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SELF-REGULATION AMONGST SOUTH AFRICAN CONTRACTORS IN ACHIEVING LEGISLATIVE REQUIREMENTS ON OCCUPATIONAL HEALTH AND SAFETY

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The study examines how self-regulation helps construction contractors in South Africa to achieve legislative requirements relating to national and international standards of Occupational Health and Safety (OHS). Despite considerable studies on OHS, self-regulation and its impact on health and safety performance on construction projects are under-researched. In this paper, we report a critical review of literature on OHS in the South African construction industry. The review identifies the various forms of self-regulation practices within construction organisations in South Africa. A mixed method approach was used in determining the relationships between self-regulation of construction organisations in relation to OHS and health and safety performance of projects undertaken by the observed construction organisations. Findings suggest, although there is a high level of self-regulation amongst South African construction organisations, construction organizations are still poorly incentivised. The implication of this is significant, in that businesses loose motivation to succeed in a course unless they are incentivised appropriately. Recommendations are drawn on the forms of strategic incentives that are likely to work in South Africa and in other developing countries.

Keywords: Accidents, Construction OHS, Performance, Self-regulation, South Africa.

INTRODUCTION

In an attempt to prioritise Occupational Health and Safety (OHS) within the construction industry, health and safety has been the focal point of extensive research done in the construction over the years (Cooper, 2000). Nowadays, research into improved culture of construction OHS is emphasising the shift from prescriptive legislation to self-regulation (see Gunningham, 2011). This has come with some challenges. According to Umeokafor (2017), there is no single definition for self-regulation across industries and countries. Also, the various forms in which organizations self-regulte can be informal and soft, thereby their impacts on organizational culture and performance have been difficult to measure.

In the current study, self-regulation is defined as self-imposed standards, agreed within a cohort of practice community (Levinson, 1984; Dawson et al., 1988). Contextually, this refers to

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health and safety standards adopted by construction organisations in South Africa, as minimum reference for the purposes of process control, rather than by an external instrument such as legislations. The Occupational Health and Safety Act (OHSA) No. 85 of 1993 and the complementary Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 (COID Act) are the policies used in regulating OH&S in the South African construction industry. Construction Regulations, a rule promulgated explicitly under the OHSA Act, focusses on OH&S.

Evidence by Lingard and Rowlinson (2005), South Africa's Construction Industry Development Board (cidb) (2009) and The Federated Employers' Mutual Assurance (FEMA) Statistics (2014) demonstrates OHS record of the construction industry is poor. In particular, Lingard and Rowlinson (2005) show that there are more deaths and injuries among construction workers annually than in most other industries. FEMA (2014) also shows just under 2800 accidents were recorded in the South African construction industry in 2014 alone. Proposals for improving levels of OHS during construction include designing to prevent hazards (see Lingard *et al*., 2012), regulation of H&S (see Hutter, 2001) and organizational self-regulation (see Gunningham, 2011).

The South African construction industry has had considerable number of legislations and policy regulations regarding H&S issues. A key causation of poor OHS culture within the industry is a high level of non-compliance by contractors (Windapo, 2013). This is because contractors have often found legislation and policy interventions as exogenic and least motivating as profit margins are in persistent decline. Goetsch (2009) adds the impact of human element as another causation of OHS issues. Another dimension to this is the apparent lack of enforcement of safety regulations in practice (cidb, 2009). Each of these perspectives has had serious implications.

Gunningham (2011) and Scharrer (2011) elicit how self-regulation resulted in a reduction in construction accidents and fatalities in the United States and New Zealand respectively. However, Umeokafor (2017) found self-regulation to result in low standards of OH&S. The smaller the size of contractors' business, the more disadvantaged they are likely to be if self-regulatory effort is the main determinant of their business operations. Some holistic research had done reported in South Africa on construction health and safety (Geminiani et al., 2008; Gunningham, 2011; Scharrer, 2011; Windapo and Jegede, 2013). Despite these, there is inadequate substance on self-regulation in relation to OH&S within the construction industry. Umeokafor's (2017) examination of the subject shows it is evident that approaches and frameworks to self-regulation in the unique South African construction industry has not been examined empirically. Hence, the main aim of this study is to examine the various characterizations of self-regulation and show how these helps to achieve compliance with legislative requirements of OHS, and improve safety outcomes of construction projects.

THE CONCEPT OF SELF-REGUALTION AND OHS

Levels of Self-Regulation

Self-regulation is a spectrum. According to Sinclair (1997), there is pure self-regulation on one end and strict command-and-control system on the other end. The level of self-regulation or co-regulation (i.e. a combination of government regulation and self-regulation) at which an entity operates is somewhere within this spectrum. Rees (1988) adds the three main points

through which the level of an entity's commitment to self-regulation can be assessed. There is 'voluntary self-regulation' which involves making and enforcing rules within an organization or the industry with no external, and the 'mandated full self-regulation' where rulemaking and enforcement are privatised. One key difference between voluntary and mandated full self-regulation is that, though both are privatised, government formally sanctions the regulatory program in the latter and not in the former. The reason for this is to monitor the effectiveness of the planned regulatory program and modify it if required. The third level is the 'mandated partial self-regulation', in which only one regulatory function (i.e. either rulemaking or enforcement) is privatised. These two sub-categories are 'public enforcement of rules written privately' and 'internal enforcement of rules written privately as mandated or moderated by government' (Korosec, 1990).

