Predicting Boredom-Coping at Work

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Predicting Boredom-Coping

Introduction

Boredom at work is a fairly common phenomenon and is linked to many negative outcomes for individuals and organizations. For example, work-related boredom is found to have adverse effects on morale and quality of work (Thackray, 1981) and is claimed to be a significant issue in terms of impacting overall organizational performance (Gemmill and Oakley, 1992). However, researchers (i.e., Fisher, 1993; Loukiou et al., 2009; Shackleton, 1981; Vodanovich, 2003) have highlighted the inadequate attention boredom has received in the management literature. It is suggested that understanding individual differences in boredom-coping may be an appropriate strategy for managing boredom more effectively in the workplace (Game, 2007; Loukiou et al., 2009; Spector and Fox, 2010). Even so, this literature is under-researched and requires more exploration (Game, 2007; Skowrons, 2012).

Contributing to this literature is important because employees who are able to better cope with boredom are likely to have higher levels of employee engagement. While the link between engagement and productivity is now more clearly established (Markos and Sridevi, 2010) the pathway to high engagement from a disengaged state (i.e., not coping with boredom) remains unclear. These implications are significant (Bishop, 2011) as figures from a recent global Gallup engagement survey show that in the workplace is revealed to be less than optimal in 67% of employees, of which 18% are described as actively disengaged and this is estimated to be costing the United States Economy between $250 and $350 billion a year (Rath and Conchie, 2009).

There are many reported benefits of finding high engagement at work for both individuals and organizations and this research on boredom-coping in a highly monotonous environment has provided insight into achieving a healthier state of engagement at work. In improving our understanding of predicting boredom-coping additional strategies that are designed to build a more engaged and productive workforce can be developed.

This paper provides empirical evidence that extends the explanatory power of the existing models of boredom-coping described in the management literature. The research approach was to include a mixed qualitative and quantitative investigation (viz., Bryman, 2006; Miles and Huberman,
The absence of empirical research generating constructs, especially in high marginal productivity of labor (MPL) industries has led to the need of beginning this research in primary data collection at the “coal-face”. This is because in high MPL industries, small behavioral changes can lead to high relative returns in productivity. The participants in this research operate a piece of equipment that is valued at more than $100 million and provide a more than 30% per cent of the revenue of some mine-site operations. This provides an excellent environment to investigate boredom-coping in a MPL environment and provides a shared research objective for theory and practice.

The research triangulates the identification of themes through consultation with five industry experts, twenty-three individual in-depth interviews and 169 survey respondents. All three stages were conducted at separate times and the survey participants were selected randomly and independently of the interviewees. The content validity of the themes was established using a two stage process. First, the identified themes were confirmed as representative of issues faced by participants by a panel of five industry experts. The second stage involved examining each construct in the context of the management literature. While the research literature identified a gap in the dynamics of identifying boredom-coping techniques, emerging from this process were ten variables all of which appear with varying levels of resonance in the Human Resource Management literature. The final operationalization of these variables was to generate a survey that involved adapting previously validated scales to the current setting.

**Boredom-Coping at Work**

Boredom is usually described in the literature as a dissatisfying or negative emotional state (Farmer and Sundberg, 1986; Game, 2007) and has been associated with counter-productive withdrawal from work (Bruursema et al., 2011; Spector et al., 2006). People who experience boredom at work also report greater levels anxiety, depression, and neuroticism (Caplan et al., 1975). In addition, regardless of occupation, employees who perceive their jobs to be monotonous and boring are likely to be less satisfied with their work (Gardell, 1971; Lee 1986; MacDonald and MacIntyre, 1997;). Other undesirable outcomes such as engaging in unsafe work practices, or stealing company...
property (Runcie, 1980), absenteeism, turnover and output restriction (Fisher, 1993; O’Hanlon, 1981) are also found to be associated with unmanageable boredom in the workplace.

Boredom at work is impacted by an individual’s perception of the challenge and interest they find in their work. For example, boredom at work can occur due to an inadequately stimulating environment because of a lack of work to perform (Berlyne, 1960; Kass et al., 2001), when one’s skills exceed one’s immediate challenges (Csikszentmihalyi, 1975) or when tasks are overly challenging for the individuals leading to withdrawal behavior (Fisher, 1993). This may suggest that improving one’s perception of capacity through appropriate training may reduce boredom by supporting an individual’s ability to engage in their work. Ashkanasy and Daus (2002) suggest some employees may be better equipped to perform under adverse circumstance than others. However, a downward spiral and increasing emotional intensity can lead to other employees becoming infected by this negative emotion and this has become known as emotional contagion. Remember the Gallup Global Survey research suggests 18% of workers are actively disengaged. This reinforces the second shared research objective, that in line with Affective Events Theory (AET) there is a need for managers to pay attention to the emotional climate of the organization.

The experience of boredom in a given situation may also differ depending on the disposition of the individual (Drory, 1982; Farmer and Sundberg, 1986; Hill, 1975; Hulin and Blood, 1968; Skowronski, 2012; Turner and Miclette, 1962; Zuckerman, 1994). Personality traits such as neuroticism, need for achievement, extraversion (Loukidou et al., 2009), conscientiousness (Sansone et al., 1999), and internal locus of control (Fox and Spector, 1999) have all been argued to be associated with an individual’s ability to cope with boredom.

Hamilton et al., (1984) defined boredom-coping as “ones disposition to restructure one’s perceptions and participation in potentially boring activities so as to decrease boredom and/or to maximise the opportunities for intrinsic enjoyment” (p. 184). Thus, boredom coping can be considered a “personal quality” to execute of a variety of interest enhancement strategies that relieve boredom (Fisher, 1993; Sansone et al., 1999; Spector and Fox, 2010). Game (2007) investigated how people cope with boredom at work and whether differences in boredom-coping effectiveness are
associated with differences in employee well-being and safety behavior. She found that high boredom-copers reported better well-being compared with low boredom-copers.

