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The Post-Harmonisation Health and Safety Challenges of Construction Industry Managers

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Abstract: To minimise the occurrence of injuries, illnesses and deaths due to work-related causes, it is important to have effective workplace health safety legislation that is known and used. The introduction of more stringent workplace health and safety legislation across Australia has brought greater responsibility, and harsher penalties, for managers. The importance of the role those in management play in influencing and shaping a culture of safety is well researched, but little has been done to determine whether those in management are ready to assume that role. This study aimed to identify what has informed Western Australian construction industry managers who are working within the mining sector and ultimately shaped their approach to occupational health and safety. NVivo software was used to analyse the data by the creation of codes and subcodes to identify themes and subthemes. Analysis of two focus groups' participants' responses identified that many managers had insufficient work health and safety education to understand their obligations and that other challenges include insufficient preparedness of managers, particularly newly promoted supervisors and other management staff, rapid promotion, and the bureaucracy of modern workplace health and safety. The findings from this study can assist organisations to better prepare managers to fulfil their workplace health and safety obligations and reduce some of the post-harmonisation challenges.

Keywords: preparedness; legal obligations; training; bureaucracy

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1. Introduction

In Australia, the construction industry remains one of the most statistically dangerous industries [1]. In 2023, construction accounted for 45 fatalities, the second highest of all industries in Australia [1]. Between 2008 and 2011, the states, territories and Commonwealth of Australia commenced the process of harmonising the various health and safety legislations, leading to the creation of the model Work Health and Safety (WHS) Act [2]. This legislation places a far greater emphasis on the due diligence activities of senior managers than the previous individual health and safety laws that were in place in each jurisdiction [3]. In particular, those who have a clear influence in the running of the company, termed officers in the model WHS Act, have a particular set of legislative expectations [2]. Essentially, there is now no room, or indeed defence, for complacency.

The Work Health and Safety (WHS) Act 2020 and the Work Health and Safety (Mines) and (General) Regulations 2022 came into effect in Western Australia (WA) on 31 March 2022 [4]. The Act outlines nine keyways by which the object shall be achieved. While all are crucial for the success of achieving the WHS Act requirements, construction industry managers in the mining sector must heed three objectives in particular:

- Protecting workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work;
- Ensuring appropriate scrutiny and review of actions taken by persons exercising powers and performing function under the Act;

- Providing a framework for continuous improvement and progressively higher standards of work health and safety.

Investigations into major workplace safety disasters have often found senior management's approach to occupational health and safety to have been misguided [5] or indecisive [6]. Historically, organisations have viewed safety as a function of compliance and/or as a fiscal burden [7]. Small to medium organisations usually have less-advanced health and safety practices [8] due to limited resources [9]. For larger organisations, this ability to exercise its compliance obligations may be considered easier due to the resources available to them [10].

A number of high-profile incidents, both in Australia and overseas, are a tragic testament to corporate complacency. Reality as to what actually happened was often shrouded by an overconfidence and reliance on gratifying safety statistics [11]. In his seminal work on organisational accidents, Reason [12] argues that such complacency may even exist after warnings have been provided. In essence, societal expectations have increased [13], and legislation in Australia now reflects that sentiment.

Major worldwide incidents and disasters stand testament to management failure. Investigations into Bhopal (1984), The *Herald of Free Enterprise* (1987) and the BP Texas City Refinery (2006) all found some level of managerial ambivalence. For Bhopal, management ignored warnings by safety experts about implementing safety procedures [14]. At the short-lived trial of the *Herald of Free Enterprise* ferry disaster in 1990, the presiding judge was highly critical of the corporate culture [15]. Similarly, findings from the BP Texas City Refinery disaster revealed a litany of management inaction in areas such as flawed management practices, poor decision making and a failure to learn from previous incidents [16].

The importance of strong leadership to develop a positive workplace health and safety culture and climate is well researched and documented [17,18]. Yet, given the modern expectations placed on organisations, there has been little research into where managers obtain their knowledge and what informs their perceptions towards workplace health and safety after the introduction of the Work Health and Safety Act 2020 in Western Australia.

Given that both the lawmakers' and societal expectations have increased since the introduction of the revised health and safety legislation across Australia, this study is crucial to understand if construction industry managers working in the mining industry understand their legal and moral obligations. The primary aim of this study is to determine if mining construction managers working in the Western Australian mining industry understood and met their obligations under the work health and safety legislation and if they are adequately prepared to make decisions on work health and safety matters.

