The effects of safety training on the overall safety culture of an organisation

Being a thesis submitted for the degree of MRes Occupational Health and Safety, in the University of Hull

By Glenn Marshall Silburn

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1 Abstract

In this dissertation the author will discuss the effects of safety training on the overall safety culture of an organisation. The research was conducted within the engineering department of Associated British Ports, within the Port of Hull.

The study was conducted to determine whether additional safety training raises the overall safety culture, and if a lack of safety training has a detrimental effect on the overall safety culture. The findings of the work when completed will assist not only ABP in determining future strategies, but also other Health and Safety practitioners working to the same goals.

The research design used a qualitative approach incorporating a questionnaire posted to 100 randomly chosen participants, and one-to-one interviews of managers and supervisors who were thought to have relevant knowledge and experience needed for this part of the study. The findings were then coded and transferred into graphical representation to allow for ease of interpretation.

The main findings of the study showed that safety training does have an effect on the overall safety culture of an organisation, but there was no conclusive evidence that higher risk operations have a better safety culture. It was also determined that everyone in the company should be involved in the safety culture, and that the drive for improvement should come from the top down.

It is concluded that safety training does have an effect on the overall safety culture. It was also acknowledged that additional benefits for participants are that they have a better understanding of issues and are more confident to make decisions.
Whilst this study may not be a representation of the whole company, it is a starting point for further research within ABP; the results of a larger study could then be compared to other companies and industries.
2 Acknowledgements

Firstly I must acknowledge my employer, Associated British Ports, for not only providing the finance to further my knowledge in the field of health and safety, but also for providing me with information required to undertake this thesis.

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3 Abbreviations

ABP, Associated British Ports
ACA, Aircraft Carrier Alliance
BAE, British Aerospace
BPIT, British Ports Industry Training
BSC, British Safety Council
CBI, Confederation of British Industry
CCPS, Centre for Chemical Process Safety
CITB, Construction Industry Training Board
CMIOSH, Chartered Member of the Institution of Occupational Safety and Health
CSCS, Construction Skills Certificate Scheme
HMS, Her Majesty’s Ship
HSC, Health and Safety Commission
HSE, Health and Safety Executive
ICWUC, International Chemical Workers Union Council
INSAG, International Nuclear Safety Advisory Group
IOSH, Institution of Occupational Safety and Health
ISO, International Standardisation Organisation
NCS, Northern Cargo Services
NASA, National Aeronautics and Space Administration
NDLB, National Docks Labour Board
NuSAC, Nuclear Safety Advisory Committee
PSO, Ports Safety Organisation
ROSPA, Royal Society for the Prevention of Accidents
UK, United Kingdom

VDU, Visual Display Unit

COMPEX, Competency in Explosive Atmospheres

HSW Act, Health and Safety at Work Act 1974
4 Aims and objectives of the project

4.1 Aims of the project

The aim of this project is to identify the effects of safety training on the overall safety culture of the organisation.

4.2 Objectives of the project

The objectives of the project will be successfully completed by accomplishing the following:

1. Conducting a literature review of other relevant research in the field; the objective of conducting the review is to corroborate or contradict the findings of my research, and also to identify any gaps within current research.

2. Interviewing a number of managers and supervisors to gain information on their understanding of the safety culture within the company at the present time.

3. Acquiring information from a predetermined study group, using a suitable questionnaire, with relation to the effects of safety training on the overall safety culture of the organisation.

4. To successfully conclude the research project; all the data will be analysed, and a report produced of the findings using a suitable presentation media.

5. The findings will also be presented to senior managers at Associated British Ports (ABP) with a view to steering decisions on training strategies in the future.
There are a number of hypotheses that this thesis is going to examine through the research:

1. The amount of safety training carried out by an organisation has a positive effect on safety culture of the organisation.

2. The lack of safety training has a detrimental effect on the overall safety culture of the company.

3. Companies that run high-risk operations have an improved safety culture.

4. Companies that have a greater emphasis on training regimes have a greater overall safety culture than those that do not.

5. Sections of the workforce have a greater understanding of safety culture.
5 Literature review

5.1 Safety culture

The term ‘safety culture’ first made an appearance in a 1987 report on the 1986 Chernobyl disaster INSAG (1988) and over the last 25 years or so a positive safety culture has been the desire of companies looking to reduce their accident rates. It is also loosely used to describe the corporate atmosphere or culture in which safety is understood to be, and is accepted as, the number one priority (Cullen, 1990).

To a degree accident causation models have recognized that situational and psychological behaviours are factors to be considered when examining how accidents occur. When Heinrich developed his accident causation model, the Domino Theory, over 80 years ago, he suggested that an accident was like a series of dominos falling, the fifth ‘domino’ being the injury resulting from the accident or incident. The preceding dominos to fall could be attributed to safety culture, including unsafe acts and omissions by people.

In recent years the HSE have put great emphasis on controlling human factors in reducing error and influencing behaviour. They state that “proper consideration of human factors is a key ingredient of effective health and safety management” (HSE, 2007).

There are several definitions of the term ‘safety culture’ in academic safety literature, for example:

Safety culture appears to reflect shared behaviors, beliefs attitudes and values regarding organizational goals, functions and procedures (Furnham and Gunter, 1993).

The Confederation of British Industry (CBI) define safety culture as “the ideas and beliefs that all members of the organisation share about risk, accidents and ill health” (CBI, 1993).
The Health and Safety Executive (HSE) formally the Health and Safety Commission (HSC) adopted the Advisory Committee on the Safety of Nuclear Installations’ (ACSNI) definition:

The product of individual and group values, attitude, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation’s health and safety management (HSE 2011)

These definitions of safety culture do not differ greatly from definitions of culture; Hofstede (1980) defines culture as “the collective programming of the mind which distinguishes one group from another”.

Other definitions are:

Culture is a fuzzy set of basic assumptions and values, orientations to life, beliefs, policies, procedures and behavioural conventions that are shared by a group of people, and that influence (but do not determine) each member’s behaviour and his/her interpretations of the ‘meaning’ of other people’s behaviour (Spencer-Oatey, 2008)

Culture needs to be developed and does not just happen, as culture is not genetically inherited and cannot exist on its own, but is always shared by members of a society (Hall, 1976).

The term “safety climate” is often used in conjunction with safety culture, with little if any differentiation between the concepts (Cox and Flin, 1998). The term was first highlighted by Zohar (1980) and a search of literature after this has not presented a generally accepted definition; some definitions of safety climate bear striking resemblances to those for safety culture such as “safety climate is defined as the product of employee perceptions and attitudes about the current state of safety initiatives at their place of work” (Yule et al 2001) and “safety climate is operationalized as perceptions regarding management’s commitment to safety and worker involvement in safety related activities” (Hofmann & Stetzer, 1996).

However, whilst a positive safety culture is the desire of an organisation, safety climate is viewed as a temporary state of the organisation and is subject to
change, dependent upon specific operational and economic circumstances (Wiegmann et al., 2002). Managers remain primarily interested in what they should do to create a strong safety culture on the basis of their safety climate profiles (Flin et al., 2000).

Training employees is a mandatory requirement in UK law, and the Health and Safety at Work Act 1974 (HSW Act) requires employers to provide whatever information, instruction, training and supervision is necessary to ensure, so far as is reasonably practicable, the health and safety at work of its employees.

There are subtle differences in training, and health and safety training, dependent upon the hazardous nature of the tasks involved. An office worker for example generally works in a less hazardous environment than say an oil rig worker, who still needs some health and safety training but not nearly as much as the oil rig worker. The office worker does still require skills and knowledge to perform their job, and this would be classed as general training. The HSE (2012) define training as “helping people to learn how to do something, telling people what they should do or should not do, or simply giving them instruction”.

Health and Safety training provides additional information on risks and hazards associated with the work. This type of training has a positive effect on the overall health and safety of the company, giving benefits such as employees being able to work more safely avoiding accidents, and contributing to the overall health and safety culture.

From the above we can deduce that competency is a mixture of these two kinds of training. Competence can be described as the combination of training, skills, experience and knowledge that a person has and their ability to apply them to perform a task safely. Other factors, such as attitude and physical ability, can also affect someone’s competence (HSE, 2014).

In the UK a health and safety policy is a statutory requirement. The health and safety policy of a company contributes to the health and safety culture of a company, as it tells all in the company how they will manage health and safety in the business; it lets the staff and others know about the commitment to health and safety.
Associated British Ports (ABP) will facilitate consultation, information and training of persons under our control on matters affecting Health, Safety and Welfare (ABP, 2014).

The Health and Safety policy should not be confused with the mission statement of the company; although there are some common goals, mission statements are normally an expression of a company’s purpose and ambition (Campbell, 1997).

Although the mission statement is used to guide behavior’s, almost like the Ten Commandments, for managers and other stakeholders. A mission statement should define what the organisation is, and what the organisation aspires to be (McGinnis, 1981).

Drucker (1973) states “What is our business is synonymous with what is our mission”, making the mission statement unique to each company, it should be used to inspire and motivate its workforce.

5.2 Previous research into safety culture and safety training in the Port of Hull.

It is estimated that the engineering staff at ABP spend between 10% and 15% of their working hours taking part in safety training sessions according to attendance records; this represents not only a considerable commitment from ABP but also a substantial cost to the company. This investment has up to the present time not been substantiated or measured to ascertain the effectiveness of this undertaking, therefore other similar research should be investigated to either corroborate or dispute the findings of this dissertation.

The National Docks Labour Board (NDLB) was formed in 1947, with the intention of providing manpower to load and unload shipping. The NDLB
consisted of 50% trade unionists and 50% non trade unionists, and gave a structure to the previously casual work offered.

The NDLB was dissolved on the 30th June 1990, leading to much of the more experienced workforce leaving the industry, and an influx of new, inexperienced workers coming into the business. With limited safety training, this culminated in the death of a young worker - forcing the then Ports Safety Organisation (PSO) and the British Ports Industry Training (BPIT) to get together to formulate induction training for the industry in order to drive up standards.

A thesis conducted by Wilkinson (2004) set out to identify the developments within the ports industry, with particular reference to the Port of Hull, regarding what historical changes had taken place to safety culture within the workforce. Wilkinson’s paper was designed to measure the safety culture within the industry and with particular attention to the Port of Hull, since these changes to the industry had taken place. The methodology used was a questionnaire with 14 questions, identifying what opinions each individual had in this area.

The sample size was 69 manual workers, 10 clerical staff, 14 technical staff and 24 management staff. Although the results were similar between the technical, clerical and management staff in so much as the results showed a significant rise in safety culture, this was not consistent with the manual staff – this showed a low safety culture.

It was identified within the report that the manual workers consisted primarily of agency workers who were not directly employed by ABP, therefore their working conditions and training may not have been as comprehensive as that of ABP, and it is possible that this was a contributory factor in their results. The other grades measured were ABP employees, who enjoyed better working benefits and quality training. Wilkinson also concluded that a sense of belonging also contributed to the overall safety culture within an organisation.

Another survey that was conducted at the Port of Hull set out to identify the safety culture at the Northern Cargo Services stevedoring company. The survey conducted in 1999 comprised of a questionnaire with 15 questions on it, this was posted to all 108 employees of the company. To ensure anonymity and to
enable ease of replying a return stamped envelope was attached. The questions were structured in such a way that answers could be chosen using 5 preset answers: totally agree, partly agree, neutral, partly disagree and totally agree. The data was collected from a 40% post back of the questionnaire, and the results organized into two main areas.

It was found by analysing the results that the study group almost unanimously thought the safety culture within the company was low, and that there was very little participation of managers to improve this. When asked if safety training would increase the safety culture within the company, the results suggested that it would.

At the time this survey was conducted there had been very little investment in the workforce, with a downturn in trade around the docks. This would in some way explain the somewhat despondent results.