Recently, Skowronski (2012) suggested that boredom-coping is a form of stress that individuals self-regulate through specific coping behaviors. He provides a typology of boredom coping strategies that are either cognitive or behavioral and each may have counterproductive or beneficial outcomes for an organization. However, relatively little is known about underlying factors that drive interventions to manage boredom-coping. The third shared objective of this research from an external management consultant perspective is a framework for feedback and intervention.

In summary, the literature above broadly identifies three main groups of factors that appear to mediate boredom-coping in the workplace. These vary from understanding the personality traits of individuals that management can do little about changing, through to relatively stable perceptual values based attitudes, to trainable abilities that can be potentially modified with less investment in overheads. In the next section the link between boredom-coping and engagement is outlined.

**Boredom-Coping and Engagement**

The link between job-engagement and boredom at work suggests it is potentially detracting from employee productivity and well-being. Engaged employees are typically described as having a positive, fulfilling, and work-related state of mind that is characterized by vigor, dedication and absorption (Schaufeli and Bakker, 2004). These workers are fully involved in and enthusiastic about their work (May, Gilson, and Harter, 2004; Bakker and Bal, 2010). On the other hand, the affective circumplex (viz., Remington, et al., 2000; Russell, 1980; 2003) positions boredom at the polar opposite of enthusiasm (Daniels, 2000) and is described as an unpleasant and deactivated state. Warr and Inceoglu, (2012) apply the affective circumplex model to further support the notion that engagement is related to boredom-coping by assigning enthusiasm to engagement and thereby connecting boredom as its polar opposite.

Boredom is also described as the antithesis of “flow” or optimal psychological involvement in work (Czikszentmihalyi, 1975; 2002). In contrast to the negative implications of boredom, flow provides a significant up-side incentive for investigating and providing a framework for intervention with boredom-prone and disengaged workers. Czikszentmihalyi asserts that the experience of “flow”
is most likely to occur in an engaged emotional state. However, the process of moving from a

It is reasoned here that the process of implementing strategies designed to build a more engaged and productive workforce require a richer understanding of the individual factors that can impact boredom-coping. This may then lead to the provision of selection activities and training-programs that support the transition from disengagement among staff to a more fully engaged and flourishing workers.

In summary, effective boredom-coping is likely an internal state of arousal based on an individual’s interaction with their environment (i.e., AET Theory). However, the literature on individual-level factors that may predict one’s ability to better cope with boredom is still somewhat under researched (Skowronski, 2012). This paper adds to the current literature by exploring factors that may predict boredom-coping. In doing so, indicators developed from a qualitative investigation are translated into quantitative measures that are found to be significant in predicting an individual’s propensity to cope with boredom. In the following section the research context is explained and this is followed by the findings of the qualitative study that is expressed as a conceptual framework presented in Figure 1.

**The Research Context**

This research was conducted at twelve Australian coal mine sites and focused specifically on the position of Dragline operators. Draglines are large specialised pieces of equipment valued at over 100 million dollars each and are responsible for uncovering approximately 30% of the coal mined in Australia (Australian Bureau of Agricultural and Resource Economics, 2009). Few places provide such an ideal context to explore the contribution of existing theories of boredom coping as the Australian mining industry. The mine-site environment allows the testing of a few key variables in predicting boredom-coping in work (i.e., dragline operator) that has been described as ‘devoid of motivation’ and highly repetitive (Lumley and Hede, 2006). Further, there are significant potential cost implications of understanding factors that may impact the levels of engagement of dragline operators as it is considered a high MPL work environment.

**The Qualitative Research**
The Research Background

This research project was conducted and overseen with the support of an expert industry panel that was comprised of five industry experts. This was an explicit condition of the research program. The expert panel suggested at the outset that the key driver of long-term effectiveness, in the dragline operator role, was an ability to manage monotony and repetition because of the design of the work. As such, the research set out to explore how managers could best design interventions for the workforce to support their employee’s capacity to cope in this “mundane” environment. Understanding the approach of the project that was focused on managing monotony rather than productivity per se is important. In this environment, experienced practitioners are aware, especially in Australia, that obvious attempts to manage and improve productivity of staff can increase levels of disengagement among respondents. Similarly, even though the research is based in the boredom-coping literature to avoid confounding effects due to social desirability (Moorman and Podsakoff, 1992) the antecedents of boredom-coping are utilized to reduce the risk of bias. It was thought that speaking directly about boredom-coping to mine-site workers would be problematic as it could potentially create artifice. The actual phrasing of comments in the extraction of the themes will be found to be rich in content with the antecedents of boredom-coping. Therefore, in this intervention the focus was on more subtle measures that the workforce would appreciate (i.e., helping them to cope more effectively in enjoying their work) rather than suggesting they were being urged to produce more output. Specifically they were asked about what they enjoy about being a dragline operator. Furthermore, an implicit requirement of the project was to propose interventions that could be implemented in the short-term as well as suggesting strategies that would be rolled out over a longer time-frame. Finally, the expert panel were consulted and supported the development of the interview protocol used during the interview process. This is described next.

The Interviews

The findings described in this part of the analysis were obtained from twenty-three interviews conducted with individuals experienced in dragline operations from two Australian coal mine sites. The participants were all male and their experience as a dragline operator ranged from 2 months to 34
years. The median experience as a dragline operator was 8 years. The interviews were conducted in a semi-structured manner and lasted between thirty minutes to one hour. The interview protocol developed for the study focused on the interviewees’ perceptions of three general issues:

1. Enduring personal qualities of a more effective operators in enjoying their work
2. Perceptual factors that contributes or hinders being able to do the job well.
3. Trainable motivating factors in the job and the environment that impact upon performance.