2. Methodology

2.1. Research Design and Ethics

The research was conducted as an exploratory qualitative study, which is an appropriate method for exploratory research to understand the why, when, what or how of a phenomenon [19]. A phenomenology approach was used to understand the experiences and perceptions related to the research aim of construction managers working in the mining industry. Studies applying phenomenology are concerned with the lived experiences of the study group [20,21], which may produce valuable information [22]. The research was conducted in accordance with the Declaration of Helsinki (2013), and the study was granted ethics approval in 2024 by Curtin University's Human Research Ethics Committee.

2.2. Focus Groups

Research questions for the focus groups' participants were developed based on factors found during a review of the published literature related to workplace health and safety management. The literature review highlighted that the model WHS Act was, in part, designed to address societal expectations when holding recalcitrant companies to account. The Act also calls on senior management, those who can significantly influence the culture of a company, to take steps to ensure that they understand the risks which may be inherent

in the business. The literature also confirmed the importance of health and safety training and education, not only for those on the front line but also those at more senior levels.

Two separate focus groups were convened, which were audio recorded and transcribed. Focus groups are used widely in qualitative research to obtain rich data from the different viewpoints of group participants [23]. Krueger and Casey [24] recommend holding more than one focus group with similar participants to assist with the identification of patterns. Single focus groups run the risk of the results being tainted by factors such as too dominant or too reluctant participants. The focus groups had four participants each plus the researcher who acted as the moderator, meeting the intimate numbers suggested by some authors [25,26]. The overall size of the focus groups met the number suggested by authors who have declared that between six and twelve participants is optimal [27–29], which ensures sufficient diversity in the information obtained from the sessions [30].

The diversity of the groups allowed for a richness of data to be gathered. For focus group one, participants (P) included an experienced HSE manager who worked in construction in the mining sector, a construction manager who was mid-way through a large construction project in Western Australia's Pilbara region and who had extensive experience in the research's target sector, a supervisor who was engaged on a construction project in the mining sector, and a highly respected WHS lawyer with considerable experience in Western Australia's workplace health and safety legislation prosecutions and defences and who contributed information on the realities of modern approaches to the State's WHS legislation. For the second focus group, two participants were young project managers, both of whom were engaged in managing different construction projects in Western Australia. Another participant was a health, safety and environment advisor who had also worked in the construction project management space for a large mining company. Another participant was a representative from the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) who was able to offer invaluable insights into the expectations of the State regulator. In all, there were four male participants and four female focus group participants.

Participants were invited to attend a focus group discussion, rather than a group interview, as advised by Acocella [31], who considers the term 'interview' to imply a question-and-answer session. Both focus groups were conducted online via the latest version of Microsoft Teams (24295.607.3241.5057). In the past, traditional face-to-face focus groups have been constrained by factors such as the need to organise participants to be available at the same time and at the same venue. Online forums have grown increasingly in popularity, and researchers have recognised the opportunities and advantages provided by the internet [32]. One such advantage is that it assists the researcher to easily coordinate the scheduling of the meeting to increase the chances of busy people being able to attend [30]. Online focus groups allow the time and space barrier to be crossed [29] and permit synchronous discussion to occur in real time [33].

According to research reported by Zwaanswijk and van Dulment, participants prefer the 'convenience of online focus groups, including the flexibility in scheduling and the ability to participate from home or office' (cited in [30] p.50). The anonymous nature of the online focus group made it easy for participants to speak candidly and anonymously.

The focus group questions, included as Appendix A, were provided to the participants ahead of the meeting and were open-ended in nature. By using open-ended questions, the participants were able to fully engage and share their lived experiences. Both focus groups employed a semi-structured approach, allowing the researcher to probe and clarify responses [34], which provided valuable additional information. During the two focus groups, participants were able to interact openly and express their own points of view to each of the questions asked by the researcher.

At the conclusion of the focus group sessions, the interviews were transcribed verbatim. All transcripts were reviewed line by line, which allowed the researcher to commence the identification of themes. The transcripts were separated into the individual responses and were returned to the focus group members to check the transcript related to what they said

to ensure that it was accurate. Participant checking is considered an essential part of the data collection process to confirm credibility [35]. While there is some debate as to whether participant checks improve research quality [36,37], the individualised transcripts were returned to each participant for verification before being returned to the researcher for data analysis. Each participant confirmed that the transcript accurately reflected their comments and inputs to their focus group discussion.