5.3 Culture in companies where training is central to the type of work carried out

A paper written by Darbra, Crawford, Haley, and Morrison (2007) set out to identify safety culture and hazard risk perception of Australian and New Zealand maritime pilots, the aim was to interview 20% of the pilots currently employed. This was of particular interest to the author as ABP employ 120 pilots within the River Humber region. The method of gathering the research information was in the form of face-to-face interviews, using a set of structured questions. The questionnaire contained set options for answers and also sections for additional comments. The participants were chosen with their geographical location in mind to enable a good cross section of responses.

The questionnaire was divided into sections, with one section dedicated to safety training and safety culture. The results of the survey concluded that most pilots (78%) thought they received enough training to conduct their activities safely, and no additional training would improve this further.

The group also concluded that they thought experience is also very important, with most pilots having at least 10 years’ experience as a master of a vessel.
Others cited alternative issues that may raise safety culture further, such as fatigue management and a no blame culture, something that ABP has suffered from in the past. This group is very well trained in maritime safety, but there is no evidence put forward that additional training will enhance the safety culture further; what was evident from the paper is that other factors are equally important.

Another study conducted by Mubashar, Mufti and Amjad (2013) is particularly of interest to the author as it explores the effects of safety training on safety culture in the heavy construction industry in Pakistan. The objective of the study was to determine the effectiveness of health and safety training on construction workers on a construction project in Pakistan. Measurements were taken on the level of compliance in all areas before safety training, and also compliance levels were measured after safety training was completed.

The study group included the entire workforce at the site, some 1500 employees. The group varied in ethnicity and also experience, age groups and time in the job.

The group was divided into three sub groups of 500 each, enabling 10 different workers from each group to be observed over a 25 day period. The results showed that there was a 10% increase in compliance after health and safety training was completed, although the measurements took place at set times after the training, with no allowance for fall off of knowledge.

It was also observed that although there was a percentage increase in compliance it was suggested by the results that other factors needed to be in place to increase the safety culture - for example, feedback to employees on how safely they are working and effective demonstration of how to make tasks they are completing safer. This demonstrates that to increase safety culture within the organisation, safety is not the only activity that needs to be participated in; other activities need to complement this.

Research undertaken by Harvey et al. (2000) set out to establish the effectiveness of training to change the safety culture and attitudes within a highly regulated environment. A survey was developed to measure responses
from employees within the nuclear industry before training and again 16 months later after training had been received. The first survey conducted prompted 417 responses and the second prompted 460, with both over 69%. The survey comprised of 60 Likert-style items, using a predetermined scale of responses, from 1 (totally agree) to 10 (totally disagree). This survey was constructed to measure attitudes and perceptions. The study group consisted of manual workers, supervisors and managers; representing a cross section of all employees.

The results of the research were examined and categorised into six main headings: perceived management style; responsibility; risk taking; complacency; job satisfaction; and risk awareness. To further analyse the results they were categorised into work groups such as manual, supervisory and management. The analysis showed that for the management group 5 out of the 6 categories showed significant rises in the results; one factor that remained constant was risk taking - with no change.

There were no significant changes within the manual grade structure to show positive change, this represents that management grades respond more positively to safety initiatives. The manual grades also showed significant drops in the job satisfaction section, indicating that this group was indifferent to the safety initiatives. A somewhat alarming result from the analysis was that the manual group showed no increase in scores from risk taking and response to risk awareness, identifying that the safety initiative was ineffective for this grade.

This research clearly shows that safety culture can vary from department to department and also between grades; management and supervisory grades are compelled to implement initiatives and are quicker to take these on board. On the other hand manual grades need more coaching to ensure these initiatives are pushed through to further increase the safety culture. The effect of not achieving may result in different safety cultures within the same company. This research is particularly relevant to ABP as the research was completed at a large site, with very different departments, and faces the same challenge of
ensuring everyone working for the company has the same emphasis on safety culture within the organisation.

In Cincinnati, United States of America, the International Chemical Workers Union Council (ICWUC) commissioned a survey to identify how effective the training was for union employees, when participating in chemical spill and chemical exposure training. The aim was to identify improvements in attitudes success rates for people who were trying to initiate changes. The study built on earlier work done by McQuiston (1994) with additions of statistical comparisons to measure the impact post and pre training.

The method of locating the research information was gained using detailed questionnaires to 55 workers; these were obtained the day prior to training and again 12 months after the training was received. The main areas of interest were:

- What interest and involvement do participants have?
- What are the success rates for making workplace improvements?
- Use of information and training activities at the workplace.

The pre training questionnaire was used as the base line information whilst the post training showed an increase in employees attempting to make improvements within the workplace, and an increase in successes of making improvements.

The conclusions from the study were that it was identified that workers were willing to attempt change to workplace conditions and actively be involved in promoting change, and that the efficiency to initiate change was substantially increased post training.

5.4 Accidents identifying lack of training as a contributory factor

5.4.1 Piper Alpha

A lack of a positive safety culture and substandard training have resulted in some catastrophic accidents. The North Sea Piper Alpha disaster on 6th July 1988 is an example of what can go wrong, and resulted in 167 workers losing
their lives (National Aeronautics and Space Administration (NASA), 2013). The Piper Alpha platform was sited 120 miles from Aberdeen in the North Sea. The design of the platform was such that the main command and accommodation blocks were separated by firewalls from the main hazardous operations. An automatic fire system was also installed enabling diesel and electric pumps to deliver seawater in the event of an emergency.

The safety culture on the platform was heavily criticised, to the point that “production was of more importance than safety” (Pate-Cornell 1992). This attitude was prevalent throughout the industry (Donald and Canter, 1994). With the platform being pushed to its maximum capacity at all times, this led to decisions being made in haste to return the platform to operational status. Pump number one had been isolated and a blank plate fitted to the pipework, the bolts securing the blanking plate were left only hand tight. Problems with number two pump meant that if number one pump could not be started, production from the platform would cease. No permit was found for the work on pump number one, therefore a decision was made to start it. Overpressure of the blanking plate and the fact that the securing bolts were not tight caused gas to leak from the pipe and subsequently ignite.

The permit system was a focus of the enquiry as no permit could be found for any work on the first line, although a permit highlighting the works was placed at the point of work, as procedure stated. There were also training deficiencies, as survivors stated they had never received training on evacuation procedures (CCPS, 2005). Survivors of the event explained that training on emergency procedures was not completed, or indeed on where emergency equipment such as life rafts were situated. The platform manager had also not received training on this type of event, and managers of other platforms did not know the procedure in the event of an emergency.

This event shows the importance of a positive safety culture and the possible results of a negative one, and also the need to train for all events. The ownership of health and safety and the importance of leading by example, and to give ownership of health and safety to all employees can also be
demonstrated. The outcome could have been very different with good communication and robust systems of work.

5.4.2 Three Mile Island

A partial meltdown of a nuclear reactor took place on the 28th March 1979 at Three Mile Island Pennsylvania in the United States. The incident occurred when number 2 unit was shut down for refuelling. The number 1 unit had run for 3 months and had developed a problem in the non-nuclear part of the plant that automatically opened a relief pressure valve (USNRC, 2013).

After partial meltdown of the core the emergency was brought under control a few days later but the subsequent findings of the investigation has brought in far-reaching changes in the nuclear industry. One of the main areas identified as contributory factors in the emergency was personnel error (Kemeny, 1979).

Training was heavily criticised in so much as operatives were unaware of the unfolding events, and were not familiar with the warnings that the control system was emitting. The critical role of human performance in plant safety led to revamping operator-training schedules, and establishing programmes such as fitness for duty and familiarisation of plant and controls. Regular training on plant awareness and planning for all emergencies has been introduced in all of the nuclear facilities in the United States.

The case of Three Mile Island is not unique, and it endorses the importance of training not only in the day to day duties of employees, but to train for emergencies to ensure these emergencies do not end up as catastrophic incidents.

5.4.3 Clapham Junction rail crash

On the 12th December 1988, a rail crash happened at Clapham junction London. The incident involved three trains; the second train crashed into the rear of a stationary train that had been stopped by signals at the junction (Hidden, 1989), the second train had not received any such stop signals. The third train, travelling in the opposite direction, crashed into wreckage of the other two trains. Thirty-five people were killed and over 500 injured in the crash which
happened at one of the busiest times of the day.

The subsequent enquiry revealed that the crash had happened due to a signalling fault requiring the first train to stop, allowing the second train to crash into the rear of it. The signalling fault occurred because of some rewiring taking place in the signal box; wires had been disconnected during the rewiring but because these had not been entirely removed, the ends of the cable were able to touch terminals - causing the stoplight to illuminate. This was not the agreed maintenance procedure.

This disaster shows the importance of training, and the consequences that can occur when employees are not aware of correct procedures. The safety culture within the maintenance department would also be in question as good practices were not adhered to. Employees were also allowed to work 7 days a week for 13 weeks under stressful conditions. In a busy working environment very similar to working on a busy port, safety culture is vitally important to ensure all employees follow the recommended work practices and also have healthy safety awareness.

5.5 Companies with a positive training initiative

Some companies are realising that a good safety culture within the company has many benefits, not only because employees are safer and there are fewer accidents, but also because there are many financial benefits.

5.5.1 Corus Steel

Created in 1999 Corus Steel is the second largest steel manufacturer in Europe, employing over 42,000 employees (Emerald Insight, 2011). The company had suffered several fatal accidents involving employees and contractors; along with the unprecedented human cost Corus Steel has estimated that for each fatal accident the cost to the company was over one million pounds and for each lost time accident the costs were approximately twenty thousand pounds.
Corus Steel commissioned a consultancy firm to deliver the Felt Leadership Programme initially to 400 of its senior managers. The DuPont Company devised the Felt programme as an integrated management system to instill core values into the business; three main areas are highlighted, these are leadership, structure, and process and actions. The challenge to the group was quite simply to make safety ‘lived’ rather than just talked about.

The training programme was extended to take in middle and first line managers, to develop mutual ownership of safety on the shop floor. Participants were asked to explore how they contributed personally to health and safety performance and to also analyse the safety plans that were currently in place for the work areas under their control. The managers were encouraged to discuss improvements in the plans and develop these further when returning to the shop floor. The training also developed other skills such as observing workplace behaviour and attitudes.

After the training was concluded it was observed that there was a marked rise in the number of cases of employees correcting colleagues’ behaviour in matters of health and safety, and a better sense of ownership. Managers and supervisors also had more authority and responsibility for managing their own safety. In 2008 Corus received global recognition for health and safety excellence.

This case study is a good example of how the correct training can really help the safety culture of an organisation. The Felt training programme puts emphasis on ownership of health and safety, and encourages all participants to challenge issues within the workplace. Corus targeted senior managers initially as the main drivers of the programme and then over a period of time trained everyone in the philosophy.

5.5.2 Kier Group

Another company striving to improve safety is the Kier Group; a leading construction service provider specializing in civil engineering and construction. The company commissioned the British Safety Council (BSC) to improve the safety culture of the company and deliver the positive safety leadership
programme to its 4000 employees in the United Kingdom (UK). The objectives for the programme were to reduce accidents and incidents, to bring contractors on board with a unified vision, and to create a consistent culture amongst both employees and contractors. There were also a number of other factors that Kier wanted to achieve - namely to create a greater number of health and safety learning opportunities, create measurable and sustainable change and also to drive an improvement in conformance and key behaviour (British Safety Council, 2012).

The BSC carried out an initial assessment to identify the safety culture present in the workplace; this then became the benchmark that Kier could measure against in the future. Other strategies followed including a steering group to train a number of individuals to drive improvements forward, a culture based safety programme to communicate a strong vision for improvement, and a lead trainer programme to train key personnel to deliver workshops to the rest of the business. Kier experienced very positive results with a reduction in accidents of 30%. One of the major benefits of the programme was that employees were more accepting of their responsibilities towards health and safety, and accepted leadership more willingly.

This is a good example of a company who already had a reasonable health and safety culture but realized that to continue improving it had to improve the culture further. It accomplished this by targeting individuals who could drive the culture change forward and train others within the organisation to ensure changes that have been implemented are permanent.

