

EVALUATING THE HEALTH AND SAFETY PRACTICES OF CONSTRUCTION SMALL AND MEDIUM-SIZED ENTERPRISE LEADERS

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The construction industry is a high-risk industry and a top-five contributor to non-fatal injuries in the UK. The industry is dependent on Small and Medium-Sized Enterprises (SMEs) and reportable accidents are most often attributable to the SME sector. This study focuses on the role of the leader (Owners/Directors) of SMEs in improving health and safety performance. An initial study with six construction health and safety experts was undertaken before qualitative semi-structured interviews with thirty-two Owners/Directors of Construction SMEs. These interviews evaluate the experience and perceptions of the construction leader's practices through a '4P', Qualitative analysis. Focusing on the leader's characteristics revealed that leaders tend to seek similar positive attitudes and behaviours within followers. It was also found that Leaders consistently try to positively change the follower's understanding and behaviour, sometimes overlooking negative behaviour due to pressures from the main contractor to comply with the programme of work.

Keywords: health and safety; leaders; performance; practices; SME; H&S

INTRODUCTION

The construction industry is unique, ever-changing (Sherratt and Dainty, 2017), one of the most complex and dangerous industries (Pan and Zhang, 2021) with frequently the unenviable record for fatalities and serious accidents. The industry is supported by an essential component of Small Medium sized enterprises (SME) and is regarded as a significant contributor to society; however, construction SMEs are a significant source for industry accidents and fatality rates (Labour Force Survey, 2016). With limited resources for developing and supporting health and safety standards and performance it is important, as identified within mature organisations, for those leading to continually improve health and safety performance (Kaassis and Bardi 2018).

Levitt and Parker (1976) identified links between the drive for improved health and safety performance and measured outcomes of exceptional safety performance as well as higher productivity. A significant business focus for construction organisations is based on performance, productivity standards and successful tendering to obtain future work (OGL, 2020). Harnessing these elements have the potential for developing greater organisational success and establishing the positive practices of

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Construction SME leaders through greater health and safety performance can influence this success.

LITERATURE REVIEW

As Pilbeam (*et al.*, 2016) identified, there are significant challenges for SME leaders in balancing operational consideration with health and safety practices. The greater impact of hazards on SME is associated with the lack of planning, availability and opportunity of reasonable controls and quick response that is required in a crisis, compared to the ability to respond by a large organisation (Herbane, 2010).

There is a significant lack of health and safety research focusing on a construction SMEs leader's practice, with previous research specific safety management practices and legislation (Unnikrishnan *et al.*, 2015) contractor compliance (Mustapha *et al.*, 2017) and safety culture and climate (Asad *et al.*, 2021). Hollnagel (2014) and Dekker *et al.*, (2016) suggested moving away from focusing on general negative aspects of health and safety, such as accident causation and accident rates, and towards a more positive focus. Consideration of building back wiser, within positive health and safety leadership practices, can create a positive community through creating resilience and capacity (Trinh and Feng. 2019).

Sullivan-Taylor and Branicki, (2011) identify that SMEs take a different approach to risk management and have a different perspective on dealing with extreme events compared to large organisations. Small and medium-sized enterprises face difficulties in implementing formal management systems (Arewa and Farrell 2012). Taylor and Branicki (2011) also recognise SMEs as being the least prepared for a crisis. Therefore, considering the existing skills, knowledge, and behaviours of directors, owners of construction SMEs which reflect industry best practices and innovation could create an altered health and safety approach.