2.3. Data Analysis

The returned transcripts were analysed using NVivo 14, which is a valuable tool for facilitating qualitative analysis [38]. NVivo has been designed to aid the interrogation of large text as it allows deeper analysis and provides tools to visualise data [39]. The software helps to identify trends and cross-examine information to discover the most important and relevant themes to the study to enable better conclusions.

Data from the focus groups were analysed thematically, which allows for a rich, detailed and complex account of the data [40]. Thematic analysis essentially assists the researcher to identify patterns or themes within the data. To assist with the identification of patterns, the researcher created codes to label specific items within the data. Coding involves dividing the reviewed information and placing it into distinct categories within NVivo for further analysis [41], a process which has been described as the 'cornerstone' of the data analysis stage of qualitative research [42].

3. Results

The analysis of the data through NVivo identified the emergence of four main themes related to how construction industry managers working in the mining industry understood and met their obligations and how adequately prepared these managers were to make decisions on work health and safety. The themes were (1) understanding of obligations; (2) preparedness; (3) rapid promotion; and (4) bureaucracy.

3.1. Understanding of Obligations

Those participants who were in a leadership role expressed that they lacked a clear understanding of their responsibilities under Western Australia's WHS Act. While most participants had undertaken some form of training or education since the introduction of the new legislation in Western Australia, this tended to be briefings by their company or by their client. There did, however, exist amongst the current industry managers in the two focus groups a basic and diverse understanding of what their obligations were and what would be required to meet those obligations.

> *I do have a broad understanding of the requirements of exercising due diligence.(P3)*
>
> *It would be intriguing to understand how far the term due diligence actually goes. I'm not 100% clear on it myself. (P6)*

The participants who had attended the training came from large organisations in the sector. It was acknowledged during the second focus group that those at supervisor level and above in larger organisations tended to have more knowledge of their obligations under the Act.

> *Managers and leaders in larger organisations tend to have a little more knowledge about the Act's obligations. (P8)*

One definite subtheme which emerged was the distinct advantages that large organisations have over smaller entities when it came to the support mechanisms for managers. It was agreed during discussions that managers within large organisations benefit from health and safety resources for advice and guidance. Small organisations, on the other hand, which often operate with a minimum and essential staff, are not always in a financial position to employ a dedicated health and safety resource, which may put them at risk if key obligations of the legislation are not fully understood.

Smaller entities generally have, in my experience, quite limited knowledge of the legislation and in particular some of the newer elements like officer duties. (P8)

When we look at other jurisdictions that have had the officer provisions under WHS harmonised law for a while, the officers who seem to be at the greatest legislative risk of being prosecuted are those small businesses. (P8)

The participants' feedback on a general lack of understanding of obligations through an absence of formal education or training was compounded by the necessity to often promote people through the ranks quickly to meet organisational requirements. Such rapid promotion denies the worker, now in a more senior position, the opportunity to prepare for the additional health and safety responsibilities which have been acquired.

3.2. Preparedness

The participants who were currently working in construction within the mining sector generally agreed that there had been little in the way of formal training. Participants in both focus groups mentioned that some form of training or education in workplace health and safety, even at a rudimentary level, would have been beneficial in preparing them to take on senior roles within the sector.

Everyone is very time poor in the industry at the moment and training will never go astray. (P5)

There is definitely more that can be done to prepare managers. (P8)

One of the more experienced managers expressed a belief that if managers have been promoted through a blue-collar route, particularly in the target sector, that they may have an advantage over those who have a purely white-collar background given the far larger focus on health and safety at that level.

If they've come up through the blue-collar ranks, I think they'll have a pretty good clue. (P3)

The participants discussed a number of potential confounding factors that may inhibit construction industry managers working in the mining industry from having a greater opportunity to fully understand their responsibilities under WHS legislation. For example, some group members stated that mentoring from a peer, or more formal mentoring from a health and safety resource, would have been beneficial in shaping their understanding of what was expected of them as they progressed to more senior positions.

Recently promoted participants especially felt that as they increased their levels of responsibility and accountability, a tailored mentoring programme would have allowed them to better understand their legal and moral obligations.