Self-Regulation Practices

Levinson (1984) identifies self-regulation practices to include H&S Policy, H&S Plan, OHS Management System, H&S training and Personal Protective Equipment. The South African Labour Guide (SALG) (2015) describes health and safety policy as a written statement of the principles and goals representing an organisation's commitment in maintaining a safe and healthy workplace. A health and safety plan is a process for identifying to workers, setting steps to prevent or control them and reactions in their occurrence. An Occupational Health and Safety Management System (OHSMS) or OHS Programme is a part of an extensive organisational management system used to establish OHS policies of an organisation and to manage OHS risks (OHSAS 18001, 2007). According to Robson *et al*. (2012), OHS training is the planned efforts to facilitate the learning of competencies that are specific to OHS.

Overview of the OH&S Regulatory Framework in South Africa

OH&S in the South African construction industry is regulated by two legislative Acts. OHSA No. 85 of 1993 provides for the protection from hazards and the health and safety of persons at work and, of persons other than persons at work. The Complementary Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 (COID, Act) covers compensation for accident and diseases relating to health and safety. In addition to these, Construction Regulations (CR) of 2003, introduced due to the poor H&S statistics in the construction industry, is a component of the OHSA Act. CR recognises and allocates specific responsibilities to construction stakeholders. For example, project owners reserves the duty to provide H&S Specifications and to ensure that the principal contractor make the right allowance for H&S. The OH&S Inspectorate of the Department of Labour (DoL) in South Africa is responsible for the enforcement of OHSA. Nevertheless, evidence by cidb (2009) questions the frequency and efficacy of site visits and blitzes inspection by DoL. Co-regulation, which involves government and voluntary self-regulation by construction stakeholders, is the paramount practice in South Africa.

METHODOLOGY

A mixed methods research approach was used to collect data. Initially, a survey was undertaken to determine the level of self-regulation by construction contractors in South Africa as they strive to meet OHS' legislative requirements. Semi-structured interviews were used to triangulate the findings from the surveys. Findings from this analysis are presented graphically (Figure 2). Population sample includes all construction organisations (N=1234) listed in the

Professionals and Project Register (PPR) 2014. The research scope is limited to organisational levels of regulations, a requirement met by all the entities listed on the Professionals and Project Register. Probability sampling technique was used to select half of the entities on the sample frame to obtain a sample size of 617 construction organisations. A framework, shown in Figure 1, was developed to compute data relating to levels of self-regulation. The quantitative data had to be analysed such that a level of self-regulation for each respondent could be determined. As shown in the flow diagram (Figure 1), a particular sequence of processes was considered in determining levels of self-regulation by South African construction contractors towards meeting their considered OHS in-house objectives and meeting operational requirements mandated by government.

