Decision inertia: Defining its meaning and dichotomising its context as a latent and emergent variable

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ABSTRACT

Introduction: Decision inertia is a failure to execute an important, irrevocable decision resulting in non-optimal consequences. Such decisions are high-stakes, irreversible and with far reaching consequences which may outlast the event; typical of a critical or major incident. This research aims to explore decision inertia in three ways. **Method**: Firstly, a detailed literature review will define *what* decision inertia is and *how* it manifests behaviourally (to inform a theory-driven coding dictionary assisting later analysis). Secondly, as a latent variable, it will be tested by exploring verbal and behavioural manifestations of decision inertia in practice. Thirdly, as an emergent variable, the impact of interoperability and new technologies on its likelihood will be tested. Data will be analysed using mixed methods both quantitatively and qualitatively. **Results:** Findings will extend the theoretical understanding of decision inertia as a concept and provide practical application to assist emergency service critical incident decision making.

KEYWORDS

Decision Making; General and miscellaneous; Decision inertia; Critical incidents; Interoperability; New technology

INTRODUCTION

When individuals make risky decisions involving high stakes and under conditions of uncertainty, the consequences of their choice can have large, irrevocable immediate and long term consequences. When under such uncertain and pressurised conditions, decision makers have been found to act in an avoidant manner, favouring inaction over decision implementation (van den Heuvel, Alison & Crego, 2012). Rather than commit to choice, decision makers will continually delay their engagement with the decision process (Eyre, Alison, McLean & Crego, 2008). This is defined as decision inertia: the topic of this research.

Research into decision making has advanced through disciplines of psychology, human factors and management. Yet the research on inaction or non-decision making has had less attention. According to Anderson (2003), decision avoidance is 'a tendency to avoid making a choice by postponing it or by seeking an easy way out that involves no action or no change' (p. 139). Anderson (2003) provided a useful introduction to this topic, yet failed to explicitly measure how it manifests in context (as a latent variable) or what appears to influence its likelihood (as an emergent variable). The present research will address this gap by: (i) explicitly defining decision inertia; (ii) outlining how it manifests in context; and (iii) exploring the likelihood of decision inertia in relation to the endogenous or exogenous characteristics of the critical incident environment.

Research will be conducted in the context of critical incident decision making with emergency 'blue light' responders (i.e. police, fire and rescue, ambulance). Alison and Crego (2008) defined critical incidents as highly risky and uncertain events with the potential to produce outlasting negative effects on those directly involved and the wider community. As such, naturalistic decision making paradigms have been a useful tool for conducting such research. Moreover, naturalistic research methodologies have produced mutual benefits between practitioners and academics in utilising immersive simulated learning environments to assist applicable training whilst generating ecologically valid psychological results (Alison, van den Heuvel, Waring, et al., in press). With this in mind, critical incident decision making was chosen as a fruitful research environment for studying decision inertia as a general concept, and also as conclusions may be usefully applied to assist policy and training for emergency service decision making.

METHODOLOGICAL APPROACH

There are three distinct themes to this thesis plan. Research will be mixed methods to generate empirically valid conclusions within an ecologically valid setting by utilising both a priori defined quantitative methods with post-hoc qualitative analysis of verbal and behavioural indicators.

RESEARCH QUESTION ONE: WHAT IS DECISION INERTIA?

Research will firstly define decision inertia as a distinct concept. Although it may be refined in response to experimental results, the first step to defining decision inertia will be via a detailed and exhaustive review of current literature on this topic - a recommended process for PhD research (Dunne, 2011). A systematic literature review will be conducted to provide a thorough and transparent basis for theory building (Rhoades, 2011). By following guidelines on how to conduct an objective systematic review (Neely, Magit, Rich, et al., 2010), a search protocol will be developed consisting of keywords, inclusion and exclusion criteria. The chosen search strategy is electronic search engines. In addition 'grey literature' relating to practitioner guidelines will be included to see how decision inertia is currently addressed in practice. Papers will then be identified, screened and selected before evaluating and extracting key information and synthesising findings. Results will assist in the preliminary generation of a theoretical, deductive coding dictionary of decision inertia as a latent theme.

RESEARCH QUESTION TWO: HOW DOES DECISION INERTIA MANIFEST IN CONTEXT?

The second research question will address *how* decision inertia manifests in the real-world via observational data from a simulated multi-agency training event and semi-structured interviewing.

Participants:

Participants will be strategic decision makers attending training for a multi-agency CBRN (chemical, biological, radiological, nuclear) event. Participants will be in the position of Gold command and involved in the Strategic Coordinating Group (SCG) meeting where strategic decisions are made.

Procedure:

Trainees from multiple agencies, including police, fire and rescue and ambulance, will respond to a live simulated CBRN incident as they would in the real-world. Measures of decision making are outlined below.

Measures:

Decision logs:

Decision logs will be utilised to identify the key decisions made during the incident. Key decisions will be verified in post-event interviews.