Leadership is a relationship involving power and influence (Fielder, 1974). The construction industry has a poor image and reputation for non-collaborative culture, driven by commercial behaviours (Framer 2016), whereas implementing a collaborative management process can improve safety and productivity (Choudhry, 2015). The construction industry has been traditionally regarded as being led with a Transactional Leadership style, which is reactive, compliance-based with close monitoring by the leader for deviations, mistakes, and errors (Bass, 1985). In contrast, Transformational leadership is a pro-active and recognises the change organisations require to address adaptability and flexibility (Ismail and Fathi, 2018) where leaders motivate their followers to perform beyond expectations and beyond self-interest for the greater value of group goals. Development from a transformational leader considers a higher-level multi-dimension, reciprocal relationship process between the leader and the follower as recognised within the Leader-Member Exchange theory (LMX) (He *et al.*, 2021). Through a social exchange and moral leadership, a leader can respond to the follower's abilities and provide greater motivation than just an economic exchange (Khan *et al.*, 2020). Fiedler (1974) links the power, the leader has, to the influence within a situation based on the leader-member relationship, the task structure, and the position of power. Therefore, when the leader has developed a relationship with the follower, they will have more power and greater influence.

There is a growing interest in the theory of the authentic leader (Gardener *et al.*, 2021). An authentic leader reflects on their ability and actions with a sense of humility by way of validating their position. The leader identifies themselves as being

faithful to their values and consider personal strengths as a structure for personal identity (Kruse *et al.*, 2016). For those who incorporate the role of leader within their identity, are then able to influence others in a personal manner which reflects their values, knowledge and skills and equate to one's best self (DeRue and Ashford 2010).

Kheni *et al.*, (2007) consider a broader stakeholder perspective of construction health and safety for SMEs through qualitative interviews. This research found that implementing a health and safety framework was influenced more by the fact followers/employees were extended family members of the Director/Owner. Agumba and Haupt (2009) exploratory study considers the importance of the leader's commitment and health and safety skills as an influence of culture for construction SMEs through a quantitative sampling questionnaire and methodology. However, the research did not clarify the role of the participants, or the pressures placed upon them within the decision-making process.

Adegboyega *et al.*, (2021) considers risk normalisation of health and safety within construction SMEs through a questionnaire, contemplating a broader stakeholder perspective; however, this did not provide a focused view from the leader's perspective. These studies demonstrate the dearth of knowledge and understanding on construction SME leader's practices for health and safety, and no one best theoretical framework to address the mix of topics covered in this paper. The application of a 4P analytical framework (Pressure, Partnership, Practices and Performance), from the marketing industry was applied to the construction SME leadership context (Sodhi and Tan 2016), accommodates a complex supply-chain arrangements commonly found in construction.

This research explored the construction SME leader's practices, for health and safety in the context of their actions (Thompson *et al.*, 2018), with the method in which the practices fit within the leadership process recognising enhanced health and safety performance (Kaupplia *et al.*, 2015). This focus recognises that implementing effective leader practices for health and safety fosters relationships to build upon individual and organisation resilience and community.

METHOD

The data collection method was gained from structured probabilistic interviews specifically through the lens of thirty-two (32) Directors/Owners of construction SMEs to gain an understanding of these individuals' leadership practices. All interviews were undertaken due to the specific criteria of being an Owner or Director of a Construction SME and worked within the construction supply chain. The interviews were transcribed verbatim, data coded and integrated through Qualitative Data Analysis Software (QADS) Quirkos.

Data was coded within a 4P framework model based upon the 4P marketing theory (McCarthy, 1960) with the purpose to add value in meeting customer needs and achieving company goals, and similarly within a fast-paced environment. The 4Ps adopted a conceptual framework addressed Pressures and Partnership, which were evaluated as having a significant impact on the Practices and, ultimately, Performance (Sodhi and Tan 2016). Applying such a framework provides the research with an aspect of boundary object and parameter limits (Gray *et al.*, 2017).

FINDINGS

The context of the leadership was evident in the pressures (Table 1) associated with general construction issues. The themes identified were linked to adverse traditional construction problems of staying within the programme of works which resulted in cutting corners, skills shortages that required operatives to be employed that did not have practical experience or understanding of the technical or hazards present on site.

