, would be

mortified if they thought that people's lives were being put at risk and not

just the walkers but mountain rescue and (.) you know there was a lot of

stress we were really stressed their family were really stressed. (Ann,

Stakeholder).

Questionable decision making is constructed here in five ways: firstly, in the ignoring of

advice not to start the challenge; secondly, in the extreme consequence of having to be

rescued, second only to experiencing a fatality; thirdly, in the walkers' insistence on

continuing with the challenge; fourthly, the fact that it took them double the time to

complete it heightens her argument as to the difficulties of the challenge, and, fifthly, in

framing the discourses in terms of the risks exposed to others, and in causing concern –

the repetition of "really stressed" serves to emphasize the point. To counteract and

soften this judgement of poor decisions an initial, and worthy, rationale is given ("little

boy with cancer"). However, the conclusion of poor decision making is further

strengthened by making a judgement on behalf of the boy's family who had the most to

gain from the challenge - thus two perspectives are given to add weight to this stance.

    In these two extracts McCammon's (2004) heuristic trap of consistency (keeping

to the original decision, despite new or contradictory information) is made discursively

relevant. It may also be argued that, in Extract 6, scarcity (taking windows of

opportunity, before they are lost) is indirectly constructed through the urgency of the

charitable cause. Walkers therefore not only evidence such traps in their discourses but

stakeholders also use them discursively to position walkers as accountable in their decision making.

In the following extracts McCammon's (2004) heuristic traps of familiarity and social facilitation are also evident. In contrast to the extract above, some adjustments in decision making were made as a result of bad weather conditions, but this, too, was something that was not easily managed. In Extract 7 expertise is constructed to an extent, leading to more rational decision making in the first instance:

Extract 7

The forecast really took a turn for the worst ….they had given a warning on Snowdon for fog (.) erm so we decided we changed our route from because we were going to go up the Pyg Track (Int: yeah) to Llanberis Path (Int: ok yeah) only because (.) just less room there's just more room for it's just an easier path to follow and it's just a nice path but however that (.) decision totally brought off any sort of chance of doing it within our scheduled time (Int: okay) because that it adds about an hour and a half on to your on to your time erm (.) and (.) pretty much when we we got to Snowdon in the dark in the middle of the night …..we got pretty much half way up and then the conditions we just struggled to see where we were walking (Int: mhmm) so we were struggling to see our feet (.) so the the fog just totally came over erm and then we started to see people turn turn around saying they couldn't see where they were going erm (.) and then after for walking for about another hour because I know that route quite well we got up to about yeah about three quarters the way up and the decision was just made to turn round (Pete, Walker).

Whilst we do not learn who provided the warning ("they"), the group position this information as coming from a place of knowledge and/or authority as they change their route accordingly. The alternative route is based on the walker's prior knowledge and experience, thus using the familiarity heuristic (McCammon, 2004); the consequence that the challenge would not be completed within the twenty-four-hour period would therefore have already been known. The severity of the conditions is constructed by walking in the dark, an inability to see their feet, and witnessing others turning around, however, this was not enough information at that stage to abort the ascent – particularly as we learn they still had a long way to go. Referring to his experience of the route seeks to contextualise the decision to continue walking for another hour; it is only the insistence of some group members (Extract 4) that precipitated the decision to turn around.

What is of note is the group's willingness to change the route for safety reasons, at the cost of a successful challenge, but not to the extent of aborting altogether. We see, for the first time, emerging expertise in the walkers that places the group's safety ahead of the challenge, but that this becomes compromised in both their decision to continue walking in fog and the fact that their decisions appeared to be made on guessing the intentions and experiences of others:

Extract 8

I think erm (.) like a couple of people had done like Duke of Edinburgh and
were comfortable with maps erm but I just think it was more that was just
totally out of your comfort zone when you had been walking for twenty how
many hours travelling etc. ... there's quite a big cliff at the top if you go the

wrong way ...I think it was just a lot more that people were turning around (Int: yeah) which whether that's right whether that's right or wrong when you see people who seem more experienced when on reflection they could be no more experienced than you it just kind of sets the wrong messages. (Pete, Walker)

Again, Pete builds constructions of emerging expertise through knowledge and experience that is based on training received by some members through recognised orientating schemes (Duke of Edinburgh), essential field skills such as map reading, and knowledge of the terrain and Snowdon's dangers. However, he displays what Trayers (2004) refers to as a "loss of situational awareness" as – regardless of the group members' training – they remain disorientated due to the conditions of the mountains. In this instance, this emerging expertise is compromised by the more irrational judgement of what others were doing illustrating here the social facilitation heuristic (McCammon, 2004). Here, for the first time, we see a walker construct their own judgment as questionable but, regardless, what others were doing carried more weight in their decision making over the group's existing expertise – which was also compromised due to length of time they had been walking.