Given the exploratory nature of this research, two researchers were present at the first six interviews. This enabled the deployment of deeper probing techniques and greatly facilitated the data analysis process. In addition, this approach ensured that similar questioning and probing techniques were used consistently.

During the analysis phase, these data were organised categorically and reviewed repeatedly. There was a high degree of consensus amongst the data collection team and five industry experts concerning the emergent themes that depict performance and productivity issues experienced by dragline operators on Australian coal mines sites. These are described in the next section and used in the development of hypotheses that are examined later in the paper.

**Coping with Boredom**

When asked “what do you enjoy about being a dragline operator” the dominant recurring theme evident in the interview transcripts centred on the antecedents of boredom-coping as consistent with the literature described previously. The operators generally suggested that the work has the potential to be monotonous and repetitive. For example, most of the operators used the term “repetitive” when describing the work. They also suggested that “some don’t manage it at all” and it was evident that being in this work environment and enjoying the work involved a personal capacity to cope with its repetitive nature. When the participants were describing operators who found less enjoyment in the work, one interviewee stated “well, it’s just that they’re bored with it, been there for too long”, and another said, “it depends on the person, if I know the person and I know how they will handle it [the repetitive work]”, and “if they get bored with certain jobs they’d be no good down here”, similarly another stated, “some people are sick of the area, sick of the job, I’ve seen that a fair
bit of that around”, and another example was that, “some don’t manage it at all and it is very
repetitive”.

On the other hand, it was also suggested that even though “it is a repetitive job some
operators find it quite engaging” and it has the potential to be “very self-rewarding”. In general, it was
suggested that the work could be made enjoyable by using certain strategies (i.e., boredom-coping).
For example, a participant said, “by and by to make it not a bore, you just take an interest in it and
that’s about the only way you can use what you have, one tool and it’s probably the most important
tool”. Other comments included “just be interested in what you’re doing and be doing it for a certain
reason not just ‘cause it’s there”, “the only way to cope with it is to keep trying to improve, if you
don’t then that becomes a very repetitive job because you are only going through the motions”, “I just
enjoy it”, “this has to be a job you enjoy doing I guess. Every bucket of dirt brings you closer to the
end result of the big plan”, “plenty of people say; I don’t know how you sit there all day and do that.
But when, if they ever get the opportunity to have a go at it, seriously have a go, quite often they find,
well they always find that it is not as easy as it looks! A certain amount of pleasure is taken from
being able to do it properly”.

In summary, the role of being a dragline operator was described by the respondents as
potentially enjoyable but depended on a range of antecedent themes, these are described next.

**Personality Traits**

When describing personal qualities associated with being a more effective operator in
enjoying their work, the participants identified having a “better” attitude as very important. When
probed further, they suggested that this meant “being responsible” and “conscientious”, “hard
working” with a “good work ethic”, “being flexible” and “easy going” and “being more outgoing with
an ability to communicate” than some of the less successful performers on the dragline.

Based on the interview data three dimensions (i.e., extraversion, conscientiousness, and
openness to experience) of the Big Five Inventory (John and Srivastava, 1999) were identified as
potentially related to operator performance. The Big Five is a well-known scale and is known to be
highly reliable and valid (e.g., Barrick and Mount, 1991; Goldberg, 1981; McCrae and Costa, 1985, 1987).

A frequent theme identified in the data and directly stated as being an important characteristic of those operators more effective at finding enjoyment in the work was being open and flexible. This may be captured by the dimension of openness to experience. According to McCrae, (1994) individuals higher in openness to experience tend to have flexible attitudes and engage in divergent thinking. McCrae, (1987) states these individuals more actively seeks opportunities to learn about new ideas that challenge conventional wisdom. Openness to experience has also been associated with training success (Salgado, 1997). Many operators described aspects of the openness to experience construct in the interviews. For example, it was suggested that, “as I have achieved my goal of becoming a dragline operator, being innovative and to be the best is what continues to keep me motivated”. Another example potentially describing openness to experience included “if you don’t have the variety of experience that comes from working your way up, you have difficulties in the workforce”. The participants often concurred that the operators who had the “best attitudes” and who were the most effective in enjoying their work were “continually looking for ways to improve”. In sum, it is expected openness to experience will be linked to boredom-coping in the current environment.

Extraversion has been previously associated with boredom at work and is a broad construct that is typically thought to consist of sociability ( Judge et al., 1999). In their review of the boredom literature, Loukidou et al., (2009) concluded that extraverts need additional stimulation in order to prevent boredom. Costa and McCrae (1992) suggest that extraverts are inclined to interact more frequently and with a higher intensity than non-extraverts. Taken together, this may indicate that extraverts may communicate to reduce boredom at work. During the interviews an operator’s ability to communicate was described as critical for their success. Many operators described the importance of good communication with members of their team, supervisor, and other key stakeholders on the site. One operator captured this view stating that “communication is a big thing out here” while another stated that “good communication is one of the things that helps you to say … I managed to do a great job today”. As such, being an effective communicator was often considered important and
appeared to be linked to their overall engagement in their work. Shirom (2003) suggested that being more extraverted may be also linked to engagement through vigor. Bakker and Xanthopoulou (2009) found that extraversion was positively related to the degree of engagement reported on a daily basis. They also described a positive relationship between extraversion and a work-partner’s daily work engagement. The crossover of work engagement was found to take place on days when colleagues interact more frequently than usual.

Consequently, the dimension of extraversion may be linked to an individual’s ability to communicate effectively and therefore impact an operator’s success on the job. Thus, those more disposed to communicate because of their nature (i.e., extraverts) are likely to be more engaged through more effective levels of personal communication and feedback. In this paper it is empirically investigated as being linked to boredom-coping.