5.5.3 Birse Civils Ltd

In the last 25 years, 3000 people have died in the construction industry. One company, Birse Civils Ltd. based in Cheshire, UK, identified a lack of trained personnel within the company; areas that required attention were the lack of first aiders and of appointed persons to manage lifting operations. This, combined with pressure from its customers to increase safety awareness, meant that Birse had to act. With an investment of £100,000 they decided to encourage the
workforce to take a more proactive approach to health and safety (Mottram, 2005)

200% more first aiders were trained. Appointed persons to manage lifting operations were also increased to such a number that there was at least one on every site the company managed. All staff attended a 5 day Construction Industry Training Board (CITB) course in construction safety, and all graduates of the scheme qualified to register with the Construction Skills Certificate Scheme (CSCS). The results of the initiative were very positive, it was noted that individuals thought about safety at an earlier stage, and planned work to minimize the risks. Staff had also shown greater awareness of new initiatives, legislation and technology, all of which improve hazard awareness.

Birse received a gold medal from the Royal Society for the Prevention of Accidents (ROSPA), Civil engineering contractor of the year on three consecutive occasions (Mottram, 2005) and have achieved full ISO14001 accreditation, but the company’s greatest achievement came in 2003 when it recorded zero lost time accidents for the year, an achievement unprecedented within the industry.

For a relatively small percentage of the £40 million turnover of Birse Civils Ltd. they have greatly improved safety. By giving ownership of health and safety to all employees, they identified at an early stage the need to train employees to a better standard; everyone in the company was trained to varying degrees, this increased safety awareness and also the willingness of the workforce to take some responsibility and ownership.

5.5.4 BAE Systems, Babcock International and Thales Ltd

Construction is currently underway on HMS Queen Elizabeth, the new aircraft carrier for the Royal Navy. The project is a joint venture by BAE systems, Babcock International and Thales UK. The 65,000 tonne vessel presented some unique challenges to the construction companies involved (Forbes, 2015). A steering group was formed with members present from each company to promote Safety, Health and Environment (SHE) across all of the Aircraft Carrier Alliance (ACA) yards.
The group set out to learn from each other and develop a set of best practices and common standards across the high-risk operations within the workplace. The overall safety culture and training were also high on the agenda for the group. Initiatives were developed including fatigue management, ensuring all employees had a good breakfast prior to starting work, and that high-risk work took place in the first two thirds of the working day.

A passport scheme was also developed that had bronze, silver and gold status, bronze being for general duties and as the risk of the work increased additional training was required to gain silver and gold status. High level risk work such as confined space required gold status, and when work was required on board the vessel it required at least silver status; this included all employees and Royal Naval personnel. At the start of every day each employee undertook a risk assessment prior to work commencing, with one clear message that if defects or substandard conditions were present, work should not start and concerns should be reported.

There was an emphasis on effective communication and employee engagement to promote ownership and responsibility of the workforce, to create a true culture of everyone being proud to be safe. “Every accident is seen as a real opportunity to improve, which is why we needed to create an environment where everyone feels comfortable reporting” (Forbes, 2015).

The steering group identified that to gain a positive safety culture, there was a need to engage all employees to accept ownership and responsibility for health and safety. They achieved this by implementing new initiatives on training and also involving every worker in the risk assessment process. The group also identified fatigue as a possible factor in accidents, and ensured all high-risk activities were done early in the shift. This case study highlights the importance of a positive health and safety culture, and underpins the importance of training, engagement of employees and ownership of health and safety.

It is evident by the research that forward thinking companies are investing in safety culture, to lower accidents and save subsequent costs associated with these. Neglecting safety culture and not investing in training can have catastrophic consequences that are unacceptable in industry today. Looking at
past research that has been done at the Port of Hull suggests more needs to be done to raise the safety culture.

6 Methodology

6.1 About Associated British Ports

ABP is the UK’s leading ports operator with a unique network of 21 ports. In 2014 ABP and its customers handled over 94.5 million tonnes of cargo, including 30 million tonnes for export.

ABP’s Humber facilities offer customers close links to markets in mainland Europe and Scandinavia and expertise in a broad range of cargoes, including energy, vehicles, roll-on roll-off, containers, bulks, liquid bulks and forest products.

The Port of Immingham is currently the UK’s largest port by volume. The Port of Hull on the north bank of the Humber Estuary is just 20 miles from the North Sea. The port is connected by dual carriageway road links to the M62 and then M18, and M1, to service the whole of the British Isles. It is also connected into the inland waterways system.

ABP Humber is working with Siemens on the £310m Green Port Hull development, a wind turbine blade manufacturing, assembly and servicing facility on the Alexandra Dock.

As well as containers, ferry travel and roll-on roll-off, Hull specialises in handling forest products and a range of bulk commodities, while BP chemicals also has a strong presence in the chemical market. The Port of Hull is also home to the UK’s first fully-enclosed cargo-handling facility for weather-sensitive cargoes such as steel.

Of the 2000 employees directly working for ABP, 1000 are employed at the Humber Ports.

6.2 Research design
The decision was made to adopt a qualitative approach to the study design for the research, as the information that is required to complete the research would be best served by acquiring information from employees who have worked for ABP for a number of years. Kumar (2011) states that “the description on an observed situation, the historical enumeration of events, an account of the different opinions people have about an issue, and the description of the living conditions of a community are all examples of qualitative research”.

With over 2000 employees working for ABP around the UK, the decision was made to concentrate the study in the Port of Hull, as this is the author’s place of work at the present time. Logistically and for ease of gathering information this was a logical decision, although a survey of all the employees does hold some merit, and would be a useful exercise in the future.

6.3 Research tools

The instruments for collecting the data comprised of one-to-one interviews, of managers and supervisors who the author believe have knowledge and understanding of the company and the engineering department, to gain suitable data. The information was acquired using a predetermined set of questions that were asked of all participants, these questions had been developed to gain data on the safety culture and safety training of the company. The interviews were completed when the saturation point was achieved, that is to say when no more new material was uncovered.

The second part of the data collection process comprised of the development of a customised questionnaire comprising of 10 questions, incorporating a Likert scale scoring system of one to ten, one being ‘totally disagree’ and ten being ‘totally agree’. Questionnaires have been used to good effect for assessing safety culture within industries. (Ostrom et al., 1993) used a similar structure of questions to assess the safety culture in nuclear power plants in the United States.

The questionnaire were sent to a random set of participants who were registered as working for ABP at the Port of Hull. The randomness was achieved by putting the names of every employee into a container and then were drawn out by an independent observer. The questionnaire, along with a
letter explaining what the research is aiming to achieve, was sent to all the 
selected participants, assuring them of anonymity. This study group comprised 
of 100 participants, with the aim of receiving as big a percentage of return 
questionnaires as possible for the research. A contact e-mail and phone number 
was also attached to the questionnaires to enable participants to contact the 
author in the event of requiring additional information.

To successfully conclude the research project, all the data was analysed and a 
report produced of the findings. Using a suitable presentation media the findings 
were also presented to senior managers at ABP with a view to steering 
decisions on training strategies in the future.

6.4 Administration of research tools

To administer the research tools the process required the researcher to be as 
flexible as possible to enable the process to be as efficient as possible in 
collecting the data. When setting up the manager and supervisor interviews, 
meeting requests were first sent to agree times for the interviews. It was noted 
during the process that these meetings were changed on several occasions to 
accommodate the study group. The period set aside for data collection was 6 
weeks, and this enabled the researcher to accommodate the changes in various 
schedules. The questionnaires that were posted to the random study group 
followed similar criteria, with a target of receiving all completed questionnaires 
within 4 to 6 weeks; this was set to enable maximum amount of participation 
taking into account holidays and sickness.

6.5 Data analysis and presentation

When all the data had been collected it was analysed to enable ease of 
evaluation. Microsoft Excel was used to present the data in graphical formats 
that were relatively easy to interpret. The analysed data was then used to 
present the findings to senior managers within ABP to identify any areas for 
 improvement and to also help future strategies involving safety training and its 
merits.
6.6 Limitations and assumptions

Limitations within the study have been identified as a maximum of 100 participants are required to take part in the questionnaire study group; this is because of time restraints not only of administering the results within the timescales of the research but also the logistical problems that a larger study group would cause. It is also assumed that the 100 randomly selected participants within the questionnaire study are a true representation of the workforce as a whole. It is also assumed that ABP will allow time and resources to enable the research to be completed on schedule.

7 Results and discussion

7.1 Results from the questionnaires

The safety culture, safety training questionnaire was issued to 101 employees of the company, comprising of 3 management grade, 6 supervisory grade and 92 manual grade. The questionnaire used can be found in Appendix 11.1. The returned questionnaires totalled 42, representing 45%, of the questionnaires issued. This comprised of 2 management grade, 34 manual grade, and 6 supervisory grade.

Table 1: Responses to the survey

<table>
<thead>
<tr>
<th></th>
<th>Sent</th>
<th>Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managers</td>
<td>3</td>
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</tr>
<tr>
<td>Supervisors</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Manual</td>
<td>92</td>
<td>34</td>
</tr>
</tbody>
</table>
From the questionnaires that were sent out, there was 100% return from the supervisory grade, 66% from the management grade and 37% from the manual grade.

The results of the survey show that from the 42 questionnaires that were returned, 34 were from the manual grade, 6 from supervisory grade and 2 from management grade. This is a good representation from the different grades as 92 were sent to the manual grades, 6 to the supervisory grades and 3 to the management grades.

It was observed that the supervisory grade and the management grade had a very good return. The manual grade however returned a total of 34, but this still is considered a good return of the questionnaires. The higher return from managers and supervisors may be attributed to a possible better understanding of safety culture, and realising that any results from research, particularly conducted on site will have real benefits to the company.

The manual grades on the other hand, would possibly not appreciate this as much, and may possibly view the participation as assisting management in decision-making.
Table 2: Responses to questionnaire by management grade

<table>
<thead>
<tr>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

The table above represents the total responses to the questions set out in the questionnaire from the management grade - two in total, representing 5% of the total returns. The answers are very similar and suggest that this grade have similar viewpoints. As only two of the managers responded to the survey, this may not be conclusive of the general view of all managers and further research may have to be completed to further validate the results of this work.

FIG 2: Shows the responses by management grade

As can be seen in FIG 2 above the responses by the management grade are similar, and suggest similar beliefs.

Table 3: Responses to questionnaire by supervisor grade
The table above represents the total responses to the questions set out in the questionnaire from the supervisory grade - six in total, representing 14% of the total returns.

FIG 3: Shows responses by the supervisory grade

![Bar chart showing responses by supervisory grade](chart.png)

FIG 3 represents the responses from the supervisor grade, again similar results were recorded although there are a few anomalies. Question 3 was ‘there are no benefits from safety training that directly affect me’. Most participants answered the question in the region of ‘strongly disagree’ to ‘agree’, although one participant scored this question as ‘strongly agree’, I would suggest this question may have been misunderstood by the participant.
Question eight states that there is not one action that can raise safety culture on its own, again most participants scored this question as between ‘strongly disagree’ and ‘disagree’, but one respondent answered ‘agree’, again this is possibly down to the respondent not reading the question correctly or not understanding the scale.

Most respondents answered between ‘strongly disagree’ and ‘agree’ to the statement ‘there is not just one action that can raise safety culture on its own’, although two respondents (33%) answered in the ‘strongly agree’ category.
Table 4: Responses to questionnaire by manual grade

<table>
<thead>
<tr>
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<th>Q1</th>
<th>Q2</th>
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</tr>
</tbody>
</table>

The table above represents the answers collected from the manual grade respondents - 34 replies to the research survey, representing 34% of the overall survey that was initially given out and 81% of the total survey that was returned.
Because of the quantity of the results it would be difficult to interpret each individual result on a graph, therefore these results have been presented as averages for each question shown in FIG 4.