Table 1: 4P analysis of SME health and safety leadership

| Pressure | Partner | Practices | Performance |
|--|---|--|--|
| Responsibility, Reputation, Blame culture Int 1, Int 7, Int 24, Int 28, | Employee/3 rd Parties Int 7, 13. | I want to demonstrate my commitment. Int 7 leadership in our company is very visible. Int 9 leaders' vision. Int 28, We give the operatives some control we as well as understanding as to what is expected. Int 3 being very aware of yourself, but also aware of those around you. Int 19 importance of communication and feedback and engagement. Int 13 | we are now looking for innovation Int 3 Show that moving toward health and safety performance improvements is the desired state. Int 9 leads by example through identifying his expectations. Int 30 the leaders vision. Int 28 to walk away from high pressure work Int 32 |
| Commercial: Unrealistic programme. Int 4, Int 7, Int 13 | Client Main Contractor Int 2, 7 | you've got to learn from this and adapt and move and change. Int 7 Importance of planning and understanding the client's needs. Int 8 drivers are developed (from pressure) and important. Int 2 | Greater working relationship. Int 23, Int 28, having clear objectives. Int 5 Cause of accidents Int 3 Financial reward. Int 4 |
| Skills shortage/Social behaviour Int 7, Int 9, Int 8, Int 28 | Employees Int 1, 21, 25 | Importance of education and qualifications. Int 1 Improving competency. Int 2, 21 Being forward thinking Int 3, 5 Close enough to understand the operatives but not to be friends. Int 25 | health and safety performance improvements are the desired state. Int 9 Importance of "Why" for performance. Int 11 |
| Changing standards and processes. Int 2 | Client/Main contractor. Int 3 External 3 rd Parties Int 7 | Being flexibility and allowing for authority and responsibility in the process. Int 3 we'll all probably bend the rules but not so far as to break them. Int 7 has to take on new approaches. Int 2 importance of planning. Int 5 you've got to adapt. Int 30 | Use of external resources and expert knowledge (Safety consultant) Int 19 recognise good follower performance. Int 24 follower looks for and needs education, skills and knowledge and understanding. Int 28 |
| On-site Hazards Int 3 health and safety are highlighted further with COVID 19 Int 1 | Client/main contractor Int 7 Employee Int 3,14, 15, 21 | Improving competency. Int 21 the leader being aware of individuals within a team. Int 3 Allow the follower or to help the leader improve Int 15 Learn from other people. Int 14 My wide is the COVID coordinator. Int 7 | Use of mobile phones for on-line software and training. Int 15 Using a LinkedIn and WhatsApp page to praise workers. Int 7 Understanding the process of Hazard identification, risk control and linking this to productivity. Int 14 |

(Int; Interview)

Therefore, the leader's responsibility is associated with the care owed to others and the ethical consideration. The threat of damage to the organisation's reputation due to an incident and health and safety performance may affect the sustainability of work supply from a client or main contractor, where reputation is associated with a blame culture and correlates to the 'guilty until the proven innocent' structure of UK health and safety legislation (where employers must demonstrate that they have either met or exceeded the minimum legal requirement). The pressures (table 1) of leading construction SMEs were related to the personal pressure associated with the "threat of imprisonment, fines, damaged reputation" (Int 1) and the personal responsibility of injuring someone with whom an SME leader will have a close working relationship.

A “blame culture” is often associated with the construction industry and was evident with the pressure of personal experience by many interviewees. Pressure arose from the lack of full integration of health and safety costs within the commercial and time constraints and the potential for improving performance. Limited industry collaboration resulted in clients and contractors demanding varied health and safety management processes and documentation, which prevents standardisation of submission documents complicating the tendering process.

Leaders look for followers with similar characteristics and beliefs that they also hold important and are drawn to the leader, especially those regarded as having additional skills, such as being multilingual. Such an example was provided for a large Polish constituent of Joiners on site where the operative with higher skill levels and command of English drew the leader to provide more information and instruction to that individual. By applying a more reliable communication process, removes the potential of a cross-cultural communication barrier. This higher-skilled operative then cascades instruction to the other non-English speaking employees and becomes the notional on-site leader. The leader of this Construction SME was able to identify the followers' skills and apply them to support their own communication skills gap in a symbiotic dependant partnership with the follower.