Conscientiousness or dedication to the job was specifically described as essential for high performing dragline operators. For example, participants suggested that one of their biggest frustrations was the less-conscientious operators. It was stated that “the biggest frustration to me is other people’s laziness” and that “a lot of crews would rather leave the work for someone else to do due to laziness”. Similarly, it was suggested that their “lack of discipline” impacted performance. One described this type of behavior as “rip then bust types of guys” and another described operators who were not doing well in the position as “not being motivated because they think that they can get away with it”. These comments and many comments like them lead the researcher to conclude that these operators are almost describing the dictionary definition of conscientiousness.

Conscientiousness refers to the degree to which individuals are reliable or unreliable, organised or disorganised, careful or careless (John and Srivastava, 1999). Individuals high on this dimension are more likely to be orderly, competent, and responsible whereas those individuals who are lower on this dimension may be easily distracted and impulsive. A significant amount of research suggests that conscientiousness has been perhaps one of the most consistent predictors of job performance (Barrick and Mount, 1991; Witt and Gerald, 2003). Conscientious has also been
previously linked to bored coping. Sansone et al., (1999) found that conscientious people tend to be less bored and perform better in monotonous tasks due to their high sense of duty and self-discipline.

*Work ethic* was specifically identified by the respondents as important in their work environment. Work ethic is defined as a commitment to the value and importance of hard work (Miller et al., 2002) and has attracted a significant amount of research attention. Some research suggests that low levels of work ethic correlate with higher levels of absenteeism and turnover (Klebnikov, 1993) and an increase in negative behaviors such as unofficial breaks from work and employee theft (Sheehy, 1990). Understanding work ethic may have important implications in the current work environment as the operators said that “having a good work ethic” is related to a “positive attitude”. They suggested that to do a good job “you have just got to be committed and enjoy your job”. This lack of commitment that may be linked to work ethic and was also described by some operators who “aren’t motivated to do it [the work] because they think that they can get away with it” and “pride in your job would really help” and that some take the attitude that “oh I am going to get paid today no matter what, if I do it right or do it wrong, I’m still going to get paid”. Another interviewee stated that they felt that the less successful operators do not have the “right attitude” and they “don’t care and knock the gear around and they are not really worried about the job”. This resonated as a lack of work ethic and is explored in the subsequent quantitative study.

**Trainable Abilities**

The best operators were often described as having a “big picture” view. This appeared to mean that the operators could understand what was going to occur in front of them and they were aware of what was going on around them in the present situation. The importance of a “big picture” view was regularly discussed by the participants as being a fundamental part of being a successful dragline operator. For the most part, the “big picture” was described as relating to the operators who had a “vision of the long term plan”, or those who are “able to plan the next dig sequence”, and it was regularly associated with operators who know “how it all fits together”. It was argued that failure to do so could have a significant impact on the performance and productivity of the crew. The data suggested that a concept of having “situational awareness” was critically important to the success of an operator. There were many statements with regards to the “need to be aware and know what is
going on around you at all times”, “to think ahead” and to “understand the big picture”. From the
descriptions of the participants it was felt that operators did differ in this quality and it seemed that
this occurred naturally for some dragline operators while others had developed this capacity through
experience and training.

The “big picture” as described by participants may be captured by the management concepts
of “foresight ability” and “situational awareness”. Endsley and Garland (2000) defined situational
awareness (SA) as the perception of elements in the environment, comprehension of their meaning
and the prediction of their status in the future. Lack of, or inadequate, SA has been identified as one of
the primary factors in accidents attributed to human error (e.g. Nullmeyer et al., 2005). As a
consequence, SA may be important in the mine site context.

According to Slaugther (1995) foresight ability (FA) is the capacity to create and maintain a
high quality, coherent and functional forward view and use insights arising in organizationally useful
ways. Foresight ability has been identified as a critical competency in leaders and organizations
(Hamel and Prahalad, 1994; Major Asch and Cordey-Hayes, 2002). The literature on FA can be
regarded as sparse (Fuller et al., 2004) and little research has addressed its applicability in the day-to-
day operations of work. Foresight ability is also considered a cognitive ability and linked to
intelligence and a reduction in detected counterproductive workplace behaviors (Dilchert et al., 2007).
It is argued that foresight ability competence can be developed by being exposed to discourse on
foresight concepts, its method and application (Alsan, 2008). In the quantitative study the link
between FA and boredom coping is also explored.

The phrase “experience is the best teacher” seems to illustrate the view of the majority of the
participants in this study when it comes to defining a successful dragline operator. It was suggested
that the more successful operators are endowed with a natural practical capacity of hand-eye
coordination. One dragline operator specifically stated that “if you don’t have good coordination, you
will never get it”. It was suggested that “some people learn fast and some don’t”. These descriptions
may be explained by the practical intelligence of the operators.

Practical intelligence is defined as the ability that individuals use to find a more optimal fit
between themselves and the demands of the environment through adapting to the environment,
shaping (or modifying) the environment, or selecting a new environment in the pursuit of personally-valued goals (Sternberg, 1985, 1997, 1999). It can be characterised as ‘street smarts’ or ‘common sense’ and can be contrasted with academic intelligence or ‘book smarts’ (Sternberg and Hedlund, 2002).

The usefulness of practical intelligence (PI) in predicting job performance is well documented (Fox and Spector, 2000; Sternberg and Hedlund, 2002). Several studies have shown significant relationships between practical intellect and physical and mental health (e.g. Katz and Epstein, 1991) and success in social relations and the workplace (e.g. Epstein, 1985; Katz and Epstein, 1991). Further studies indicate there is a relationship between employees’ emotional and practical intelligence abilities and their level of commitment to their organization (Humphreys et al., 2003). In a study involving undergraduate students Fox and Spector (2000) found it was linked to simulated interview outcomes. They also suggested that practical intelligence appears to be both a cognitive and an affect laden construct. Practical intelligence is potentially important in positions such as a dragline operator as it refers to the behavior individual’s exhibit in real world environments as a result of their implicit knowledge (Sternberg and Hedlund, 2002; Wagner and Sternberg, 1985, 1990). This is investigated further in the quantitative study later.