Table 5: Averaged responses to questionnaire by manual grade

<table>
<thead>
<tr>
<th>Manual</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
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</thead>
<tbody>
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</tr>
</tbody>
</table>

Whilst there are some questions that are in the middle area of response, notable averages are in response to question 5 ‘in my opinion everyone should be involved in developing a positive safety culture’, which scored an average of 9.2, meaning ‘strongly agree’.

Another observation for question 10 ‘additional training would raise the safety culture of the company overall, and the department I work in’, gained an average of 8.3, interpreted as ‘strongly agree’.

FIG 4: Shows averaged responses from manual grade
Table 6: Averaged responses by all grades

<table>
<thead>
<tr>
<th>Averages</th>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
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</thead>
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<td>1.17</td>
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<td>8</td>
</tr>
</tbody>
</table>

Table 6 represents the averaged score for all the answers to the questions in the questionnaire by all grades. FIG 5 shows a graphical representation of the table of the averaged results. Whilst some questions show that all the groups are similar in their responses, there are however some areas that require additional investigation, particularly around question numbers 3, 6, 7 and 8 where the differences in responses differ more significantly than the other responses.

FIG 5: Shows averaged responses from all grades
All the data will be analysed to determine any differences in the responses between the various grades.

Table 7: Averaged response from all grades to Question 1

<table>
<thead>
<tr>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
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</thead>
<tbody>
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</table>

FIG 6: Averaged response from all grades to Question 1

Question 1: I know what a safety culture is within an organisation.

The averaged response to the question shows that the supervisory and management grades all scored high, strongly agreeing with the statement. The manual grade averaged 6.5, this is a neutral response implying that this group does not have a firm understanding of the term, whilst the management grade and supervisory grade would have a better understanding of this.
A good indicator for a strong safety culture within an organisation would have been that all groups surveyed would score high in this question, this would show that there has been good communication in this area, and that all employees are aware of it.
Table 8: Averaged response from all grades to Question 2

<table>
<thead>
<tr>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>9.5</td>
<td>8.0</td>
<td>2.0</td>
<td>9.5</td>
<td>10.0</td>
<td>1.5</td>
<td>1.0</td>
<td>1.0</td>
<td>9.5</td>
<td>8.0</td>
</tr>
<tr>
<td>Manual</td>
<td>6.5</td>
<td>6.1</td>
<td>5.3</td>
<td>4.4</td>
<td>9.2</td>
<td>5.7</td>
<td>3.3</td>
<td>3.2</td>
<td>6.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Supervisory</td>
<td>9.0</td>
<td>8.3</td>
<td>3.5</td>
<td>8.0</td>
<td>9.7</td>
<td>1.7</td>
<td>1.17</td>
<td>2.5</td>
<td>5.5</td>
<td>8.0</td>
</tr>
</tbody>
</table>

FIG 7: Averaged response from all grades to Question 2

Question 2: The safety culture of the department is good, and does not require attention.

The statement showed that again the manual grade scored in the neutral area of 6.1, possible explanations for this could be that if they are unsure of what a safety culture is, they may be inclined to score in the neutral area. Another reason could also be that they think the safety culture does need attention within the department.

The management grade and supervisory grades scored, 8 and 8.3 respectively, although a strong agreement with the statement, indicating that there is indeed room for improvement in this area.
Table 9: Averaged response from all grades to Question 3

<table>
<thead>
<tr>
<th>Question</th>
<th>Averaged results from all grades</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1</td>
</tr>
<tr>
<td>Management</td>
<td>9.5</td>
</tr>
<tr>
<td>Manual</td>
<td>6.5</td>
</tr>
<tr>
<td>Supervisory</td>
<td>9</td>
</tr>
</tbody>
</table>

FIG 8: Averaged response from all grades to Question 3

Question 3: Safety culture is something that cannot be measured.

The averages for this statement from the questionnaire resulted in the management group disagreeing with the statement, this group would be expected to be aware of the fact that there are tools available for this to be measured. The supervisory group also scored low although not as low as the management level, whilst the manual group scored an average of 5.3; this is a neutral score, meaning they have possibly not understood the question or that they are not aware of any techniques that can be used to measure safety culture.
The management group as mentioned earlier should be aware that safety culture can be measured. An observation is that these techniques are possibly not getting relayed down to supervisors and manual grades. This could be a lack of communication or a lack of understanding of the subject; clearly there is some work to do for the workforce to firstly understand these concepts and then progress to have input on raising the safety culture.
Table 10: Averaged response from all grades to Question 4

<table>
<thead>
<tr>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>9.5</td>
<td>8</td>
<td>2</td>
<td>9.5</td>
<td>10</td>
<td>1.5</td>
<td>1</td>
<td>1</td>
<td>9.5</td>
<td>8</td>
</tr>
<tr>
<td>Manual</td>
<td>6.5</td>
<td>6.1</td>
<td>5.3</td>
<td>4.4</td>
<td>9.2</td>
<td>5.7</td>
<td>3.3</td>
<td>3.2</td>
<td>6.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Supervisory</td>
<td>9</td>
<td>8.3</td>
<td>3.5</td>
<td>8</td>
<td>9.7</td>
<td>1.7</td>
<td>1.17</td>
<td>2.5</td>
<td>5.5</td>
<td>8</td>
</tr>
</tbody>
</table>

FIG 9: Averaged response from all grades to Question 4

Question 4: Safety culture is driven by managers, supervisors and the health and safety department.

The answers to question 4 of the questionnaire are somewhat conflicting; the statement agreed by a high average score from the management group, and also a high average from the supervisory group. The manual group disagreed with this statement scoring a low to neutral score of 4.4.

There are two possible explanations for the difference in the averages. Firstly it could be that the manual group were unsure of the question and therefore scored it in the neutral area, or that the group disagreed with the question and
believe that all of the workforce has a role to play in driving safety culture upwards.
Table 11: Averaged response from all grades to Question 5

<table>
<thead>
<tr>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>9.5</td>
<td>8</td>
<td>2</td>
<td>9.5</td>
<td>10</td>
<td>1.5</td>
<td>1</td>
<td>1</td>
<td>9.5</td>
<td>8</td>
</tr>
<tr>
<td>Manual</td>
<td>6.5</td>
<td>6.1</td>
<td>5.3</td>
<td>4.4</td>
<td>9.2</td>
<td>5.7</td>
<td>3.3</td>
<td>3.2</td>
<td>6.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Supervisory</td>
<td>9</td>
<td>8.3</td>
<td>3.5</td>
<td>8</td>
<td>9.7</td>
<td>1.7</td>
<td>1.17</td>
<td>2.5</td>
<td>5.5</td>
<td>8</td>
</tr>
</tbody>
</table>

FIG 10: Averaged response from all grades to Question 5

Question 5: In my opinion everyone should be involved in developing a positive safety culture.

Answers to question 5 were conclusive in the fact that all groups scored the statement high. The management group and supervisory group averaged the highest scores; these were also the smallest groups bringing the averages higher.

Following on from the previous question, an observation was that a possible explanation for a low score was that the manual group disagreed with the question, and believed that everyone has a role to play in driving safety culture upwards. The average to this question emphasises that belief by scoring high in
the statement ‘everyone should be involved in developing a positive safety culture’. This shows that the manual grade do indeed understand the concept of safety culture and believe that everyone has a part to play in driving up standards; this is a very positive reaction.
Question 6: A positive safety culture just happens over a period of time, and does not have to be developed.

Answers to the statement produced some interesting results. Again the management group and the supervisory group disagreed with this statement; this is consistent with the two groups’ responses to previous questions, in so much as they appear to understand the concept of safety culture and have a greater understanding of how long it takes to develop it.

The manual group posted an average score of 5.7. Again a very neutral score; possibly this group have misunderstood this question, or are unsure how a
positive safety culture is developed and what timescales are involved in the process.

Looking back at previous questions, the manual grade are interested in safety culture; they know they need to be a part of the implementation, but do not know how this can be achieved.
Table 13: Averaged response from all grades to Question 7

<table>
<thead>
<tr>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>9.5</td>
<td>8</td>
<td>2</td>
<td>9.5</td>
<td>10</td>
<td>1.5</td>
<td>1</td>
<td>1</td>
<td>9.5</td>
<td>8</td>
</tr>
<tr>
<td>Manual</td>
<td>6.5</td>
<td>6.1</td>
<td>5.3</td>
<td>4.4</td>
<td>9.2</td>
<td>5.7</td>
<td>3.3</td>
<td>3.2</td>
<td>6.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Supervisory</td>
<td>9</td>
<td>8.3</td>
<td>3.5</td>
<td>8</td>
<td>9.7</td>
<td>1.7</td>
<td>1.17</td>
<td>2.5</td>
<td>5.5</td>
<td>8</td>
</tr>
</tbody>
</table>

FIG 12: Averaged response from all grades to Question 7

Question 7: Safety training has no effect on the overall safety culture of the company or department.

The statement yielded similar results from all groups taking part in the survey, again the management and supervisory group averaged the lowest. The manual grade also averaged 3.3, the results implying that all of the workforce agree that training does have an effect on the safety culture of the organisation and also of the department; this will be explored further in the results from questions 8 and 10.
Table 14: Averaged response from all grades to Question 8

<table>
<thead>
<tr>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>9.5</td>
<td>8</td>
<td>2</td>
<td>9.5</td>
<td>10</td>
<td>1.5</td>
<td>1</td>
<td>1</td>
<td>9.5</td>
<td>8</td>
</tr>
<tr>
<td>Manual</td>
<td>6.5</td>
<td>6.1</td>
<td>5.3</td>
<td>4.4</td>
<td>9.2</td>
<td>5.7</td>
<td>3.3</td>
<td>3.2</td>
<td>6.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Supervisory</td>
<td>9</td>
<td>8.3</td>
<td>3.5</td>
<td>8</td>
<td>9.7</td>
<td>1.7</td>
<td>1.17</td>
<td>2.5</td>
<td>5.5</td>
<td>8</td>
</tr>
</tbody>
</table>

FIG 13: Averaged response from all grades to Question 8

Question 8: There are no benefits from safety training that directly affect me.

This statement follows on directly from the previous statement, in so much as it was determined that safety training does have an effect on safety culture. The statement showed similar results.

All the groups averaged low, disagreeing with the statement; this shows that all the workforce are aware of the effects safety training has not only on the company and department, but also how it directly affects the individual in creating a positive safety culture.
Table 15: Averaged response from all grades to Question 9

<table>
<thead>
<tr>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>9.5</td>
<td>8</td>
<td>2</td>
<td>9.5</td>
<td>10</td>
<td>1.5</td>
<td>1</td>
<td>1</td>
<td>9.5</td>
<td>8</td>
</tr>
<tr>
<td>Manual</td>
<td>6.5</td>
<td>6.1</td>
<td>5.3</td>
<td>4.4</td>
<td>9.2</td>
<td>5.7</td>
<td>3.3</td>
<td>3.2</td>
<td>6.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Supervisory</td>
<td>9</td>
<td>8.3</td>
<td>3.5</td>
<td>8</td>
<td>9.7</td>
<td>1.7</td>
<td>1.17</td>
<td>2.5</td>
<td>5.5</td>
<td>8</td>
</tr>
</tbody>
</table>

FIG 14: Averaged response from all grades to Question 9

Question 9: There is not one action that can raise safety culture on its own.

The statement produced conflicting results from the management group and the supervisory and manual groups. The management group agreed that there is more than one action involved in raising safety culture. The other two groups were neutral in their responses indicating either they did not understand the question, or they agreed with the statement.