How do you make that (safety knowledge and training) applicable on a major construction site where you've got 300, 400, 500 people involved there? This has a lot to do with mentoring, constant mentoring and guiding that is required past the learning stage. They go and do their training, and they probably understand that, but how do you actually apply that in the field? (P5)

Several of the participants who were currently employed as managers in the industry believed that more could have been done to prepare them for the roles in which they were employed. When the discussion turned to whether they felt ready to take on the responsibilities of work health and safety decision-making, for example, the younger participants admitted that they probably were not.

I don't think you are ever going to go into a new role feeling like you're fully prepared and 100% capable. (P5)

There's projects I was on previously and you get up to sites and you might have a new supervisor up there acting as a project manager. And in those cases, it felt a bit exposed, and you're trying to figure out what has to be done in terms of safety requirements. Potentially, you can end up a little bit out of your depth. (P6)

The focus group participants' role in workplace culture was also explored in some detail. All participants acknowledged the importance of building and maintaining a culture of workplace health and safety and how they themselves contributed to it.

> *In my mind it's health, safety and culture and I suppose we hold a really high importance of what sort of culture we have on site. We've got multinationals, we've got male and female, we've got all ages, but we're all there to do one job and have a common goal. So it's that education piece as well around the culture and making sure you know people go to work and feel respected no matter what their job title is within that team. (P5)*

There was some debate regarding the building of a positive workplace health and safety culture when projects have a finite timeframe and a transient workforce. Embedded attitudes, historical work practices, and negative experiences of the workforce were raised as examples of challenges the participants have encountered to create a desired workplace health and safety culture on their projects.

> *People think that a shortcut can be made in a situation, or they think it's not a shortcut until something goes wrong. (P5)*

> *There's people outside the culture that you are trying to create. (P6)*

> *There are still some behavioural influences and cultural influences within some industries where you can still find, I guess, what you might call a cowboy mentality. (P7)*

The representative from DEMIRS offered another potential barrier for achieving a desired cultural state. The fly-in, fly-out segment of the mining industry has been plagued by negative press, with reports of serious issues around harassment and discrimination. While it was acknowledged that the mining industry was serious about addressing this reputation, concerns were raised as to whether the construction industry within the mining sector was doing enough.

> *We've seen so much work go on in the mining sector around culture and I think we'd be probably fooling ourselves if we think the issues that have been highlighted in the media around the sector are not also found in the (construction) sector. (P8)*

The discussions provided valuable insight into the preparedness of the participants to fulfil their legal and moral obligations, which it appeared were not always fully understood.

3.3. Rapid Promotion

Several participants attributed their rapid promotion through the ranks as a contributing factor to their need to develop a greater understanding of their obligations. During discussions, it was generally felt that many promotions across the industry were occurring due to the current economic conditions in Western Australia and workforce shortages. Several participants expressed that in the current marketplace, promotion of personnel to a more senior level was dictated by the highly competitive employment market.

> *A lot of our supervisors are promoted too quickly, if you like, because of a shortage in the industry. (P2)*

> *People have moved into a management role, and in the current economic context, people can move into those roles relatively quickly and perhaps more so than when the economy is moving a little bit more slowly. So you do get that quick transition into that role that can place people at a higher risk, both because of the lack of life and work experience at that point and less opportunities for that kind of training along the way. (P8)*

Participants in both focus groups, particularly those who had recently been promoted, discussed in some detail how rapid promotion had adversely affected their readiness to fully understand their role and to make health and safety decisions. Often, there had been no structured plan in place to prepare them for their next role, and it was acknowledged by the more experienced participants that promotions often occurred out of necessity.

Have we jumped in too quickly: do we understand what we need to do to meet our obligations? (P1)

We quite often see a lot of times where we put people into roles purely and simply because we think they're going to be OK in that role. (P2)

It was observed by several participants that the necessity to promote people, often perhaps sooner than expected, meant that they were at a disadvantage when it came to understanding their legal obligations.

You've been made up to superintendent, which happens all the time, and all of a sudden your requirements change. Yeah, you might not be a duty holder, you're definitely not an officer yet, but you still have an obligation under the Act. (P1)

The conversation turned to how best to provide supervisors and managers with an overview of their obligations. One participant expressed that information was available to newly promoted workers, but it was often unknown to them as to how to access that information.