Int 28 identified that social standards, expectations, and behaviours have altered within the construction industry, from alcohol consumption to illegal recreational drugs. The application and development of alcohol and drug policy and testing by large and high-risk industries restricted this SME Leader placing operatives who are known users within the main client or contractor's site - a pressure of the skills shortage for owners and directors to retain such employees. At the same time this leader is aware of their significant personal responsibility.

The leaders understanding of site hazards impacting the leader's practices are an important method for trust to be developed. The global COVID 19 pandemic highlighted the fragile nature of continuing projects and balancing the safest work methods in line with Government guidance and limitations of construction health.

Essential partnership (Table 1) characteristics of the leader were identified as; the importance of trust, respect and honesty and closely associated with multiple leadership theories such as Transformational, LMX and Authentic leadership styles. The interviewed leaders realised the dependency on the follower as a construct of "the leader needs followers they can learn from" influence and be influenced by the follower in a symbiotic, two-way process where communication is seen to be vital in achieving the leader's organisational vision. Communication was key in providing confidence, thus allowing the follower to take responsibility, which then leads to greater independence and sharing of responsibility with the follower.

This form of delegated responsibility leads to a greater likelihood of accepted trust by the follower, where the message is clear and the follower understands what is expected, resulting in the follower not being entirely reliant on the leader and accepted responsibility. Two study participants identified that a leader must retain a certain level of detachment to the follower, as this is essential to ensure a level of command and control. By preventing a close relationship, they could ensure the ability of enforcing action when required. One participant intentionally created a barrier between themselves and the follower through their requirement to have a COVID 19 co-ordinator. An example by another participant stated that "on a Friday you cannot go to the pub with the men and be their friend and lie like a lamb and then on Monday

morning run with the wolfs and discipline them" aligning with the perspective of Transactional style of leadership.

In contrast, other study participants identified the importance of the team, particularly when considering all employees or family culture with a more open relationship. By doing so leads to a better understanding of the individual needs of the employee. The principles of successful leadership were highlighted as an art form with "Leadership being related to the tempo of the leader in charge". The suggestion is that the culture created within the organisation was viewed as a "team" or having a "family feel" often creating a higher level of care within the Leader, often due to the close personal connection with the employees. For those leaders who considered the importance of creating a family feel, identified the importance of the employee's needs, to know and understand the follower and their capabilities.

The shared pattern of leadership practices (Table 1) considered that change is an essential strategy to the survival and the development of the leader, follower, and essential for organisational growth. The leaders see themselves as setting the standard through visibility and commitment as to the standard of health and safety required. Their followers are developed through competency, raising the technical ability, and understanding, through qualifications, of the construction process, hazard awareness and increased follower competency and ability. These additional skills and characteristics reinforce the development of an organisation in both the leader and follower through building confidence, evolving maturity, and creating resilience. The leaders' believed that greater health and safety integrity was established with new working and leadership practices.

One approach was to provide easy access to health and safety information through mobile phones or tablets with online access to software such as "I" Auditor and training or to the existing company to health and safety files specific to a site or client. Being innovative, leaders made it easier for site employees by providing access to online systems and updated safety information such as asbestos registers and health and safety monitoring records. Online access also raised the organisation's profile by recognising individuals' work, successfully completed work and good safety practices through social media (LinkedIn) or apps (WhatsApp). In contrast to the intrinsic importance of communication for health and safety engagement, it was suggested that leaders could hide behind communication. where there is an overload of health and safety information or restrict access to specific communication processes such as meetings and committees.