The manual group’s average was higher than that of the supervisory group, and considering this group contains the bulk of the respondents it can be considered a positive score; this emphasises the fact that this group appear to know how
important involvement is in driving up the safety culture, but are unsure of how this happens.
Table 16: Averaged response from all grades to Question 10

<table>
<thead>
<tr>
<th>Question</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>9.5</td>
<td>8</td>
<td>2</td>
<td>9.5</td>
<td>10</td>
<td>1.5</td>
<td>1</td>
<td>1</td>
<td>9.5</td>
<td>8</td>
</tr>
<tr>
<td>Manual</td>
<td>6.5</td>
<td>6.1</td>
<td>5.3</td>
<td>4.4</td>
<td>9.2</td>
<td>5.7</td>
<td>3.3</td>
<td>3.2</td>
<td>6.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Supervisory</td>
<td>9</td>
<td>8.3</td>
<td>3.5</td>
<td>8</td>
<td>9.7</td>
<td>1.7</td>
<td>1.17</td>
<td>2.5</td>
<td>5.5</td>
<td>8</td>
</tr>
</tbody>
</table>

FIG 15: Averaged response from all grades to Question 10

Question 10: Additional training would raise the safety culture of the company overall.

Looking at the questions raised in the questionnaire regarding safety and its impact on safety culture, it is clear that all groups believe that training has a major influence on raising the safety culture, and that individuals also benefit from additional training.
7.2 Results from one to one interviews

Within the research there was a need to interview key members of the current staff, to ascertain information on the current safety culture and the effects of training. The interviewees were chosen because it is thought they would have the knowledge and information required to deliver a good overview of the information required.

The interviews were completed until saturation point was achieved, that is to say when no additional information was being identified. The interviewees were given an identification number as set out below. The interview text was analysed to identify common statements within it, these common themes were then separated from the main text and used as the main themes of the interviews. These themes were then coded to ascertain how many times these common phrases were used by all the interviewees.

The analysis allowed for multiple answers to any given question, and these in turn were analysed to enable them to be put into a graphical representation.

Numbering for the table is as follows:

1. Mick Lowes (Maintenance Manager)
2. Mick Collinson (Mechanical Supervisor)
3. Phil Archer (Mechanical Supervisor)
4. Graham Courtney (Health and Safety Manager)
5. Danny Rogers (Mechanical Supervisor)
6. Keith Payne (Electrical Supervisor)
7. William Medley (Electrical Supervisor)
8. Andrew Dawson (Electrical Supervisor)
9. Keith Payne (Electrical Supervisor)
10. Pete Murray (Mechanical Supervisor)
Full transcripts of the interviews from Graham Courtney, Mick Lowes and Mick Collinson can be found in the appendices sections 11.2, 11.3 and 11.4 respectively.
<table>
<thead>
<tr>
<th>Question Number</th>
<th>Interviewee</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude</strong></td>
<td>Positive</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Safety culture</strong></td>
<td>Good understanding</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not understood</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Relates to the job</td>
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<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Safety culture at present</strong></td>
<td>Good culture at the moment</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Room for improvement</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>How to measure</strong></td>
<td>Skills surveys</td>
<td></td>
<td></td>
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<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Audits</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>On the job inspections</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</tr>
<tr>
<td></td>
<td>Housekeeping</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>spot checks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Primary Drivers</strong></td>
<td>Everyone owns the culture</td>
<td>1</td>
<td>1</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>Managers and supervisors</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Leading by example</td>
<td></td>
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<td></td>
<td>Management commitment</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Investment in infrastructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>How far reaching</strong></td>
<td>Everyone should be involved</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>From top to bottom</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
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<tr>
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<td>From bottom to top</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All the workforce</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>how achieved</strong></td>
<td>Management resource</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lead by example</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information sharing</td>
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<td>1</td>
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<tr>
<td><strong>Importance of training</strong></td>
<td>Very important</td>
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<td>1</td>
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<td>One of the factors</td>
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<td>1</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Not very important</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Personal benefits</strong></td>
<td>Better understanding</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shown how to do something</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>personal interaction</td>
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<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Better knowledge</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feel safer</td>
<td>1</td>
<td>1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Raising safety culture</strong></td>
<td>Consequences for non compliance</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employee engagement</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional training</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Additional training</strong></td>
<td>Management commitment</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improve safety culture</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No benefits</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shows commitment</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Better prepared</td>
<td>1</td>
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</tr>
</tbody>
</table>
Table 18: Results from coding Interviews 6-10

<table>
<thead>
<tr>
<th>Question</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<tr>
<td>Attitude</td>
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<td>Positive</td>
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<td></td>
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<td>Neutral</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Safety culture Good understanding</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Not understood</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Relates to the job</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Safety culture at present Good</td>
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<td></td>
<td></td>
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<tr>
<td>culture at the moment</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Room for improvement</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How to measure</td>
<td></td>
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<tr>
<td>Skills surveys</td>
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<td>1</td>
</tr>
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<td>Audits</td>
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<td></td>
<td>1</td>
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<tr>
<td>On the job inspections</td>
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<tr>
<td>Housekeeping spot checks</td>
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<td></td>
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<td>Primary Drivers</td>
<td></td>
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<td>1</td>
<td></td>
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<tr>
<td>Everyone owns the culture</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Managers and supervisors</td>
<td></td>
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<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Good resources</td>
<td></td>
<td></td>
<td></td>
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<td>1</td>
</tr>
<tr>
<td>Leading by example</td>
<td></td>
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<td>1</td>
</tr>
<tr>
<td>Management commitment</td>
<td></td>
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<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Investment in infrastructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Treat everyone equal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>How far reaching</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Everyone should be involved</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>From top to bottom</td>
<td></td>
<td></td>
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<td>1</td>
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<tr>
<td>From bottom to top</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>All the workforce</td>
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<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>how achieved</td>
<td></td>
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<td></td>
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<tr>
<td>Management resource</td>
<td></td>
<td>1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lead by example</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
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<td>Information sharing</td>
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<td></td>
</tr>
<tr>
<td>Importance of training</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Very important</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>One of the factors</td>
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<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>not very important</td>
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<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Personal benefits</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>better understanding</td>
<td></td>
<td></td>
<td>1</td>
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<td>1</td>
</tr>
<tr>
<td>Shown how to do something</td>
<td></td>
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<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>personal interaction</td>
<td></td>
<td></td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Better knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Feel safer</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raising safety culture</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Consequences for non compliance</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Employee engagement</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Additional training</td>
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<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Management commitment</td>
<td></td>
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<td>1</td>
</tr>
<tr>
<td>Additional training</td>
<td></td>
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<td>1</td>
</tr>
<tr>
<td>Improve safety culture</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>No benefits</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Additional training</td>
<td></td>
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<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Shows commitment</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Better prepared</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Glenn Silburn, Dissertation, 2015
To conduct a successful interview that ensures the interviewee participates in a positive manner, it is essential not only to gain the trust of the participant, but to also ensure that the correct atmosphere is created between interviewer and interviewee to gain the most accurate results.

FIG 17 above shows the attitude of the interviewees at the interview stage; out of the ten participants seven were judged to have a positive attitude and freely gave information that answered the interview questions quickly. A further three participants were judged to be neutral in respect of the answers, that is to say these three were less positive than the others taking part. It was noted that no participants had a negative attitude and all were very helpful with the survey.
Table 20: Showing results of coding, understanding of the term ‘safety culture’

<table>
<thead>
<tr>
<th>Safety Culture</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Understood</td>
<td>1</td>
</tr>
<tr>
<td>Relates to the job</td>
<td>4</td>
</tr>
<tr>
<td>Good understanding</td>
<td>6</td>
</tr>
</tbody>
</table>

FIG 17: Showing results from understanding the term ‘safety culture’

Participants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

Overall there was a good understanding of the term ‘safety culture’, with six out of the ten participants citing good examples:

“I would say that the safety culture is the shared beliefs of a group really, just like any other culture such as a religious group, or youth culture” (Courtney, 2015).

“Safety culture is a set of shared beliefs, everyone looking for the same goal” (Medley, 2015).
Five of the ten also stated in the interview that safety culture relates to the job; if this was mentioned on its own it was coded as not understood, but if cited with other positive aspects it was coded as additional information, only one remained as not understood.

The results show that the majority of the supervisor and manager grades have a good understanding of safety culture, although there is room for improvement of this understanding.
Table 21: Showing results of coding, safety culture the present time

<table>
<thead>
<tr>
<th>Safety culture in the department at the present time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relates to the job</td>
<td>4</td>
</tr>
<tr>
<td>Good understanding</td>
<td>6</td>
</tr>
</tbody>
</table>

FIG 18: Showing results from coding, safety culture in the department at the present time

Paticipants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

The results from the question ‘What do you feel the culture is within the department currently?’ produced a positive response with six out of the ten participants rating the safety culture good at the present time.

“I would say it’s fairly good really, knowing the people that are here I would say they are quite engaged” (Courtney, 2015).

“I think the culture is good here; as I said we always spot things around the port that is wrong, don't forget these guys have gone through all the safety initiatives that have been thrown at us over the years” (Collinson, 2015).

Some of the respondents stated that whilst the safety culture in the department is good, there could always be an improvement; these dual responses were
coded firstly in the ‘good at the moment’ category and also scored in the ‘room for improvement’ category.
Table 22: Showing results from coding, how to measure safety culture within the department.

<table>
<thead>
<tr>
<th>How can safety culture be measured within the department</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot Checks</td>
<td>4</td>
</tr>
<tr>
<td>Housekeeping</td>
<td>3</td>
</tr>
<tr>
<td>On the job inspection</td>
<td>8</td>
</tr>
<tr>
<td>Audits</td>
<td>7</td>
</tr>
<tr>
<td>Skills surveys</td>
<td>2</td>
</tr>
</tbody>
</table>

FIG 19: Showing results from coding, how to measure safety culture within the department.

Paticipants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

The question ‘How can safety culture be measured within the department?’ was somewhat of an open question and respondents were coded for multiple answers. The greatest responses came from on the job inspections and audits - both scoring eight and seven respectively.

Spot checks and housekeeping scored four and three respectively, whilst skills surveys were mentioned only twice.

Indications show that this grade level have a good understanding of safety culture, and have produced some good indicators of how to measure this.
Table 23: Showing results from coding, Primary drivers of Safety Culture

<table>
<thead>
<tr>
<th>Primary drivers of Safety Culture</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treat everyone equal</td>
<td>1</td>
</tr>
<tr>
<td>Investment in infrastructure</td>
<td>2</td>
</tr>
<tr>
<td>Management commitment</td>
<td>2</td>
</tr>
<tr>
<td>Leading by example</td>
<td>2</td>
</tr>
<tr>
<td>Good resources</td>
<td>1</td>
</tr>
<tr>
<td>Managers and supervisors</td>
<td>6</td>
</tr>
<tr>
<td>Everyone owns the culture</td>
<td>6</td>
</tr>
</tbody>
</table>

FIG 20: Showing results from coding, Primary Drivers of Safety culture

Participants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

Answers to the question ‘Who are the primary drivers of a safety culture?’ produced good responses with multiple answers being offered by all of the respondents. Not surprisingly six out of ten replied with ‘supervisors and managers’, identifying that this is the group that can drive standards higher. Another notable answer to the question is that six respondents also highlighted
that everyone owns the safety culture, implying that everyone has a part to play in it.

Other answers offered forward at the interview stage were: investment in infrastructure, management commitment and leading by example - all scoring three mentions at the interview stage. Good resources and treating everyone equally are also good responses for the question, showing that this group are well educated in areas that are used as primary drivers to raise safety culture.
Table 24: Showing results from coding, How far reaching should safety culture be?

<table>
<thead>
<tr>
<th>How far reaching should safety culture be?</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>All the workforce</td>
<td>6</td>
</tr>
<tr>
<td>From bottom to top</td>
<td>3</td>
</tr>
<tr>
<td>From top to bottom</td>
<td>3</td>
</tr>
<tr>
<td>Everyone should be involved</td>
<td>8</td>
</tr>
</tbody>
</table>

FIG 21: Showing results from coding, How far reaching should safety culture be?

Paticipants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

The consensus from all the interviewees is that everyone contributes to the safety culture. Most agreed that all the workforce have a part to play, some stated that it should be a top to bottom approach, ensuring this is driven by the managing director and cascades down from him. Others believed that it should be a bottom to top approach, ensuring that everyone at the lower levels was engaged and informed of the direction in which the safety culture should be heading.
Table 25: Showing results of coding, how do you think a positive safety culture is achieved?