**Attitudes and Beliefs**

The dragline operators regularly acknowledged the work could become “monotonous” and at times “repetitive” and as having the potential to “get a bit boring”. However, individuals reported, that in observation of, their peers those they felt were the more effective operators in enjoying their work were able to cope with the repetitious work more successfully than the less successful operators. A key theme emerged that when the operators considered themselves as being more engaged in their job they had a positive *attitude to challenge*. These operators suggested they felt challenged and interested in what they were doing. For example, many comments echoed the view of one operator who suggested that, “the only way to cope with it [the repetition] is to keep trying to improve, and if you don’t then it becomes a very repetitive job because you are only going through the motions”. Others who seemed to cope with boredom in the work suggested that, “trying to get our targets motivates me”, as well as “I enjoy achieving the targets and recovering the coal, it’s an interesting
pastime”. The participants believed that those operators who were most successful have a capacity to find personal challenge in the day-to-day aspects of their work. In doing so, they cognitively create an internally competitive environment where improvements against their previous personal achievements appear to derive in pleasure and satisfaction and support their involvement in their job activities.

**Group Membership**

The nature of the dragline involves working closely as part of an on-going partnership between two operators. When describing their ability to work effectively on the dragline, there was a general agreement in the importance of confidence in your crew-mate and the idea that the operators who worked best together could depend on each-other. There was a consistent theme that appeared to indicate the interdependent nature of this relationship. When describing their ability to work effectively on the dragline, there was a general agreement that the interaction that existed with their crew-mate was critical for success. Themes in the data regularly suggested that the partnership’s performance is impacted by the other member’s attitude and their ability. “A good partner is something that helps me do my job well” was a statement that captured the views of many operators. Other specific examples, that suggested “one of the most productive teams” was so successful because of “their ability and attitude” and their “mindset”. At the heart of these comments was the idea that the operators could depend on their team-mate. Another stated that “if you haven’t got good people [with the right attitude] to work with, that makes it [the job] hard”. Finally, one operator indicated “I am working with I bloke I know very well and there is never the slightest hint of doubt when working with him, whereas, you can sometimes have to work with others who you’re not so confident in”.

Management research has identified the importance of perceived *group potency* to the performance of teams. Group potency is a generalized belief that refers to broad perceptions about a team’s capability in spanning tasks and situations (Gibson et al., 2000). It is proposed that high levels of group potency can help teams persevere in the face of adversity (Gully et al., 2002) and improve team effectiveness (Guzzo et al., 1993; Pearce et al., 2002). While the management literature has not linked group potency and boredom coping, Loukido et al, (2009) review the impact that other people at work may have on boredom. One example is a study examining flights attendants where Xanthopoulou et al., (2008) have shown that social support has a positive impact on attendant’s self-
efficacy and this determined performance through work engagement. Based on the qualitative data it appears that group potency may be an important variable in the current context.

The impact of group factors seems to have been largely ignored in the workplace with comments from the field suggesting that management has not paid attention to who are placed together and an attitude of “let’s just get on with it” and it is largely left to the capacity of the individual’s involved to work it out themselves with little guidance or support. In terms of intervention timeline this is an obvious starting point because in many cases incompatible workmates can be relatively easily separated or allocated.

The qualitative study has supported the approach that three main groups of factors that appear to mediate boredom-coping in the workplace. In addition, it appears that the role of the group may also add to the understanding drivers of boredom-coping. The model presented in Figure 1 outlines four areas of intervention that are likely to range in timeframe to implement and their effect on behavioral change in the area of boredom-coping. The conceptual of drivers of boredom-coping are presented on an intervention time-line consistent with the needs of the industry client. The intervention time-line accounts for time constraints that can occur, even in well-resourced organizations, to understand specific knowledge, skills and abilities (KSAs), develop training strategies and materials, and then implement the training. However, the study variables included in Figure 1 are derived directly from the qualitative findings and were included in such a way so that they could be delivered in keeping with the expectations of developing a time-line intervention approach. The intervention time-line is subjective it is included to demonstrate that Human Resource practitioners could expect relatively different transfer times and return on training investment across the proposed boredom-coping drivers. It also suggests specific areas where interventions could be planned and may be directly altered to suit relevant individual and group deficiencies and capabilities.

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Insert Figure 1 about here
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The model suggests four propositions.
P1: Managing group membership and dynamics will provide an early intervention that can improve the capacity of individuals in that group to cope with boredom.

P2: A set of vital prerequisite abilities once identified can be trained and will increase an individual’s capability to cope with boredom.

P3: Perceptual attitudes and beliefs associated with managing challenge will enhance the capacity to generate strategies for boredom-coping.

P4: Personality traits will eventually account for the majority of the influence over boredom-coping.

The model presented in Figure 1 supports the development of four hypotheses for testing using hierarchal regression analysis, these are:

H1: Group potency will make a significant contribution in predicting boredom-coping.

H2: Trainable abilities will make a significant contribution in predicting boredom-coping.

H3: Attitude to challenge will make a significant contribution to predicting boredom-coping.

H4: Personality Traits will make a significant contribution to predicting boredom-coping.

The Quantitative Research

Based on the results of the qualitative investigation a questionnaire was developed to collect data for the next stage of the analysis. The questionnaire data was collected during an approximately six-month period and was administered to the respondents “on-site” using a researcher-assisted approach allowing clarification of any queries while completing the form. The survey was conducted approximately 12-months after the face-to-face interviews.