Videoed SCG meetings:

SCG meetings will be recorded and transcribed. Key decisions (generated from decision logs) will be used to guide the selection of discussion frames about these key decisions. A thematic analysis (Braun & Clarke, 2006) will be conducted to identify what key themes appear to be representative of decision inertia. This process will involve both 'bottom up' and 'top down' processing. Top down processing will be based upon the theoretical coding dictionary generated from the literature review to guide initial coding of data. In addition, the data will also be explored 'bottom up' for indicators of decision inertia not identified in the a priori coding dictionary. A full coding dictionary will be synthesised and data set returned to for full coding of identified themes.

Post-task semi-structured interview:

Semi-structured interviews with Gold commanders involved in SCG meetings will also be conducted. Interviews will be supplemented with video footage of SCG meetings to aid recall. Commanders will be asked about their perceived key decisions during the event and further asked about their experience of decision inertia. This is to further unpack decision inertia as a latent concept to inform its semantic definition. Interviews will be transcribed and thematically analysed following the procedure above.

RESEARCH QUESTION THREE: WHAT FACTORS DURING CRITICAL INCIDENT RESPONSE CAN PREDICT THE LIKELIHOOD OF DECISION INERTIA?

Research will also explore *why* decision inertia may occur as an emergent variable by analysing its relationship with predictor variables. This research will be conducted in a more experimental and controlled manner during two simulation studies.

Study one: Does the presence of multiple agencies during interoperable emergency response increase the likelihood of decision inertia?

Participants:

Participants (n=60) will be trainees from the Fire and Rescue service who will complete a laptop based simulation scenario. They will range in rank from Crew up to Area managers and randomly split into one of two experimental groups. Both groups will complete the same simulation however, crucially, group A will be given additional information informing them that other agencies (police and ambulance) are also in attendance whereas group B will be told that the fire service are the only agency at the scene.

Procedure:

All participants will be told that they are Incident Commander (IC) and will individually complete a computer based 30 minute scenario though PowerPoint using headphones and a keyboard. The scenario involves an incident at a transport tunnel which initially appears to be a road traffic collision but escalates to become a potential terrorist attack. A key strategic decision will be the declaration of a major incident. The scenario will be developed in accordance with a UK based Fire Service Training and Development Academy and subject matter experts used to validate realism and provide a 'gold standard' response. The only difference between groups during the scenario is the initial framing of whether other agencies are in attendance at the scene.

The scenario will consist of six auditory information feeds. Following each information feed the scenario will freeze and they will answer questions on: situation assessment; risk perception; information requests; actions taken. They will also score measures of their uncertainty using a Likert scale. Following the scenario, they will answer a questionnaire about whether they declared a major incident and their reasons for this. The questionnaire will also identify, via a series of set questions, whether they experienced decision inertia and if so in what form.

Measures (Independent variables):

- Individual differences prior to the experiment will be taken by filling in a questionnaire to measure:
    o Work based locus of control
    o Trust in teams (both intra- and inter- agency based trust)
    o Organizational stressors (perceived work-based constraints; coping tendencies; psychological work-related strain)
    o Experience
- Experimental manipulation (multi-agency environment)

Measures (Dependent Variables – by comparison to 'Gold Standard'):

- Situation Assessment
- Risk perception
- Information requests
- Actions taken (including 'key' declaration of major incident)

Main Hypothesis:

H1: Decision inertia (to declare a major incident) will increase when other agencies are at the scene. This effect will be greatest in (and moderated by) those with:

- External locus of control
- Low inter-agency trust
- High organizational stressors
- Less experience

Future application:

It is hoped that this study can be extended to both ambulance and police to assess the multi-agency effects on decision inertia.

Study two: Can the use of autonomous systems in critical incident response reduce decision inertia?

Participants:

Participants from a UK Fire and Rescue Service will test the effects of a prototype autonomous quadrotor being designed in conjunction with the Engineering Department. They will be split into two groups: one with use of the quadrotor and one control group.

Procedure:

Participants will respond to a live simulated event. Their decisions and responses will be logged by an observer during the task. Participants will later be asked to attend a short semi-structured interview to measure their recalled situation assessment following the event.

Measures (Situation assessment – recall and recognition task):

Prior to being interviewed, participants will be asked to fill in a short questionnaire to measure their recognition. They will be asked closed questions about the event and must select the appropriate options from a given list. During their interivew, they will be asked to recall the event as they remember it. The observer logs will be used to measure accuracy.

Measures (Decision inertia):

During the semi-structured interview, they will also be asked about their decision inertia experienced during the task. Responses will be transcribed, coded and results compared between groups.

IMPLICATIONS

This research will contribute to the theoretical understanding of decision inertia. Although findings are generated from critical incident decision making, it is hoped that the coding dictionary can be extended to future testing in other domains. Research will also provide practical recommendations for assisting emergency service crisis response by assessing how decision inertia can be affected by interoperabiltiy and new technologies. The coding dictionary of decision inertia indicators will also be useful for assessing training.

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