The health and safety performance (Table 1) of the construction SME is not held in isolation from the other activities of the leader. As the leader looks to develop their SME, the pressure of insufficient health and safety performance, often identified by the client or main contractors, can, become a driver to develop organisational change. Facilitating health and safety performance improvements were supported by improving skills and access to education for both the leader and followers; however, the availability of skilled and experienced operatives is one of the significant performance challenges for the construction industry (Farmer 2016). Leaders felt that they had to consider planning; however, still be flexible in their approach and amenable to "bending" (Int. 7) the health and safety rules. Such comments showed the honesty of the participants, reducing the possibility of the participant providing answers which they felt 'were required'. Safety performance was a desired state,

gained through vision and innovation often with the support of external safety advisors with specialist knowledge, reflecting the SMEs specialism.

Features detrimental to construction SME's health and safety performance, was an environment not within the control of the SME and lead with less regard for health and safety standards (Int 2). The result being that operatives would work to the lower standard set by others. To combat this influence, the interviewee, suggested establishing expectations of consistent health and safety performance.

DISCUSSION

The importance of the construction SME leader's role requires integration of health and safety practice and performance with the organisations' need to survive and develop (Int 7). There is continual reflection and planning as to the situational environment, level of health and safety risk, expectation of the client and the ability/skills of the follower (Int 1) to meet those standards. The technical complexity of construction (Trinh and Feng, 2020) links the significance of competency in qualifications, knowledge, and experience for both leader and the follower to the overall organisational performance (Int 19). Having greater skills and knowledge (Rantal *et al.*, 2022) provides greater awareness and understanding of health and safety requirements in addressing risk control (Int 14).

Organisational community (Int 13) can be gained through a positive health and safety culture (Rantal *et al.*, 2022) created from a positive, supportive leadership style (Int 7,9), such as a Transformational (Bennis, 2001) or LMX (Barling *et al.*, 2011). These leadership styles are more considerate in providing justification and reasoning as to "why" (Int. 11) specific health and safety practices are implemented and therefore allow for a supportive culture, where the follower is to be able to ask "why?" without a negative reaction. This; however, does not prescribe transactional leadership style as being negative. Such a direct leadership approach provides a different culture with less potential for ambiguity of expectations or relationship. As Ismail and Fathi, (2018) identified, there is the requirement for leaders to be able to be adaptable in leadership style to address the follower's needs (Int 3), such as in times of requiring support (mental health) or situational needs such as in emergencies.

Findings which focus on the Leader's perspective reveal that leaders look for similar positive characteristics within followers; followers who show initiative, have improved communication skills and a desire to learn, are factors which reflect a Transformational Leadership theory (Bennis, 2001). Other leaders suggested decentralising health and safety responsibility, as a potential power shift to the follower. A shift in responsibility and the power balance (Fiedler, 1974) is associated with the LMX leadership theory, where a leader appraises the follower as being responsible and having the suitable ability, is trusted with greater independence, and as suggested by participants, a decentralisation of ownership for health and safety responsibility. An LMX structure provides a greater understanding of the Leader's practices for performance by enhancing the follower's understanding of "why" they are to behave in a particular manner. The construction SME Leader would then expect improved health and safety performance by providing greater certainty and clarity of health and safety, objectives associated with the LMX theory, constructed through practices of leading by example, setting expectations, and improving worker engagement.

Pressure can arise when there is conflict in health and safety standards between the SME and the Client/Main Contractor. The Client /Main Contractor generally expect the highest standard of health and safety performance within their supply chain. However, they invariably require the lowest tender cost and compliance with the work programme demands. Such demands were seen as conflicting with health and safety standards, especially as the programme developed, where time constraints were believed to be the most significant cause of accidents. One interviewee suggested that the best scenario for “improving health and safety performance would be in choosing whom they worked for and walking away from excessively low tenders with arbitrary time scale” (Int 32). Such a Pressure /Partnership conflict resulted in the most proactive and responsible leaders balancing the financial/contractual risk with health and safety and overlooking minor, adverse health and safety practices.

CONCLUSIONS

The group of Construction SME Leaders', within this research, identified and supported the opinion that health and safety decision-making practices are complex and must consider multiple factors. That the leader continually reflects on and plans the compatibility between the skills and ability of the follower to meet the performance standards of the environmental situation, the level of health and safety risk and the health and safety expectation of the client/main contractor.