If we step back in the Western Australian construction industry over the last 10 or 12 years where we went through the boom times, there was a lot of people coming through the ranks very quickly and they may not have had a broadband of experience. . .so I think we've got a lot of people out there that have the information available to them, but it's whether they've got the wherewithal or not to be able to execute that information. (P2)

This led to the participants discussing the role of the health and safety resources available to them. Participants who worked in larger organisations detailed the corporate support services they had, as well as 'on the ground' health and safety advisors. The convenience of this support often meant that participants were able to access information quickly, often within one or two phone calls rather than sourcing the information themselves. Being time poor was often cited during the focus groups as the reason why there was an over-reliance on the health and safety support services.

From my perspective being part of a big company there is corporate support services that provide that sort of overarching governance, compliance and requirements. (P5)

Participant Four advised caution on the over-reliance on the health and safety resources. It was put to the group that documents prepared by corporate safety departments and on-site safety personnel should be thoroughly reviewed by the appropriate supervisors and managers to ensure the content is accurate and reflects the work being undertaken at site.

Processes are already built by the safety manager. . .and it usually gets signed. No one's read it, and it's been typed up in an office devoid of what's actually happening on site. (P4)

Participant Four also noted the issues that this can cause when it came to defending prosecutions. There is a danger that documents that are prepared away from the work site may not contain all relevant information, adding an unnecessary layer of vulnerability.

When I am defending a prosecution, that's the biggest thing: it's got everyone's signature on it. No one's read it. They never discuss it. It was a beautiful document with everything beautifully in it but is has no link to reality. (P4)

The participants detailed the increased burdens of leadership, including responsibility and accountability. They also highlighted that with promotion came an additional level of bureaucracy, which they were not prepared for.

3.4. Bureaucracy

The topic that was discussed in greatest detail by the two groups was the challenges facing supervisors and management roles. A clear theme that emerged was the bureaucracy, which had steadily increased over the past few years across the industry. Both groups discussed at length the burden of paperwork, which was being demanded not only by a

wary client but also from their own conscientious employers. It was agreed that the time currently being spent on paperwork was not sustainable and was certainly not an effective use of time and resources.

> *All the paperwork. . .sometimes paperwork is your friend and sometimes it is not your friend. And when it's that time when it is not your friend is when you have said that you will do things and haven't done them. (P8)*

> *Are people being asked to spend time on things that might be less pertinent from a risk perspective? (P8)*

The volume of paperwork required to be completed was provided by some participants as an example of the bureaucracy, which had become part and parcel of modern expectations. Weekly and monthly reports were common requirements and were accepted as 'part of the job'. It was noted, however, that there was very little in the way of instruction or training on how some of the paperwork was to be completed.

> *They get training on why they have to fill out paperwork and they get all the reasons why they have to do it. They don't often get training on how to do it successfully and that's across the board, all the way from supervisors, superintendents, all the way down to staff on the floor. They get told what they have to do, not particularly how they have to do it or to have a better understanding of why they have to do it. (P3)*

When the conversations turned to reporting requirements in both focus groups, the topic of key performance indicators was raised. These were discussed as an example of bureaucracy, and their relevance and importance brought about some robust discussion. There was a general feeling that many safety indicators had lost their intent and were now just another metric to report to keep corporate and the clients happy.

> *There is a huge focus of key performance indicators for us and sometimes it feels quite overbearing in how much we're reporting statistics through. (P5)*

> *Are they actually meaningful? Arguably no sometimes. (P5)*

> *There is a lot of weight put on them. (P6)*

> *What else could we be doing that would add value? (P8)*

Industry members in both focus groups were particularly keen to express how time poor they were. In-house reporting requirements and client-driven demands were stressed as major contributors to the lack of time some participants felt they had to fully discharge their health and safety duties. When asked what improvement could be made to increase managers' knowledge of key health and safety matters, the response of having more time was reported by most participants.

One concern raised was the potential saturation of safety across the industry. Focus group two participants in particular warned that there was perhaps too much safety messaging and unnecessary red tape, which was hindering and actually harming the workforce's view of workplace health and safety.

> *My view is that there's a risk of too much talk of safety, too much safety and people just switch off. (P4)*

> *People are past it and they just want to get on and get the job done. I think that is quite a risk. (P5)*

There was also a sense that the requirements around performance indicators had become burdensome. The focus group participants discussed this in some detail and questioned the time and effort being spent on them. The feedback from the participants was that workplace health and safety key performance indicators were at risk of losing their value.