<table>
<thead>
<tr>
<th>How do you think a positive safety culture is achieved?</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information sharing</td>
<td>3</td>
</tr>
<tr>
<td>Lead by example</td>
<td>6</td>
</tr>
<tr>
<td>Management resources</td>
<td>3</td>
</tr>
</tbody>
</table>

FIG 22: Showing results from coding, how do you think a positive safety culture is achieved?

Participants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

This question asked respondents for ideas on how a positive safety culture is achieved. There were a few common themes that were mentioned in the interviews but one suggestion came up more than any other and this was for managers, supervisors etc. to lead by example.

“Everyone knowing about safety and how their department interacts with the other, I suppose it’s about looking after each other” (Collinson, 2015).
“Keep pushing forward and finding different ways to relay the message” (Medley, 2015).

Other main themes that were mentioned involved the need to share information to enable everyone to feel a part of the team, and the availability of resources such as tools and equipment; this was thought to be a major issue for motivation.
Table 26: Showing results of coding, how important in your view is safety training in relation to safety culture?

<table>
<thead>
<tr>
<th>How important in your view is safety training in relation to safety culture?</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not very important</td>
<td>0</td>
</tr>
<tr>
<td>One of the factors</td>
<td>2</td>
</tr>
<tr>
<td>Very Important</td>
<td>8</td>
</tr>
</tbody>
</table>

FIG 23: Showing results from coding, how important in your view is safety training in relation to safety culture?

Paticipants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

When asked how important training is in relation to safety culture, most of the respondents (eight in total) explained that it was very important whilst the other two highlighted that this was only one of the factors involved in the overall process.

It was also noted that none of the interviewees expressed an opinion that training was not important in relation to safety culture.
Table 27: Showing results from coding, can you describe the benefits you receive from safety training?

<table>
<thead>
<tr>
<th>Can you describe the benefits you receive from safety training?</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feel safer</td>
<td>3</td>
</tr>
<tr>
<td>Better knowledge</td>
<td>7</td>
</tr>
<tr>
<td>Personal interaction</td>
<td>3</td>
</tr>
<tr>
<td>Shown how to do something</td>
<td>2</td>
</tr>
<tr>
<td>Better understanding</td>
<td>8</td>
</tr>
</tbody>
</table>

FIG 24: Showing results from coding, can you describe the benefits you receive from safety training?

Participants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

The overriding view from the participants when answering this question is that safety training gives them a better understanding of the hazards associated with each task. Better knowledge was also cited as being a main influence on safety culture.

“IT gives me general knowledge and background information” (Lowes, 2015).

“Me personally, it makes me aware of things that maybe I haven't thought about” (Collinson, 2015).
It was also evident that the personal interaction that the trainer can give in a training session is essential; respondents expressed they get great benefits from the personal interaction that training can give. Some also mentioned that they feel safer after training, giving them a better understanding of their working environment.
Table 28: Showing results from coding, what in your opinion is the one factor that would raise the safety culture and why?

<table>
<thead>
<tr>
<th>What in your opinion is the one factor that would raise the safety culture and why?</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management commitment</td>
<td>5</td>
</tr>
<tr>
<td>Additional training</td>
<td>5</td>
</tr>
<tr>
<td>Employee engagement</td>
<td>8</td>
</tr>
<tr>
<td>Consequences of non-compliance</td>
<td>2</td>
</tr>
</tbody>
</table>

FIG 25: Showing results from coding, what in your opinion is the one factor that would raise the safety culture and why?

Participants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

When trying to raise the safety culture it is very important to engage all of the workforce, this is evident from the results as employee engagement was mentioned by eight interviewees. Additional training and management commitment were also high on the agendas of the participants.
The general view of all participants was that there was not one item that could raise the safety culture on its own, but there are multiple parts that come together to create an upward trend.
Table 29: Showing results from coding, do you think additional training would improve the safety culture?

<table>
<thead>
<tr>
<th>Do you think additional training would improve the safety culture?</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better prepared</td>
<td>3</td>
</tr>
<tr>
<td>Shows commitment</td>
<td>5</td>
</tr>
<tr>
<td>No benefits</td>
<td>1</td>
</tr>
<tr>
<td>Improve safety culture</td>
<td>9</td>
</tr>
</tbody>
</table>

FIG 26: Showing results from coding, do you think additional training would improve the safety culture?

Paticipants interviewed could cite multiple choice answers to the questions, and this is represented in the results.

The overwhelming reaction to the question ‘Would additional training improve safety culture?’ was very positive - with nine respondents identifying that additional training would indeed improve safety culture. It was also identified that additional training shows commitment from management that there is a genuine commitment to improve safety culture.

Three interviewees thought that the company would be better prepared to improve safety culture by additional training but identified that this one part would not improve safety culture on its own.
Only one out of the ten interviewed identified no benefit from additional training.
8 Conclusions

In this chapter the findings of the thesis are discussed and conclusions are presented from the research to identify if the aims and objectives of the project have successfully been concluded. In addition to the aims and objectives, a number of conclusions having been made on the hypotheses been tested by the research that was undertaken. Within the discussion it is also important to identify where the body of work currently lies in relation to other opinions and beliefs in the field. Recommendations will also be put forward for future research to enable a wider research programme to be undertaken.

8.1 Aims

8.1.1 The effects of safety training on the overall safety culture of the company

Within the research it has been identified that companies that have invested in robust training schemes have raised the overall safety culture of the company, ensuring that employees take responsibility for their actions and their colleagues’ actions. Additional to this, some companies that have adopted this strategy have seen great reductions in accident rates. Other effects on the overall safety culture include that employees appreciate the commitment from the company in investing in such regimes, and that some employees reported feeling more informed and safer as a result of additional training.

8.2 Objectives

8.2.1 Objective 1

Objective 1, conducting a literature review of other relevant research in the field, the objective of conducting the review is to corroborate or contradict the findings of the research, and also to identify any gaps within current research.

The literature review was completed using research material that was readily available through books, magazines and other media. An examination of companies that invest in safety training, and also major accidents where lack of
training was cited as a factor was completed. The findings of the review were then introduced into the research to corroborate the findings.

8.2.2 Objective 2

Objective 2, interviewing a number of managers and supervisors, to gain information on their understanding of the safety culture within the company, at the present time.

The second phase of the research comprised of one-to-one interviews of personnel who were thought to have the knowledge and experience to give information that was vital to the paper. Interviews took place until no further information was being brought forward, this was deemed as saturation point for the research. A total of 10 managers and supervisors were interviewed.

8.2.3 Objective 3

Objective 3, acquiring information from a predetermined study group, using a suitable questionnaire, with relation to the effects of safety training on the overall safety culture of the organisation.

The first part of the research was based around a custom questionnaire posted to 101 random participants, 42 employees returned the questionnaire, and the results comprised of 34 manual grade, 6 supervisors and 2 managers. This represented a return of 100% from the supervisory grade, 66% from the management grades and 37% from the manual grades.

8.2.4 Objective 4

Objective 4, to successfully conclude the research project, all of the data will be analysed, and a report produced of the findings using a suitable presentation media.
All the data collected from the questionnaires was used to construct graphical representations and inserted into this report, the results from the one to one interviews were coded to facilitate graphical representation and again inserted into this report, the participants of the one to one interviews were allowed to give multiple answers to the questions, and this is represented in the graphs.

8.2.5 Objective 5

Objective 5, the findings will be presented to senior managers at Associated British Ports (ABP) with a view to steering decisions on training strategies in the future.

The results of this research were presented to the ABP senior management team using a Microsoft power point presentation. Discussions are ongoing as to how the training will be refocused in the future. Decisions have already been made to have a greater focus on safety culture particularly within the manual grades.

8.3 Hypotheses

8.3.1 Hypothesis 1 conclusion

Hypothesis 1, the amount of safety training carried out by an organisation has a positive effect on safety culture of the organisation.

There is evidence that the amount of safety training done by any company has a positive effect on safety culture. Corus steel suffered several fatal accidents before they decided to increase safety training throughout the company. Initially 400 senior managers were put through training courses, then middle and first line managers. After the entire workforce was trained it was noticed that workers were correcting each other on aspects of health and safety, also notably the company attained global recognition for its health and safety excellence.
Another example of a company that has increased the safety culture by additional training is the construction company Kier. They contracted the British Safety Council to train 4000 of their employees in construction safety. The company not only benefited from a 30% reduction in accidents but also employees are now more accepting of their health and safety responsibilities. Birse Civils also benefitted from additional training, after putting all of their employees through a 5 day construction safety programme; employees now think about safety at an earlier stage.

Results from the questionnaires also suggest that training does have a positive impact on safety culture, all the participants strongly disagreed with question 7 statements ‘safety training has no effect on the overall safety culture of the company’, managers scored 1, supervisors 1.7 and the manual grade scored 3.3. The results from question 10 scored strongly agree with the statement ‘additional training would raise the safety culture of the company’ managers scored 8, supervisors 8 and manual grades scored 8.3. FIG 26, also shows that 9 out of 10 managers and supervisors that were interviewed stated that additional training would improve safety culture of the organisation.

8.3.2 Hypothesis 2 conclusion

Hypothesis 2, the lack of safety training has a detrimental effect on the overall safety culture of the company.

It has been identified that additional training has a positive effect on safety culture, but also the lack of safety training has a negative effect on safety culture. Examples of this are the Piper Alpha oilrig disaster; 167 oilrig workers lost their lives when the rig caught fire and exploded. The subsequent enquiry heavily criticized the safety culture of the company at the time. Many training deficiencies were also identified including the lack of emergency preparedness, and evacuation training. Managers had also not received any training on this type of event. The Clapham rail disaster that left 35 people dead was also attributed to a lack
of training and a low safety culture, in so much as procedures were not followed for maintenance activities, and operatives were expected to work long hours for long periods of time. Similar to the events of Three Mile Island, personal factors and the lack of training can lead to low safety culture and consequent accidents.

Whilst there is no definitive evidence within the research done at ABP that the lack of training has a detrimental effect on the safety culture, it is assumed that by other questions in the survey that doing training has a positive impact as the results from Question 7 suggest that all respondents of the questionnaire strongly disagree with the statement ‘safety training has no effect on safety culture’ managers scored this 1, supervisors 1.17 and the manual grades scored this 3.3. Results from Question 10 also show that all taking part in the survey strongly agree with the statement ‘additional training would raise the safety culture of the organisation’ management and supervisors scored this as 8 whilst the manual grades scored it as 8.3. When conducting the one to one interviews 9 of the 10 managers and supervisors interviewed also agreed that additional safety training would improve safety culture. Further research to ascertain what impact the lack of training has on safety culture would enable the gap in this research to be filled.

8.3.3 Hypothesis 3 conclusion

Hypothesis 3, companies that run high-risk operations have an improved safety culture.

There was no conclusive evidence found to establish if companies that run high-risk operations have an improved safety culture. It is evident however that some high-risk operations do have very good safety training regimes and a good safety culture. Research carried out on New Zealand maritime pilots showed that 78% of pilots surveyed thought that they had received adequate training (Darbra et al., 2007) and also it was concluded that additional training would have no additional benefits. It was also noted in this paper that most pilots had a minimum of 10 years’ experience prior to becoming a pilot.
In contrast as earlier demonstrated, other so called high-risk industries, such as the nuclear and oil industries, have suffered catastrophic events due to a lack of sufficient training and poor safety cultures. There was also no new evidence to either support or refute this within the research completed at ABP. Further research to identify the level of safety culture within these companies would fill the gap into this research.

8.3.4 Hypothesis 4 conclusion

Hypothesis 4, companies that have a greater emphasis on training regimes, have a greater overall safety culture than those that do not.

There was no definitive evidence within the research to show that companies that have a greater emphasis on training regimes have a greater overall safety culture than those that do not. Although as previously demonstrated, investing in good training regimes does raise the safety culture and demonstrates to employees that there is a commitment from the management to improve the situation. Additional research within companies that have a good safety culture, would identify if these companies do have a greater emphasis on training.