Respondents

A total of 169 dragline operators from 12 Australian coal mine sites participated in the survey. This accounts for approximately 22.4% of the population of dragline operators in Australia (Lumley, 2005, identified 760 operators in Australia). The participants were all male, 25% were aged
between 35 years and 44 years, 60% were aged between 45 years and 54 years and 31% indicated they were above 55 years. Their experienced ranged, with 39% had 5 years of experience or less, 47% indicated they had more than 10 years of experience and 21% indicated more than 20 years of experience.

Measures

Personality traits. The measures of extraversion, conscientiousness and openness to experience were assessed using subscales of the abridged and adapted Big Five Inventory (John and Srivastava, 1999). The abridged version of the Multidimensional Work Ethic Protocol (MWEP) was used to measure individual perceptions of work ethic. The composite variable personality traits showed acceptable reliability (α=.64).

Boredom coping. Boredom coping was measured by the Job-Related Boredom Coping scale adapted from Hamilton et al.’s (1984) as cited in Game (2007). Seven items were used and included, ‘When I'm working, time always seems to be passing slowly’, ‘When I'm bored with my job, it is usually only a short time before I'm interested again’, and ‘During an average shift at work, I'm generally more bored than interested’. This research revealed an acceptable level of reliability (α = .76).

Attitude to challenge. Attitude to challenge was measured using an abridged version of Hackman and Oldham’s (1975) Job Diagnostic Survey (JDS). The JDS is a widely used perceptual measure and has acceptable internal consistency and reliability (α = .69 to .79) and moderate test-retest reliability and discriminate validity (Pierce and Dunham, 1978; Taber and Taylor, 1990). Scale items used to measure this construct included, ‘The work I do in my job on the dragline is interesting’, and ‘The work I do in my job on the dragline is challenging’. This scale displayed adequate reliability (α = .61).

Trainable abilities. This composite was developed using practical intelligence adapted from the Sternberg and Hedlund (2002) scale and foresight ability and situational awareness adapted from Endsley and Garland’s (2000) scales. The final composite scale (α=.78).

Group potency. The measure for group potency was adapted from Guzzo et al. (1993). The scale consisted of seven of the original items suggested by Guzzo et al that were adapted to refer to
‘my crew-mate and I’. This 7-point scale contained items such as ‘My crew mate and I have confidence in our work ability’. Cronbach’s alpha coefficient for the scale was .88.

**Results**

**Regression Analysis**

Table 1 presents the correlation coefficients among the study variables. Statistically significant bi-variate correlations between boredom coping and group potency (.28), trainable abilities (.36), attitude to challenge (.54), and personality traits (.57) were found. Other notable significant relationships were found between trainable abilities and group potency (.47) and personality traits (.59).

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Hierarchical Multiple Linear Regression was employed to test the hypotheses described earlier by determining the unique and significant contributions of group potency (H1), trainable abilities (H2), attitude to challenge (H3) and personality traits (H4), and on the dependent variable boredom-coping. The possible existence of multicollinearity was examined in SPSS using the VIF (variance inflation factor) that is calculated for each variable in the OLS regression. Marquardt (1980) suggests that a VIF greater than 10 indicates the presence of strong multicollinearity. VIF statistics in this research ranged between 1.29 and 1.80 indicating that multicollinearity is not a problem in this analysis.

Table 2 contains the standardized regression coefficients (β), $R^2$, and change $R^2$ ($\Delta R^2$). After Step 1, group potency was found to be a significant predictor of boredom-coping $R = .29$, $R^2 = .085$, $F(1, 143) = 13.30$, $p < .05$. This supports hypothesis 1. At step 2, hypothesis 2 was confirmed, the addition of trainable abilities as a predictor with group potency resulted in a significant improvement in prediction, $R = .39$, $R^2 = .148$, $\Delta R^2 = .063$, $F(2, 142) = 12.32$, $p < .05$. At step 3, the
addition of attitude to challenge $r^2 = .094$, $t = 4.803$, $p < .05$, and personality traits $r^2 = .072$. $t = 4.217$, $p < .05$, as predictors with group potency and trainable abilities also resulted in a significant improvement in prediction $R = .66$, $R^2 = .430$, $\Delta R^2 = .282$, $F(4, 140) = 26.39$, $p < .05$. This confirmed hypotheses 3 and 4.

Insert Table 2 about here

This equation of prediction produced by this analysis was found to have an $R = .66$ $F(4, 140) = 26.39$, $p < .05$ and a coefficient of determination that explained 41.4% of the variance in boredom-coping. In developing the final equation all of the variables were found to be significant at some stage in the analysis just as expressed in the qualitative section. The final mathematical equation representing the equation using un-standardized coefficients predicting boredom coping was found to be:

Boredom-coping = challenge x .31 + enduring characteristics x .51 + trainable behaviors x .04 + group confidence x .04 + constant x .71.

Discussion

The findings of this research enable the ability to now reflect on the prior literature. Many researchers (i.e., Fisher, 1993; Game, 2007; Skowronski, 2012; Spector and Fox, 2010; Vodanovich, 2003) have highlighted the inadequate attention boredom and boredom-coping has received in the management literature. The qualitative study identified key themes that may facilitate an individual’s boredom-coping ability. Specifically, these data showed that boredom-coping may be influenced by relatively stable personal dispositions (i.e., conscientiousness, openness, work ethic, and extraversion) and self-beliefs (i.e., attitude to challenge and interest in the work) and more learnable skills that are likely to improve with experience and training (i.e., practical intelligence, situational awareness, and foresight ability) along with perceptions of group potency. The $r = .66$ correlation coefficient reported
in this study substantiates the empirical approach taken here, particularly the primary qualitative data gathering.