A positive Leaders practice was to consider the ‘pressures’ of client/Main Contractors feedback as personal motivation to achieving higher health and safety standards. Pressures of construction skill-shortage often saw the need to employ operatives of lesser skills and ability. The leader would address this by seeking employees with similar attitudes as the leader and then plan to develop the required trade skills and appropriate health and safety behaviour. Such a strategy resulted in a temporary shortfall in the initial risk awareness; however, it allowed the employee to adapt and develop knowledge about the leader's expectations and required culture behaviour. Leaders need followers, with leaders understanding the mutual symbiotic relationship with the follower. These leaders’ take cognisance of the follower’s personality, needs and ability and balance these with the leader’s practices. Ranging from a family and individual perspective, acting with empathy, moving to a wider consideration of the organisational needs and the use of power through responsibility to achieve the required health and safety performance.

Leaders realise the importance of building community and relationships with their followers in supporting a safety culture by providing an understanding of “why” specific safety procedures are implemented and must be adhered to. In recognising the importance of communication and removing the traditional leader/follower imbalance of power, leaders can create a safe social environment in which the follower can ask “why”, shaping engagement and follower acceptance of the leader’s practices.

Construction leaders look to combine wider access and ease of access by on site employees to health and safety information, documents, and files. This is being achieved through a significant change and innovative use of technology. Innovative online business support, with the use of health and safety specific software and training packages. Social media, was also successfully applied to publicly praising follower’s behaviour, raise wider community awareness and to advertise commitment and leadership of positive health and safety performance.

REFERENCES

- Agumba, J N and Haupt, T (2009) Construction health and safety culture in South African small and medium enterprises, *In: Proceedings of the 4th Built Environment Conference Construction Health and Safety*, 17-19 May, Johannesburg, South Africa.
- Adegboyega, A A, Eze, E.C and Sofolahan, O (2021) Health and Safety risks normalisation in the construction industry: The SMEs perspective, *Independent Journal of Management and Production*, **12**(5).
- Arewa, A and Farrell, P (2012) A review of compliance with health and safety regulations and economic performance in small and medium construction enterprises, *In: Smith, S.D (Ed.), Proceedings 28th Annual ARCOM Conference*, 3-5 September 2012, Edinburgh, UK. Association of Researchers in Construction Management, 423-32.
- Asad, M, Kashif, M, Sheikh, U A, Asif, M U, George, S and Khan G H (2021) Synergetic effect of safety culture and safety climate on safety performance in SMEs: Does transformation leadership have a moderating role? *International Journal of Occupational Safety and Ergonomics*, **28**(3), 1858-1864.
- Bass, B M (1985) Leadership; Good, better, best, *Safety Science*, 1(3), 26-40.
- Bennis, W (2001) Leading in unnerving times, *MIT Sloan Management Review*, **42**(2), 97-103.
- Choudhry (2015) Achieving safety and productivity in construction projects, *Journal of Civil Engineering and Management*, **23**(2).
- Dekker, S W A and Breakey, H (2016) Just culture: Improving safety by achieving substantive, procedural and restorative justice, *Safety Science*, **85**, 187-193.
- DeRue, D S and Ashford, S J (2010) Who will lead and who will follow? A social process of leadership identity construction in organisations, *Academy of Management Review*, **24**(4).
- Framer, M (2016) *The Farmer Review of the UK Construction Labour Model*, Construction Leadership Council (CLC).
- Gardener W L, Kare, E P, Alvesson, M and Einola, K (2021) Authentic leadership theory; The case for and against, *The Leadership Quarterly*, **32**(6), 101495.
- Gray, S, Voinov, A, Paolisso, M, Jordan, R, BenDor, T, Bommel, P, Glynn, P, Hedelin, B, Hubacek, K, Introne, J, Kolagani, N, Laursen, B, Prell, C, Schmitt Olabisi, L, Singer, A, Sterling, E and Zellner, M (2018) Purpose, processes, partnerships and products: four Ps to advance participatory socio-environmental modelling, *Ecological Applications*, **28**(1), 46-61.
- Herbane, B (2010), Small business research: Time for a crisis-based view, *International Small Business Journal*, **28**(1) 43-64.
- Hollnagel, E, Wears, R and Braithwaite, J (2015) *From Safety-I to Safety-II: A White Paper*, The Resilient Health Care Net: University of Southern Denmark, University of Florida, USA, and Macquarie University, Australia.
- Ismail, M and Fathi, M S (2018) Leadership in construction: Leadership styles practiced in construction project - A review, *Journal of Advanced Research in Business and Management Studies*, **13**(1), 24-30.
- Kaassis, B and Bardi, A (2018) Development of a preliminary model for evaluating occupational health and safety risk management maturity in small and medium-sized enterprises, *Safety*, 4(5), 1-20.
- Kaupplia, O, Harkonen, J and Vayrynen, S (2015) Integrated HSEQ Management systems; Developments and trends, *International Journal for Quality Research* **9**(2) 231-242.