8.3.5 Hypothesis 5 conclusion

Hypothesis 5, Sections of the workforce have a greater understanding of safety culture.

It was noted during the research that sections of the workforce have a greater understanding of safety culture. At the questionnaire stage of the research process, most manual grade employees scored low on identifying what safety culture was within an organisation. This differs from the responses by the supervisory and management grades, as these groups both scored highly in recognizing what this term means within an organisation.

It was noted that all the recipients understood the term ‘safety culture’.
However, whilst some could quote almost textbook answers, others struggled with an appropriate definition. Managers who had a background in safety were more aware of the definitions than supervisors, and this can be attributed to a certain lack of communication in this area.

It was identified by six of the interviewees that the safety culture in the engineering department is good at the present time, whilst it was also mentioned that there is room for improvement in this area. It was noted also that there were no negative results to this question. These results were expected, as throughout the research programme there was no real negative feedback received, and with all safety culture there is always room for improvement.

All the interviewees gave good examples of how to measure safety culture, with the main results being on the job inspections and audits. Again this would be expected as the group had undergone various training courses within the company and have good experience.

During the one-to-one interviews this was also highlighted again, that managers who have a general health and safety background could freely demonstrate what safety culture was, whilst other managers and supervisors who had not had the same experience could not. This demonstrates that there are differences within the grades and more should be done to ensure better understanding is afforded to all groups.

8.4 Overall conclusions

Managers and supervisors expressed the importance of driving safety culture forward, and the importance of everyone being involved in developing a positive safety culture. The manual grade had little understanding of the components of safety culture and how this occurs; again this would suggest that little work has been done in communicating this to all employees.

The conclusions drawn from the interview phase of the research were firstly that there was a positive attitude towards the interview, and all of the interviewees
were enthusiastic in their approach to the questions asked.
The key findings from this part of the research indicates that the term ‘safety culture’ is not fully understood, particularly by the manual grade; indicating that there has not been a lot of work done in educating the workforce on this. Because of the lack of understanding of the term the manual grade scored on the neutral when asked specific questions about the engineering department safety culture at the present time, and methods of measuring it.
The latter part of the questionnaire related to safety training and its effects on the overall safety culture. All agreed that safety training does have an effect on the safety culture, and interestingly all participants agreed that there are personal benefits from training. Whilst safety training was recognised as a primary driver to raise safety culture, it was identified that no one item can raise the safety culture on its own merit. All participants agreed that additional safety training would raise the safety culture of the organisation.

It is clear from the results of the questionnaire that the understanding of the term ‘safety culture’ differs between managers and supervisors and manual grades; managers and supervisors identify readily with the term, whilst manual grades do not fully understand the concept and consequently give results in the neutral areas of the questions. All agree that there are great benefits to be had from additional training, and all also identify the personal benefits from this training.

The group as a whole identified the primary drivers of safety culture as themselves (namely managers and supervisors) but also cited that everyone owns the safety culture, therefore everyone should be involved in driving it forward. Other drivers that were put forward included investment in infrastructure, management commitment and leading by example; all are notable drivers.

These answers again would be expected from this group, as leading by example is one of the main attributes of supervisory and management levels. There has been a lack of investment in infrastructure in the past years at the company and this has been reflected in the answers obtained. This was
reiterated by the answers to the question ‘How far reaching should safety culture be?’ Participants responded by answering that everyone should be involved, the entire workforce; again identifying the importance of the workforce being involved in the process.

Not surprisingly ideas offered up as to how a positive safety culture is achieved were again leading by example, information sharing and management resources. The lack of resources was again identified as one of the main aspects of improving safety culture, showing commitment from the company.

The questions in the questionnaire relating to training brought some similar results. Training was identified as very important to the overall safety culture of the company. Whilst only two identified this as one of the factors contributing to safety culture, again a general theme at the interview stage of this group was that they agreed safety training was one of the main factors in increasing the safety culture, therefore these results were anticipated.

Personnel benefits put forward from the group were somewhat surprising, as the main benefits cited were a better understanding of certain topics, and better knowledge, leading to improved decision making. Another general comment was that the group actually felt safer after training, having gained additional knowledge. It appears that for this group in particular, as well as other groups within the company, there is a need for adequate information and training, not only to make informed decisions but also to feel safer and more comfortable themselves.

Not surprisingly the consensus of factors that would raise the safety culture included the importance of employee engagement, something that has been lacking in the past in the company. Management commitment was also raised again as one of the main drivers, along with additional training. These three main themes were evident in all of the interviews that took place. To conclude it is evident that the group felt that in the past there has been a lack of commitment in resources and infrastructure over a number of years, that training has a great impact on safety culture, and additional training would
increase safety culture.

8.5 Possible future research

This research was completed using the engineering department within Associated British Ports at the Port of Hull as an example of the importance of training and its effects on safety culture. This is only a representation of one department within the company and further research would be advantageous, taking in all departments and other ports, to gauge how these results would compare as a whole.

Giving that ABP have already committed promoting a positive Health and Safety culture, as a result from presenting the findings of this report to senior management, it would be appropriate to conduct a similar research programme in two years time and compare the results in this report.

The port industry is not unique in striving to raise safety culture, and to gain the most cost effective results from the training that is done, future research taking into account other industries would be advantageous, giving a wider view of possible actions.

8.6 Who will find this report useful?

Companies and practitioners alike, who are striving to raise the safety culture of a company, will find this research useful in so much as it demonstrates the importance of training, and the effects it has on the workforce. Examples of companies who have invested in robust training regimes and have in return gained positive results are highlighted, whilst there are also examples of catastrophic events, citing safety training and safety culture as an underlying cause.
9 References


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10 Bibliography


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11 Appendix

11.1 Questionnaire issued to members of the study group

Safety culture, safety training questionnaire

Please answer the questions below as honestly as possible, by putting a circle around the number that most meets your opinion.

10, meaning strongly agree

1, meaning strongly disagree

<table>
<thead>
<tr>
<th></th>
<th>Management</th>
<th>Supervisor</th>
<th>Manual</th>
</tr>
</thead>
<tbody>
<tr>
<td>I know what safety culture is within an organisation</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The safety culture is good within the department, and does not need attention</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety culture is something that cannot be measured</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety culture is driven by managers, supervisors, and the health and safety department</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In my opinion everyone should be involved in developing a positive safety culture</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A positive safety culture just happens over a period of time, and does not have to be developed.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety training has no effect on the overall safety culture of the company or department</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There are no benefits from safety training that directly affect me</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is not just one action that can raise safety culture on its own</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional training would raise the safety culture of the company, and the department I work in</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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</table>
11.2 Interview with Graham Courtney (Health and Safety manager)

GS: Hi Graham thanks for taking part in my research study, the interview should take around 45 minutes to complete, but I’m not tied to any particular schedule. I will be recording the interview to enable me to write up accurate notes at a later date; the data will be deleted when the notes are complete. So let’s get started, for the recording can you tell me your name, what your job title is and how long you have worked for the company?

GC: Yes no problem, my name is Graham Courtney, I am a mechanical project engineer. Prior to my current role I was a health and safety manager for 10 years, and I have worked for the company since 1981.

GS: Thanks for that Graham, so my first question is,

Q1: What is your understanding of a safety culture within an organisation?

GC: I would say that the safety culture is the shared beliefs of a group really, just like any other culture such as a religious group, or youth culture. It’s how a group actually views safety, good bad or indifferent it’s how the whole group view safety. Almost a common approach, it’s difficult to put your finger on but you can see how attitude towards it, how engaged people are towards it but I have to say it has the group approach and how the group approach safety.

GS: Yes I think that’s pretty accurate actually.

Q2: What do you feel the culture is within the department currently?

GC: I would say it’s fairly good really, knowing the people that are here I would say they are quite engaged, speaking to people here it’s not perfect. You’re never going to get to the gold standard I would have thought, but you speak to people and they generally know about risk assessments and safe systems of work, and more importantly they know how it relates to their job as well. The guys are more technically minded here and I suppose they are used to following instructions as well, electricians for example follow the electrical safety rules because if they don’t they could die. You also have fitters who have to repair things in a certain order so yes they are of a very high level of technical
knowledge and ability and what goes along with that is a high level of safety engagement.

GS: So you think we have got a good safety culture at the moment, or a reasonable one in your opinion.

Q3: How can safety culture be measured within our department?

GC: There are certain ways that you can definitely measure it, doing things that you are doing now that in itself can be a measure of safety culture, skills surveys and all that sort of thing, we have done an employee survey very recently to look at the culture, not only for health and safety, but the culture of how people are approached by management etc. But there are other ways you can do it, risk assessment and safe systems of work, I know the supervisors do spot checks and audits, ensuring people are working to the safe systems so you know that that they are doing as they are told. Also housekeeping, the condition of the vans, condition of the tools, how they actually do the job, are they tidy workers? Things like are they agreeable to approaching you for problems? Near miss reporting.

GS: It's a culmination of various aspects.

GC: There are things you can go down and see and you get a good gut feeling, but there are things that you can measure, such as the number of absences and times people are off sick, the number of near miss reports and the number of accidents, again there are lots of things you can do but also all the things you are doing currently.

GS: Thanks for that Graham,

Q4, Q5: So who do you see as the primary drivers of safety culture and why?

GC: I would say that everybody owns the culture but it is of the group, although different members of the group will have different responsibilities in that group, but I would say really the prime drivers are going to be the management and supervisors downward, they are the guys who hold the purse strings, and resources are a big driver within health and safety as we all know, is it well-resourced can make a whole lot of difference, but also they can do things like
lead by example, prove management commitment, they can do things that cost no money at all.

You can also make sure your supervisors go down and talk to people, not only about the job, a big thing is about all engaging and making sure that the staff know that you are looking out for them, a team approach and you are all pulling in the same direction, building a rapport with the guys opens up channels of communication. It’s all about opening the communication channels because if you don’t talk to them and they don’t talk to you are never going to get to know them. There are also things like making sure the kit they are using is in good condition, investment, letting them know you are fighting their corner as well; in a tight knit group like this it is vitally important. This is very hard to achieve but very easy to break down.

GS: Thanks for that Graham.

Q6: How far reaching in your opinion should the safety culture extend?

GC: Well definitely it should extend right from the bottom to the top, and top to bottom because that’s the only way you are going to get people engaged. People are not stupid, if you get a manager who goes onto site without his safety hat or safety boots, preaching do as I say not as I do etc., very quickly you are going to undo all the good work you have done so everybody has to be on board and everybody has to be engaged.

GS: Thanks

Q7: So how do you think a positive safety culture is achieved?

GC: I suppose by what we have said earlier really, and I suppose I rambled on a bit earlier but by management resources, and listening to people’s opinions, even if you can’t do anything tell them that you can’t do anything.

GS: We haven’t spoken about this aspect yet but…

Q8: How important in your view is safety training in relation to safety culture?

GC: Well I would say it’s very important, not only by the fact that you are giving instructions, you are telling people things that could possibly affect their health
etc. But they are like the hard bits of it, the soft bits are opening communication channels, getting through to people, making sure you are approachable and they can tell you things. The beauty of running internal courses is that 60% of the time you are training but the other 40% you are talking about other aspects of the job and getting a general feeling of where we are at.

GS: Yes, I agree the important thing is talking to the guys and building up relationships. Thanks Graham.

Q9: Can you describe the benefits you receive from safety training?

GC: Personally the benefits from the person receiving the training, are that you are being shown how to do something safely which is in everyone’s best interests, but also when the trainer is talking he is opening up that communication, and you realise that health and safety is in all aspects of the job, it’s like a web that interweaves with everything we do.

GS: Yes definitely.

Q10: What in your opinion is the one factor that would raise the safety culture and why?

GC: Well I don’t think it’s more training, better communication possibly, I don’t think the culture is bad at the minute so the next step is the hardest, to make something from good to great is harder than making something good from bad.