This study verified the link between the identified variables and boredom-coping. Spector and Fox (2010) state the interaction of an individual’s personality and skills with the job requirements is likely to be an important factor in experiencing boredom on a given job. An important contribution of this research is that the variables included in the analysis provide a deeper understanding of individual personality and skills that operate as predictors of boredom-coping. The linear composite (mathematical model) developed can serve to predict the capacity of an individual or small work pod to cope with boredom in their work place.

One application of this research is that it provides an opportunity to identify a range of individuals, via the regression equation, on their propensity to manage enjoyment and cope with boredom. This advancement in theory is good news from a management perspective as it highlights the potential value in being able to target interventions that may promote an employee’s capacity to cope with boredom. It may also help managers identify people who have boredom coping issues. On the other hand, it also provides a tool to help identify people who have boredom coping mastery. This provides the basis for a system where managers could begin to pair people with strong boredom coping strategies that could provide a support or mentoring role for people with a lower propensity to transform monotony into challenge. An advanced application of this model, using proximity analysis, could profile the position of individuals along a continuum of boredom coping within a company or a range of other relevant comparative contexts (i.e., work-teams, industry). This makes the development of other specific parameters for strategies in terms of discussions, interventions and training more accessible. Managers can use this resource to strengthen both sides of the balance sheet, though increase productivity and reduced costs from misuse of equipment. In the resources sector this can translate into many millions of dollars. Other industries, even though still in mining or manufacturing, may have significantly lower MPL that may need and adjustment to the model developed here.

The findings suggest that group potency is correlated with trainable abilities (i.e., practical intelligence, situational awareness and foresight ability). Research has shown that group potency can impact group cohesion (Whiteoak, 2007). As such, low-levels of group potency may lead to the less
than optimal operation of PI as these abilities are likely, to some degree, be socially learned (i.e., Bandura, 1977, 1997) from the modelling of the other team-membersabilities. In the current study, group potency was a belief about the capacity of highly interdependent work-dyads. As such, it is perhaps not surprising to observe that higher confidence in this relationship is associated with individual perceptions of their trainable abilities. What is surprising is that group composition appears to be, for various reasons, largely overlooked by management as a barrier to engagement.

The findings point to the importance of group dynamics that support individual engagement through better boredom-coping. Those enabled with the ability to recognise and join functional groups (or leave dysfunctional groups) are ultimately more likely to cope effectively with monotony at work. These results provide implications for individuals who want to engage more effectively in their workplace. At the organizational level, employee engagement may be influenced by considering the composition of small work groups or pods more strategically. The evidence of the qualitative study suggested this is currently not often the case. Thus, once this awareness is more explicit and communicated, interventions can be finessed and implemented relatively quickly through group structural changes. On-going development activities would also be likely to support the group member’s engagement levels and help to further support the development of a better sense of “community” in the work-pod.

In this study, three potent trainable constructs (i.e., PI, SA, and FA) were found to be important in impacting an operator’s boredom-coping. This finding supports the need for the development of training opportunities in these three areas that focus on impacting boredom-coping and ultimately engagement. Company leaders who understand the operation of these constructs may recognize that employees with low SA but high levels of PI could benefit from different training materials and programs from those individuals who have good SA but a lower level of PI. Suitable practical (rather than conceptual) training materials that help low PI individuals to transfer and adapt from one environment to the next is an example of an opportunity to implement strategies that may provide rapid returns on training investments.

Further, this training may transfer to the group-level. For example, the findings suggest a relationship where a work pod that discovers they have a high level of compatibility and as such
confidence in one another (i.e., high group potency) can now be given opportunities to more fully develop. In this situation, practicing specific enabling abilities associated with increased PI, SA, and FA in the workplace might provide the insights and incentive to “switch-on”, conscientiousness, openness, work ethic, and extroversion, as required. In other words knowing how to bring out the best in themselves and their pod at the right time rather than sitting dormant and undeveloped leading to less than optimal outcomes. While there are many possibilities, one application of these findings is that individuals with higher SA may have the ability to know when to “ramp-up” their consciousness and subsequently take advantage of appropriate opportunities by knowing it is their “time to shine”. On the other hand, individuals with high consciousness but low SA may find they burn out as they lack the capacity to adjust to suit a situation and realise the conditions do not warrant full engagement of resources at that time. Moreover, low SA may inhibit an individual from displaying an appropriate personal quality and missing a pivotal opportunity. Finally, low SA coupled with low conscientiousness is likely to lead to inadequate boredom-coping, increased apathy and lower ability to survive in one’s job.

An alternative to improving individual PI, SA, and FA is to employ individuals with better capacity in these areas as a strategy to influence engagement levels in the workplace. An additional implication of selecting staff with developed PI, SA, and FA is that one’s attitude to challenge is part of the equation of engagement in predicting boredom-coping and is likely to work in concert with other personality traits of the individual. Thus, there are significant opportunities for Human Resource Professionals to convert these constructs into behaviors that have impact in a specific context or organizational culture and develop appropriate selection techniques and training tools.