> *There is a huge focus on key performance indicators for us and sometimes it feels quite overbearing in how much we're reporting statistics through. (P5)*

Are your people being asked to spend time on things that might be less pertinent from a risk perspective? (P8)

During the first focus group, Participant Four provided information on a modern phenomenon. It was revealed to the fellow group members that the use of Artificial Intelligence (AI) to prepare health and safety documentation was becoming more prevalent.

Supervisors are using Artificial Intelligence to do things for them: draft a letter, draft a Safe Work Method Statement, draft a topic for discussion. . .and it is a bit worrying because let alone what they (the supervisors) know. But what about what the bot knows? (P4)

4. Discussion

The two focus groups provided valuable information on the challenges facing construction managers in the mining sector. The data analysis identified a number of themes and subthemes that challenge managers in the sector.

The need for more formal training for managers is consistent with the published literature [43]. The results of this study identified that the managers who participated in the focus groups possessed only a rudimentary understanding of their health and safety obligations. The participants who were working on construction projects within the mining sector acknowledged that their current understanding of their legal obligations had been provided by their respective clients as part of the obligations under Part 10.7A of the Western Australian Work Health and Safety (Mines) Regulations 2022.

Under this law, a mine operator must ensure appropriate persons are appointed to the statutory positions listed in Schedule 26 of the WHS Mines Regulations, which include 'where the mine operator for the mine considers it is necessary to have a statutory supervisor to reduce the risks to health and safety associated with mining operations carried out at the mine'.

The groups did, however, acknowledge that additional training and education would be beneficial. Hill Jr [44] suggests that an education in safety, in some form, should begin at an undergraduate level. Some professions, such as engineering, are closely associated with the construction industry, but tertiary education in these fields offer little in the way of a formal introduction to workplace health and safety. In Europe, for example, it was recommended in a report commissioned by the European Union in 2010 that professionals such as designers, architects, engineers, business and finance managers, amongst other professions, who would need to have an understanding of health and safety in their future careers, should be provided with an education in health and safety during their university study [45].

As far back as the birth of modern safety legislation, the Robens committee recognised that specialised training was required, including for managers [46]. In Australia, such training has not been prescriptive, unlike in some more progressive countries. In Norway, for example, business leaders are required to undergo mandatory safety training [47].

The participants agreed that some form of mentoring would have been beneficial in their career development. Moreover, they stated that mentoring specifically in health and safety would have been prudent in order to provide an additional layer of knowledge. It has been suggested in the literature [48], and in fact it was once common practice for junior engineers to be mentored by a senior engineer, thus allowing the junior engineer to be better prepared before acquiring higher levels of responsibility [13].

A manager's safety competency is crucial to influence their workers' safety practices [49]. The importance of establishing a positive culture of safety was acknowledged by the groups, as were the challenges of achieving such an outcome. One participant specifically addressed the transient nature of the workforce within the industry, which has been reported as a factor that frequently hinders an organisation's attempts to build and maintain a good safety culture [50].

The participants who were employed by a large organisation acknowledged that, when it came to health and safety resourcing, they were at an advantage over small to medium enterprises. This is consistent with the published literature, particularly in the construction

industry [10,51,52]. Some group members discussed their own experiences in working alongside small company subcontractors on their own projects and some of the challenges that have been presented. In the second focus group, there was a discussion regarding what more may be done to assist small entities to remove barriers to workplace health and safety compliance and culture, not only by the regulator but also by larger organisations.

One of the key findings of this study was the reported high level of bureaucracy that pervades modern health and safety, and this is consistent with the published literature [52–54]. It was noted during the discussions that the sheer volume of paperwork required by both employer and client generally distracted a manager's ability to actively engage in hands-on leadership. The burden of red tape, or the bureaucratization of workplace health and safety [53], has been identified by scholars as having a negative effect on workplace health and safety. Wrongly perceived by some to be a strong commitment to workplace health and safety, time spent on unnecessary and superfluous activities and reporting can actually detract from genuine workplace health and safety undertakings [53].

One of the activities which generated some discussion was that of undertaking and reporting key performance indicators (KPIs). While it was generally accepted that KPIs were part and parcel of modern safety, it was questioned by both groups whether they were truly meaningful. While it was noted that some lag indicators, such as total recordable incident rates and lost time incident rates, were no longer being requested by some clients, the actual benefit of lead indicators was still questioned, in particular the time it takes to collate and report such statistics, and this should be considered when setting future targets and reportable statistics.