GS: OK thanks for that Graham, we have covered a lot of ground and I know we have possibly covered this already but …

Q11: Do you think additional training would improve the safety culture?

GC: No not just on a stand-alone basis, the guys would probably turn off from it anyway, and again it is a financial burden, it is expensive. But there are a lot of other soft skills that can be done at no cost, for example leading by example, demonstrating good leadership, reacting to complaints and listening to people.

GS: Again thanks for taking the time out to participate in my research project Graham, it is much appreciated.
11.3 Interview with Mick Lowes (Maintenance manager)

GS: Mick thanks for taking part in my research project, the interview should take around 45 minutes but saying that I am very flexible on time restraints. Just to let you know I will be recording the interview solely to help me write up my notes after the interview, the recording will be deleted when I have completed writing up my notes. So if you are ready and comfortable, can you tell me your position and how long you have worked for the company?

ML: Mick Lowes, and I have worked for the ABP for 21 years, and I am the maintenance manager for the ports of Hull and Goole.

GS: Thanks Mick so the first question.

Q1: What is your understanding of a safety culture within an organisation?

ML: A safety culture within an organisation in my view, is just the attitude of the men, the time they take to consider safety, whether they do consider safety or not. The job needs doing at all cost attitude, eh generally driven from the top, and also it takes a while to change any culture, the same as anything else, but that’s my opinion.

GS: OK Mick thanks for that.

Q2: What do you feel the culture is within the department currently?

ML: Engineering department? In Hull, or in Hull and Goole?

GS: In Hull, but if you would like to make a comparison please feel free.

ML: Well definitely in Hull we’re not a bad safety culture but we are still a bit gung ho and we have to get the job done. And look we are paid to fix things so we have got to do it, and not always considering all the safety matters, sometimes when it works safety becomes a tool, but generally it’s not bad, it’s not the worst I’ve ever seen.

Goole is the opposite, we do have problems and there are the odd individuals, but generally the safety culture at Goole is a long way down the road than Hull.
GS: Why is that?

ML: Smaller place, peer pressure, better contact, people are not as isolated as in Hull. Historically it has always been a multicultural, multi-tasking type of place at Goole so people have always took notice of other people.

GS: Are you saying it’s a closer-knit community?

ML: Yes closer knit, you know we don’t want to be unsafe, people giving advice, such as, don’t do that etc.

Q3: So in your opinion how can safety culture be measured within the department?

ML: Obviously you have got your statistics in accident rates etc., spot its, things like that. As long as it’s genuine spot its, as long as it’s genuine and not just people sent out to do it, you can get a feeling from that, a lot of it is from seeing people and observing people’s behaviour on jobs is a good indicator of culture.

GS: Thanks for that Mick.

Q4, Q5: So who do you see as the primary drivers of safety culture and why?

ML: All managers, all supervisors, but mainly for me it should be safety reps, safety reps are the peers of people out there who are liable to get injured, supervisors yes they can get injured but very rarely, eh there’s a lot less of us and we don’t do as much work physically or even yes there could be welfare things or VDU problems, but generally the physical work is down to the lads.

The safety reps for those lads need to do more, the union could do more, coming from the coal board the union drove the safety side, as far as they could.

GS: I think that’s a good point you are making Mick.

Q6: How far reaching in your opinion should the safety culture extend?

ML: How far reaching?

GS: Yes
ML: Everywhere, head office, everybody should have that safety culture, it’s no good us coming down and progressing a safety culture then head office roll up wearing a suit and not abiding by the rules. If we are shutting a place down and we barrier it off great no one can get hurt, but if they are wandering around without the full gear on, which has happened, not very often but lead by example.

Q7: So how do you think a positive safety culture is achieved?

ML: It's just peer pressure, it’s constant reminders, keep changing the message making people realise. Enforce, there has got to be enforcement you know, the stick doesn’t work 100% of the time, but for enforcement of the 5-10% that need it, it can help.

The carrot I don’t know if that works, the carrot for me should be you are going home for people, I think that’s the carrot for going home, the stick should be for people who are blindly obviously saying “I don’t care what you think I’m taking no notice”, people who do, and we all do it “oh I forget my hardhat”. That happened, it’s the people who deliberately flaunt the rules that are the bad influence.

Monitor it, you have to monitor it. A culture doesn’t just carry on, we have a culture in England, if it’s perfect why do we have policemen and jails? That’s the stick, obviously the carrot is the standard of living, and you have everything in between that, the culture you are trying to achieve, it takes time.

Q8: How important in your view is safety training in relation to safety culture?

ML: It's a good reminder, but we have got to keep it fresh, it’s no good keep battering and battering on saying the same things all the time, yes you have to remind people. Every time we do any training course we do the safety part at the beginning of it, and I suppose you are the same as me, do you get a little blasé? Does the trainer get a little blasé? Do we overkill the training for training’s sake within the organisation; OK you have to do it every year or every two years. Also a new directive comes from head office so we have 25 people come down for drop-in sessions, we have got work to do, if people have got problems we have to get the culture right, so that people can come to us and
say “I’ve got a problem I need this sorting”. It’s all got to go together for me, it’s not just one thing.

Q9: Can you describe the benefits you receive from safety training?

ML: I receive?

GS: Yes.

ML: It gives me general knowledge and background information. I’ve been around a long time, from the introduction of the health and safety at work act I’ve been working, I started in 1975, and it came into the workplace in 1974, so I’ve grown up with it. Yes it’s been of benefit, yes it does open your eyes and make you think differently, but a lot of it is experience and being able to link it and the position you are in. I don’t know that the lads who do the shop floor get the same experience through, of having to know different regulations, but basically the position we are in we have to know a bit more, so it does help from that point of view. The managing safely I don’t think it’s great, it’s a paper ticking exercise, yes we put the tick in the box we trained our people, we do have a general idea of what’s right and wrong anyhow, I have a general view that if it doesn’t feel right there is possibly something that you have to check up on.

Q10: What in your opinion is the one factor that would raise the safety culture and why?

ML: There is more than one, this is me seeing a bleak outlook but for me seeing a fatality, when people are involved i that’s when the safety culture dips for a long time, but two seeing the stick, seeing someone sacked because they have blatantly flaunted the safety rules, that’s the way I see it raising. The other way is very slow, it’s step by step, if there are no consequences for not doing something, if it’s hard to do it that way people are not going to do it, we have to get better. When someone says “I need this to do this” we ask “do you need it?” If the answer is yes then we should get it. I’m afraid that there is a culture within the company to have a knee jerk reaction to things, the white lines around the dock are a good example, one person falls in and the whole docks throughout the company have to be changed.
GS: Thanks Mick we are at the final question now.

Q11: Do you think additional training would improve the safety culture?

ML: Yes if it was the right type and we aimed it at the right level, as long as it was purposeful, extra training for extra training sake no. Keeping it fresh and reiterating things are a good thing, but not the same thing time and time again.

GS: Mick thanks for being so honest with your views, the information you have given will be invaluable for my project.

11.4 Interview with Mick Collinson (Mechanical Supervisor)

GS: Hi Mick thanks for taking part in my research programme, firstly I’d like to point out that I am recording this interview, only because I’ll forget most of it otherwise. The recording will be deleted when I’ve written out the text. So if you’re ready we will get started. Firstly can you say what you do and how long you have worked for the company?

MC: No problem. I’m a mechanical supervisor, and I’ve worked for the company for 30 years.

GS: Great Mick thanks. Right, first question.

Q1: What is your understanding of a safety culture within an organisation?

MC: Safety culture is about how we do the job, and how safe we do the job, don't forget we are all trained personnel and have had safety rammed down our necks from when we first started as apprentices. I suppose to look at the bigger picture it's how everyone in the company thinks about safety, as I said we know a lot about safety and how to work safely, someone in port house behind a desk all day probably won't know a great deal, operations and the pilots again will probably know similar to us because of the nature of the business. A good example of our safety is we are always putting spot its into the safety department telling them what's wrong and if anyone is acting unsafe, so we are proactive in that sense.
Q2: What do you feel the culture is within the department currently?

MC: I think the culture is good here, as I said we always spot things around the port that is wrong, don't forget these guys have gone through all the safety initiatives that have been thrown at us over the years, one is pretty much like the other, there isn't many accidents around the port that I'm aware of and I'm sure we would get to know about them either from you or a safety manager. With all the problems of shift changes and manpower issued the guys are pretty down at the moment, that doesn't mean that we are working unsafe, but what it does mean is that the guys may not be as proactive as they used to be and if they see someone unsheeting a lorry with no harness on, they probably won't report it.

Q3: So in your opinion how can safety culture be measured within the department?

MC: Suppose it can be measured by the number of accidents and near misses that we have, the number of spot its that are reported, but again it's the feedback we get from safety, we report things and we never get anything back saying what's been done about it, it makes you wonder if they just get thrown away and forgot about. The guys often say to me that no one asks their opinion on issues around the port, and they have worked here for years, that's ridiculous, people who have worked in the industry for twenty years have got opinions, and have seen a lot that can be valuable information.

Q4, Q5: So who do you see as the primary drivers of safety culture and why?

MC: Well it's you and Mick, I suppose in thinking about it it's the port manager and the safety department, if people like that aren't interested then why should we be? I suppose that's a little unfair, everyone has a role to play don't get me wrong, but it's got to come from the top down, there's no point in preaching safety if everyone isn't committed to the cause. How many times do you see a supervisor or manager from another department on the quay, without a hard hat or no safety foot wear? What message does that send to my guys when I pull them up for the same thing?

Q6: How far reaching in your opinion should the safety culture extend?
MC: Everyone should know about safety, yes it depends on what department you work in and what you are working with, I wouldn't expect someone out of the office to know about safety on say cranes, but they should know why we want to work safe and more importantly what happens if we don't work safe. They are having the theme at the moment of drugs and alcohol awareness, that's all well and good but it's easy to highlight things like that, they should spend more time on job safety awareness.

Q7: So how do you think a positive safety culture is achieved?

MC: Everyone knowing about safety and how their department interacts with the other, I suppose it's about looking after each other, but again as I said it's leading from the top. If everyone acts safely all the time then it becomes the norm and anyone who doesn't abide by the rules are spot balled straight away. The other problem that's been here for ages is the lack of money available, in 2009 people were getting laid off and there was no money available to buy anything, the company needs to invest in its people, it's always mentioned that people are the company’s greatest assets, well show us we are; invest in us, get us good equipment to work with and uniforms that don't fall apart when you use them.

Q8: How important in your view is safety training in relation to safety culture?

MC: Safety training is everything, without training how can people know how to work safely? As I said earlier someone in the office doesn't have to know all about the safety on the quayside, but on the other hand someone working on the quay edge does need to know all the safety aspects of working on the quay, and how that interacts with the stevedores and the shipping safety. In my opinion safety training has been done too infrequently and there needs to be more done, that's where the money comes in, you can't expect me to send someone to a crane who hasn't had adequate training, so that needs to be better.

Q9: Can you describe the benefits you receive from safety training?

MC: Me personally? It makes me aware of things that maybe I haven't thought about, don't forget I've worked here for a long time, that doesn't mean to say I
know it all. Look at the grab platforms we have just fitted, for years we would turn up to change a grab and just climb up a ladder, now that's all gone and we have a full platform for access, cutting out the danger of working at height, so that's great. Yes I suppose for me safety training keeps me aware of potential dangers.

Q10: What in your opinion is the one factor that would raise the safety culture and why?

MC: As I said training is the number one thing that can improve safety, without it people don't know what to look out for and how to react if things go wrong. How would we know good practice from bad if we are not trained to look out for it? Look how far we have come in our department with all the CompEx training and crane training we do, now we can work on flameproof equipment, something we couldn't do before.

Q11: Do you think additional training would improve the safety culture?

MC: All training is good training and I'm sure that has an effect on morale, and in turn has an effect on safety. If the guys are keyed up and motivated they are more aware and that can only be good.