In the final extract questionable judgements are constructed in terms of lack of preparedness and awareness of what is required to stay safe:

Extract 9

Sometimes you'll just see some of them just going up with you know half a litre of water on a scorching day and you know they're gonna need more and you know they haven't got anything else, no food, they've just got their shorts and t-

shirts and half half a litre of water. So yeah, look what you need, maybe go out

on the hill a few times beforehand. (Bob, Stakeholder).

Bob's contrast between the knowledge that he has versus the walkers serves to

construct the notion of expertise, or lack of, as a product of poor decision making.

Whilst the clothing is not at odds with the weather experienced, it is for mountain

terrain. Reference to it serves to highlight the lack of preparedness as it makes clear the

limited contents in walkers' possession, reinforced by the use of "just". A lack of

expertise is also suggested in the recommendation to try out hill walking beforehand,

where it is implied that – had they done so – they would have presented themselves

differently for the challenge. The dangers associated with a lack of experience reflect

what behavioural economists would describe as the availability heuristic. The

availability heuristics denotes the ways in which we base decisions on available

frameworks and experiences. In the absence of direct experience of what can go wrong

on a mountain, poor decision-making can thus easily ensue. This heuristic can, of

course, be counteracted by the naturalistic decision making of experts or by drawing on

the broader experiences of a group.

In this final repertoire we again see the mixing of irrational and ration decision-

making in extreme situations that is expected in theories of bounded rationality and NDM

(see Kahneman & Klein, 2009). This repertoire draws particular attention to the ways in

which extreme social and environmental conditions (expressed in the context of physical

injury and unfavourable weather) threaten a challenge event. In these contexts, we can

see the power of *loss aversion* (where not being seen to fail a challenge is, perhaps,

prioritised more than succeeding in it), anticipated within theories of bounded judgement,

driving a group to take high risks on a mountain in extreme weather. At another time we

see the role of expertise intervening in order to plot a safer route up a mountain in extreme weather, even when this will mean the challenge will ultimately not be completed. The role of the expert in mitigating the irrationality of extreme challenge situations is complicated by the fact that the expert effectively facilitates the continuation of the challenge, which exhibits a form of *sunk costs bias*, when there is actually no clear rationale for completing the climb. It is in this context that we see the inexpert group coming together to generate wise decision-making in opposition to expert guidance.

Finally, in this repertoire we once again see the blurring of the boundaries of the rational and irrational within the post hoc discursive rationalisation of action. In acknowledging that the final decision to come down from the mountain did not emanate from collective group wisdom, but observing the action of other groups, participants appear to suggest that this reflects a form of irrational surrender. While imitating the actions of others does reflect the kinds of *social proof bias* that theories of bounded rationality would expect, being able to successfully learn from the actions of others in making decisions could be seen as a form of rationality in the wild that NDM anticipates. Here we see how the social production of rationality and irrationality both during and after the event can take very contingent and arbitrary forms. It also demonstrates that biases can help and hinder good decision-making in the wild.

5.   Conclusion

The study proposed an alternative way of viewing NDM and bounded rationality in extreme situations by considering an alternative and novel group of individuals that display varying levels of expertise, and by taking the stance that both are socially produced and conditioned by the environments in which they emanate. The application of discursive psychology to NDM and bounded rationality research has provided a

31

unique way of challenging some of their key assumptions around the notion that decision-making is fixed, limited, and characterised by either expertise or irrationality in the field. Here we argue that expertise and irrationality are socially produced phenomena – rather than cognitive states – that are constructed differently in each social encounter and in response to an ever-changing and unpredictable mountain environment. Our data show that these discourses go beyond expertise and intuition as they also include constructions of talk around blame and accountability, managing own and others' expectations, and negotiating group conflict.

Repertoire 1 (positioning walkers as vulnerable) addresses the first research question of how walkers are positioned in discourses, by self and other, and how they assist the construction of rational decision making. Expertise in the field is constructed by the guides as they are required to step in and challenge the walkers' inaccurate assessment of their own physical fitness and perceived capabilities in finishing the challenge. By drawing the walkers' attention to their "acute bad judgement" (Trayers', 2004), the guides can construct accounts of good, rational decision-making on their part, whilst, at the same time, positioning the participants as vulnerable and therefore irrational.

Repertoire 2 (sharing accountability as a function of decision making) addresses the second research question of how the walkers negotiated, managed and constructed (in)effective decision making. Here, our understanding of "effective decision-making" is challenged: When applying NDM theory, an assumption is made that the focus is on making sound judgments based on risk and safety, however, our data show an alternative way of viewing decision-making as effective – in terms of whether decisions were unanimous, and whether they led to a successful challenge.

Finally, Repertoire 3 (constructing questionable judgments) addresses the third research question of how decision making and rationality are discursively bounded, and how this may lead to constructions of errors of judgement and emerging expertise. Decision-making is constructed as rational and irrational in order to frame judgments as considered or questionable. It is here that the "irrationality" of the Three Peaks Challenge is most evident. The time pressures of the challenge provide a further dimension to the notion of "bounded rationality" as the challenge itself does not give walkers the time to make more rational decisions. This further supports the need for a guide, both in terms of accessing their knowledge of the quickest routes to achieving the challenge, and in making appropriate decisions, in a way that doesn't compromise successful completion. But, as we also saw, the expertise of some group members can also be a basis for *irrational wisdom*, as groups attempt safer ways of completing an unsafe challenge that does not, ultimately, need to be completed.