- Khan, A N, Khan, N A and Soomro, M A (2020) The impact of leadership on construction employees' psychological behaviours, *IEEE Transactions on Engineering Management*, 0018-09391, [Early Access].
- Kheni, N, A, Dainty, A R J and Gibb, A G F (2008) Health and safety management in developing countries: A study of construction SMEs in Ghana, *Construction Management and Economics*, **26**(11), 1159-1169.
- Kruse E, Chancellor J and Lyubomirsky S (2016) State humility: Measurement, conceptual validation and interpersonal processes, *Self and Identity*, 16(4), 399-438.
- LFS (2016) *Labour Force Survey: Incidence (Three-Year Average) - All Injury - for People Working in the Last 12 Months - Workplace Size*, Available from: <http://www.hse.gov.uk/statistics/lfs/lfsinjsiz.xlsx> [Accessed 4 July 2022].
- Levitt, R A and Parker, H W (1976) Reducing Construction Accidents - Top Management's role, *Journal of the Construction Division*, **102**(3) ASCE Library.
- McCarthy E J (1960) *Basic Marketing; a Managerial Approach*, Homewood, IL: Irwin.
- OGL (2020) *The Construction Playbook, Government Guidance on Sourcing and Contracting Public Projects and Programmes Version 1.0 December 2020*, HM Government; Cabinet Office.
- Sherratt, F and Dainty, A R J (2017) UK construction safety: A zero paradox? *Policy and Practice in Health and Safety*, **15**(2), 108-116.
- Pan, Y and Zhang, L (2021) Roles of artificial intelligence in construction engineering and management: A critical review and future trends, *Automation in Construction*, **122**, 103517.
- Pilbeam, C, Doherty, N, Davidson, R and Denyer, D (2016) Safety leadership practices for organisational safety compliance: Developing a research agenda from a review of the literature, *Safety Science*, **86**, 110-121.
- Quirkos (2022) Available from: <https://www.quirkos.com/learn-qualitative/features.html> [Accessed 15 June 2022].
- Rantal, M, Lindholm, M and Tappura, S (2022) Supporting occupational health and safety risk assessment skills: A case study of five companies, *International Journal of Environmental Research and Public Health*, **19**(3):1720.
- Sullivan-Taylor B, Branicki L (2011) Creating resilient SMEs: Why one size might not fit all, *International Journal of Production Research*, **49**(18), 5565-5579.
- Thompson, J, Schwatka N V, Tenney, L, Lee, S and Newman, L (2018) Total worker health: A small business leader perspective, *International Journal of Environmental Research and Public Health*, **15**(11), 2416.
- Trinh, M T and Feng Y (2019) Impact of project complexity on construction safety performance: Moderating role of resilience safety culture, *Journal of Construction Engineering and Management*, **146**(2), 04019103.