It was questioned during the focus group discussions whether the time currently being spent by some participants on paperwork, at meetings or on emails was appropriate or necessary, and the general consensus was that it was a genuine concern. In addition, some participants identified that they had noticed safety saturation, or safety fatigue, amongst their workforce, where the general feeling was that there was too much talk and emphasis placed on workplace safety. Mapp [55] defines safety saturation as the point where the addition of more safety initiatives will no longer improve safety outcomes.

Such exaggerated requirements, described by Rae et al. [56] as safety clutter, impose suffocating processes which are implemented in the name of safety, but which in reality may actually contribute precious little to operational safety and may come with excessive disciplinary action should they be flouted or ignored [57].

The main challenges facing construction industry managers in the mining sector identified in the analysed research data were a general lack of understanding of obligations, the need for improved education and training, being promoted into senior roles too quickly and the bureaucratic nature of workplace health and safety. Mentoring was identified as a potential mechanism to prepare employees for their next promotion and the additional accountabilities that come with greater responsibility.

5. Limitations

Participants from small construction companies were under-represented in the focus groups, as most construction companies that do work for the mining industry are large. Of the eight participants, only one came from a construction company of less than 200 employees.

6. Conclusions and Recommendations

Conclusions related to the study aim of identifying what has informed Western Australian construction industry managers who are engaged in the mining sector and ultimately shaped their approach to occupational health and safety are that there is a distinct lack of preparation for managers in their workplace health and safety responsibilities and accountabilities. Worker shortages in the sector have meant that promotion is occurring faster than expected, minimising the opportunity for those recently promoted managers to fully understand their workplace health and safety obligations. A recommendation from the

findings of this study is that organisations should consider developing a tailored program, such as mentoring and formal training, for managers to assist them to navigate their new role, which may greatly assist in reducing the challenges they face post-promotion.

While this research fills a gap on the challenges construction managers face in the mining sector, further research is required on factors such as education and training and where this should begin, particularly for those managers who work in smaller construction companies.

During the discussions, one of the participants—a highly respected lawyer—provided information on a modern phenomenon. It was revealed to the participant in focus group one that in recent court cases, the emergence of Artificial Intelligence (AI) as a tool to prepare safety documentation was becoming more prevalent. This is of some concern, particularly if supervisors are relying on this information to be suitable for the task and for the workforce. There is very little in the way of published literature on this topic, and it is recommended that research be conducted to investigate the risks which may be presented by the use of AI in safety documentation.

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Appendix A

Focus Group Questions

Positioning Statement: The adoption of the harmonised work health and safety legislation in Western Australia has placed a greater emphasis on due diligence and duty of care. Given that the construction industry remains one of the most statistically dangerous industries in Australia there is a real need to understand how managers are approaching their due diligence obligations. This discussion aims to facilitate the development of effective interview questions for the research participants of the study Understanding the safety and health experiential biases of construction industry managers in the Western Australian mining sector.

Exploratory Questions:

In your experience, do you believe that managers have sufficient knowledge of their health and safety obligations, particularly post-harmonisation?

In your experience, do you believe that managers are adequately prepared to make sound safety and health decisions? What about emerging managers?

In your experience, do you believe that managers are discharging their due diligence obligations effectively?

Do you believe that more could be done to train or educate current and emerging construction industry managers in health and safety?

In your workplace, what is the level of importance that managers place on positive performance indicators (such as training, risk management, safety and health communication

(e.g., prestart meetings), occupational health promotion, incident reporting and investigations, inspections and risk control, auditing and reviewing) and on lag indicators (such as number and type of reported incidences and total recordable injury frequency rate)?

At your workplace, do all managers consider psychosocial hazards as well as other occupational health issues well? If not, what do you think could be done to improve occupational health?

At your workplace, and in your industry, is there anything else that you think that managers could do to improve workplace safety? If so, what do you think could be done?

What do you believe is the biggest threat managers face in the post-harmonisation era, particularly if they are deemed to be an officer?

What improvements could be made to increasing managers' knowledge of key health and safety matters?

Exit statement: Is there anything else that you would like to add to the discussion, or anything that you feel was missed?

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