The purposive sample used in qualitative research is naturally open to self-selection bias and it is possible that participants' reasons for volunteering may, in part, have been influenced by strong views against or in favour of the challenge or a desire to recount their negative experiences or success stories. The inclusion of both walkers and stakeholders offers a range of views and experiences, and may have assisted in counteracting any bias. Ultimately, however, any potential bias does not make the study of decision making as a social practice any less relevant, as it is the participants' version of reality that is importance.

Gore et al. (2015) argue that it is characteristic of NDM research to be small in sample size, which may be viewed as limited by those in other disciplines and fields. The same is also true for discursive research, but in both counts it is argued that it is the richness of data and a "zoom-lens" approach that are required in order to understand

human interaction and decision making at work (Gore et al., 2015; Wiggins, 2017). Discursive psychology relies heavily on the use of data extracts when disseminating findings. This is not only essential in enhancing the credibility of the analysis, so that readers can see how interpretations are made (see, further, Yardley, 2008), but to also highlight the discursive devices used in the social production of phenomena under investigation. Our choice of extracts are intentionally numerous and detailed in content and analysis in order to show the complexities of decision making as played out in human interaction. Furthermore, we sympathize with Klein's (2015) appeal to not underestimate the need for examples that aid our understanding and development of NDM research.

Whilst this paper's focus has been on Britain's National Three Peaks Challenge, we believe that the findings have wider application to NDM and challenge events in general. These events are more susceptible to the scarcity and consistency heuristic (McCammon, 2004): they can require long travel to the start, prior organization, training, with participants often committed to raising charitable funds. Thus, the need to seize the opportunity is even greater. Their structure (e.g., timed events, specific routes) also leaves little room for deviation in decision making, unless it is to abort the challenge altogether. For future participants of challenge events, it is important to recognize that such events can be irrational contexts in which rationality and good decision making are expected and required. Managing this tension and the expectations of participants is a challenge in itself, and it is not just experts that have to balance risk and safety (as argued by Boyes & Hare, 2007) but all participants. Raising awareness as to the irrational nature of the event may help to highlight how difficult good decision making is when fatigued and under time pressure, and that this is heightened further when participants are inexperienced on the hills. The social dynamics of the group, peer

pressure and expectations of its members also cannot be underestimated as an additional force that may lead to errors of judgment. Discursively we have seen the careful management of these tensions, but in situ these decisions may be compromising participants' safety, whilst also testing group dynamics and relationships.

These findings therefore carry practical recommendations: Firstly, as the guides' responsibilities extend beyond risk and safety to managing group dynamics under testing conditions, National Parks may wish to strengthen their recommendations for employing expert leaders on this basis. Secondly, mountain leadership training programmes may wish to emphasize the role of discourse in establishing and negotiating group dynamics and accountability and the function they play in decision making. Similarly, becoming more attuned to the shifting discourses and positions of its team members in response to the unpredictability of challenge events and the mountain terrain may assist them in their own decision making. Thirdly, in providing guidance to walkers as to the ways in which decision making can be compromised as a result of fatigue and time pressure.

We would encourage that future research continues to focus on the social production of decision making. This CDP approach has shown how decision making may occur at both a macro and micro level, enabling us to examine how discourses are situated, action-orientated and constructed by placing emphasis on language as the focus of study. However, there is a need to adopt an even more microscopic analysis of interactions in the field, using conversation analysis, to show how decision making is fully realised. This can be achieved through the recording of Challenge event and group conversations in real time which will highlight any potential difficulty in decision making through features such as pauses, repair, interruptions and turn taking in talk, for example. Conversation analysts will consider the use of interviews in this study as a

limitation as it does not use the naturally occurring data that is necessary when examining conversation. Whilst critical discursive psychologists do not share this view, this future development will help to address this limitation. Similarly, researchers may continue to examine in further detail broader discourses within the wider social context. For example, using Foucauldian discourse analysis to study how knowledge of the mountains is constituted and the power relations that are constructed as a product of that understanding. The data showed further potential repertoires around advising, lack of understanding, awareness, skills, preparation and a respect for the hills, all of which shape how decision making in adventure events is achieved. These social practices are essential for understanding that NDM and bounded rationality are more than just cognitive constructs, as they have previously been positioned, but social ones too.

Beyond decision making, the data show capacity for developing future research within other theoretical frameworks, particularly that of performance (e.g., Schechner's (2003) performance theory or Goffman's (1959) notion of dramaturgy and framing), for example, in relation to how challenge events are discursively choreographed (see further, Beedie, 2003). Challenge events are highly relevant environments for understanding a range of social practices, and the combination of these contexts with talk-in-action provides a rich framework for exploration in the future.

6.   Acknowledgements

7. References

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