Limitations

There are potential limitations of this research. It is possible that common-method artifacts limit the conclusions that can be drawn from the findings. However, the methodology reflects the demands and needs of the research client and subsequently limited the data collection approach that could be employed. That is, the practical realities of the research required anonymity of the participants and restricted the capacity to separate the collection of the independent variables and the
dependent variable in the research. However, the mixed-methods approach, independent samples at each stage, and multiple data collection sites and times, also supports the integrity of the conclusions presented. In addition, the participants were supplied with the survey on-site and in-person and were given verbal instructions and explanation of the purpose of the survey. This also meant the researchers were on-hand if a participant found any of the questions ambiguous and required clarification of any items. It could also be argued that the use of Hamilton et al’s (1984) boredom-coping measure is a limitation of this study as the scale has been criticized for measuring boredom proneness rather than boredom-coping (Vodanovich, 2003). However, the use of the Hamilton (1984) et al., scale was based on the adaption successfully employed by Game (2007) and consistent with this included using a Likert-style format and assessed effective coping tendencies with particular reference to boredom experienced at work. While Game (2007) notes that further work is needed to verify construct validity, the measure was considered appropriate for this research as the respondents in this study could be described as being at the pinnacle position of the mine site. Accordingly, they would, in general, have worked their way up through the ranks and had previously been exposed countless hours of monotonous mine-site work (i.e., as a 400-tonne truck and Caterpillar D15 Dozer operator). Therefore, what is being measured here is their capacity to cope with boredom more likely than their boredom-proneness. Another potential limitation of this study was that the sample was exclusively male. While this would be expected in the research context, it does limit the generalizability of the findings to other work settings.

**Future Research**

The model promotes many important questions for improving job engagement. The qualitative data suggested that employees who were coping best in their position were doing so because they have an intrinsic interest in the work and have developed coping strategies associated with staying interested and finding challenge in the work. Future research that looks more closely at interest that goes beyond seeing a task as challenging to understand engagement may be helpful.

This paper has expanded our understanding of the individual factors that may be related to managing boredom positively. Skowronski (2012) proposed that when employees are bored at work
many will attempt to increase workplace stimulation. He suggested that this may occur in the form of organizational citizenship behaviors or counterproductive work behaviors depending on the interaction between individual factors and situational constraints. This paper has expanded our understanding of the individual factors that may be related to managing boredom positively. However, it does not address the other side of the engagement equation that may include organizational factors such as organizational culture and the extent to which an individual fits within this culture. Saks (2006) described employee engagement as including both job engagement and organizational engagement. Additional research is required to address the implications of when an individual may be engaged in their job but are not a good fit in the broader organizational culture. Furthermore, understanding the consequences of the possibility that an individual may engage at the organizational level but lack engagement in their job would be useful future research.

Using this model in a work environment may also identify that cultural-level interventions may be needed. For example, if a similar message of low-boredom coping is being presented from people with a “good” attitude then it may indicate a faulty selection process or that there may be a fundamental issue associated with the job design or organization’s culture.

This model also provides insight into Csikszentmihalyi’s theory of flow. Csikszentmihalyi suggested that “flow”, a state of joy, creativity and total involvement, is a response to the interplay of skills and challenge. To some extent this study validates this work using empirical research and provides added precision to the measurement of the elements of his drivers of flow. This research adds to the model by beginning to effectively quantify the ideas that he had explained. While “flow” is arguably a difficult concept to find in the work environment, this research provides tangible strategies to achieve this theoretical state at work. Future research along these lines, using the model presented here, may support the closure of the “engagement gap” (Kowalski, 2003) by highlighting personal strategies to alleviate boredom at work.

Together with the sentiment expressed at the “coal face”, these findings, derives a linear composite that explains 41.4% of the variance in boredom coping. Such a set of potent construct promotes confidence in the use of effective language around the workplace where coping with boredom may be an issue. The model supports the development of strategies that may help to create a
more engaged, productive and well-adjusted workforce. It is possible to understanding the specific aspects of any job can provide potential training interventions and performance criteria based on core competencies that once identified may have useful implications for not only specific tasks and jobs but also broader cultural issues such as safety.

This research has tangible implications for human resource decisions and recruitment and selection in that the parsimonious model provides a framework that if applied successfully could improve the validity of selection decisions that would be beneficial to the organizations and the individual’s involved. There are also implications for training interventions, the findings provide a model that indicates training may be targeted at different areas of the equation with markedly different impact and return. Further, developing relevant industry benchmarks may be particularly useful to quantify the link between boredom-coping and other financial indicators. This would hopefully motivate organizational decision makers to pay closer attention to this area of staff engagement. Finally, future empirical research on the interaction between organizational-fit or in the broader context cultural-fit and the personal qualities allowing good job-fit may provide the insights required to significantly improve job engagement.

References


Csikszentmihalyi, M. (1975), Beyond Boredom and Anxiety, Jossey Bass, San Francisco.


Figure 1: Conceptual model of drivers of boredom-coping.

Figure 2: Hypothesised relationships between study variables and boredom-coping.

Table 1. Intercorrelations between Study Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>1. Boredom-coping</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>2. Personality traits</td>
<td></td>
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<td>.36</td>
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<td>3. Attitude to challenge</td>
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<td>.43</td>
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<tr>
<td>4. Trainable abilities</td>
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<td>.21</td>
</tr>
<tr>
<td>5. Group potency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.47</td>
</tr>
</tbody>
</table>

Note: All correlations are significant at p < .05 level.

Table 2. Summary of Hierarchal Regression Analysis for Variable Predicting Boredom-Coping.

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>Adjusted $R^2$</th>
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<tbody>
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### PREDICTING BOREDOM-COPING

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Group potency</th>
<th>.292**</th>
</tr>
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<tbody>
<tr>
<td>Step 2</td>
<td>Group potency</td>
<td>.172*</td>
</tr>
<tr>
<td></td>
<td>Trainable abilities</td>
<td>.278**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \Delta R^2 = .063 )</td>
</tr>
<tr>
<td>Step 3</td>
<td>Group potency</td>
<td>.052</td>
</tr>
<tr>
<td></td>
<td>Trainable abilities</td>
<td>.033</td>
</tr>
<tr>
<td></td>
<td>Attitude to challenge</td>
<td>.361**</td>
</tr>
<tr>
<td></td>
<td>Personality traits</td>
<td>.353**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>( \Delta R^2 = .282 )</td>
</tr>
</tbody>
</table>

Note: *p < .05. **p < .01.