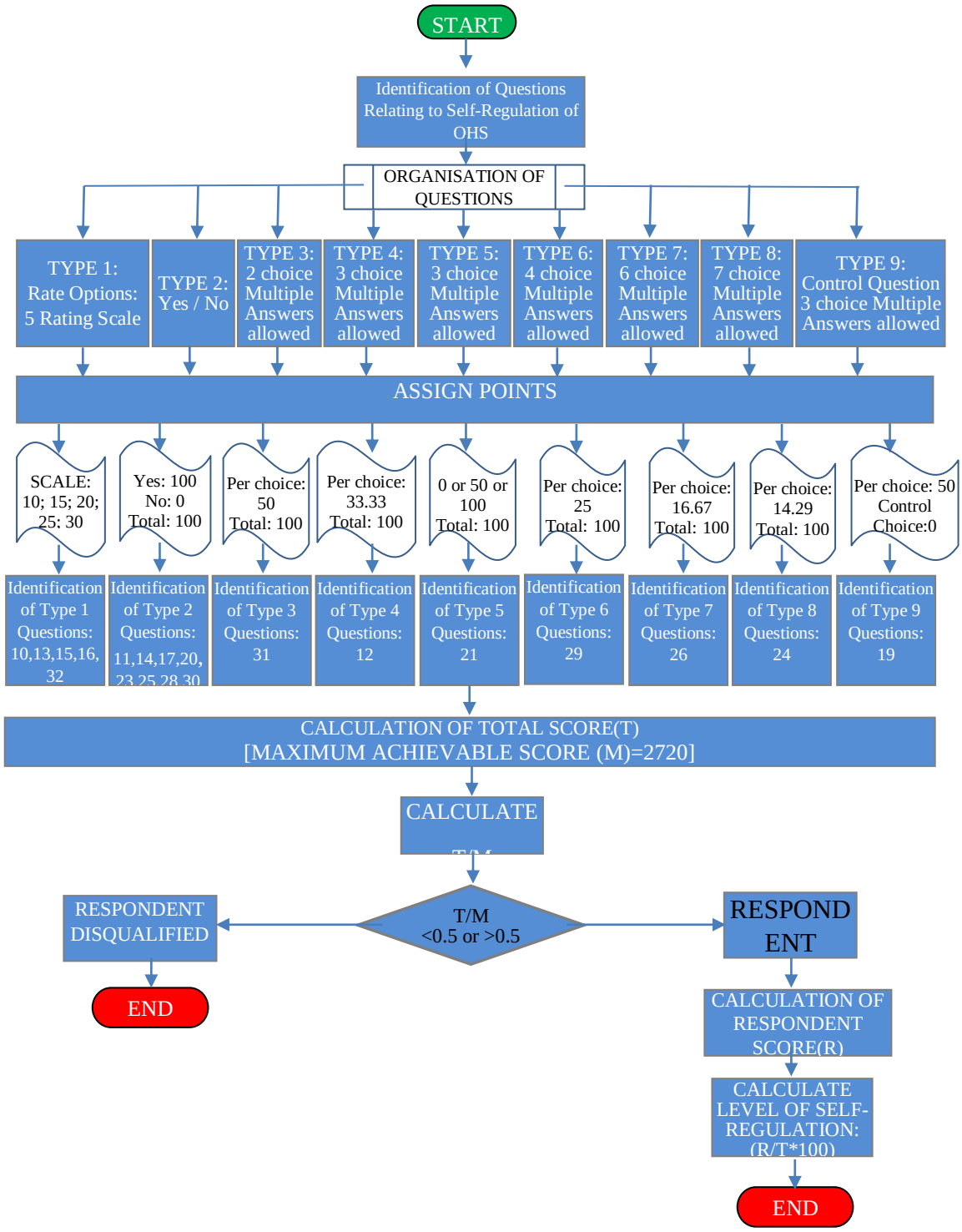

Figure 1: Self-regulation Framework

Figure 1 has four components. First, components of the data exploration instrument in relation to OHS self-regulation. The second component classifies the identified components (n=20) of OHS self-regulation into distinct types. Twenty questions that addressed self-regulation were used in the study for example – enquiry of the organisation's commitment to creating and maintaining safe working conditions (Q10), established health and safety plan (Q11), safety awareness initiatives (Q16). The questions relate to the self-regulation practices identified by Levinson (1984), concerning H&S Policy, Plan, Management System, Training and PPE use.

The third component involves the assignment of weightings to the variables (the questions), whilst the fourth calculates total weighted score for each considered level of self-regulation. To preserve internal validity of the survey, experts were used to vet the questions objectively, paying attention to their relevance to the subject of self-regulation and their coverage of the entire topic. Also, a control question (Q19) was included, Although not related to self-regulation, the question was used to test the respondent's consistency in answering the questionnaire. To maintain external validity, the results of the research was compared to previous studies undertaken in other contexts and conditions.

Figure 1 also helped in identifying the questions attempted and/or skipped by each respondent. This helps to determine whether a response is valid or not. For each question attempted, the respondent is awarded one point, and zero for each question skipped. A total score (*T*) is then calculated for the respondent. The Maximum Achievable Score (*M*) possible is 2720 points. A respondent has a weighted score obtained by dividing *T* by *M*. A respondent is disqualified if the weighted score is less than 0.5 (i.e. only less than 50% of the survey items were completed). Respondent's Actual score (R) for each question is calculated and summed up and used in calculating the respondent's level of self-regulation (R/T*100).

DATA, FINDINGS AND DISCUSSION

The online survey gathered 59 responses, a response rate of 9.72%. A significant number of the respondents (89%) were from the Director Cadre or Management category hence from the company top echelons, 78% had over ten years of experience in the construction industry, at least 47% have a Bachelor's and higher level of academic qualification attained. These suggest that the respondents will provide valuable, relevant and meaningful information useful for this study. The respondents were working for contractors listed in Grades 4 to 9 of the cidb Register of Contractors in South Africa, a majority (19) of whom are Grade 7 contractors listed in the General Building and Civil Engineering categories.

Level of Self-Regulation

Figure 2 shows respondents and their corresponding level of self-regulation to OHS requirements, derived from the framework in Figure 1. 15 of the 59 responses were disqualified achieving a weighted score of less than 0.5. The mean level of self-regulation of 80.35% and a standard deviation of 7% were obtained. Respondents' level of self-regulation ranged from 65% to 97%. This suggests a very high level of self-regulation for the responding companies.

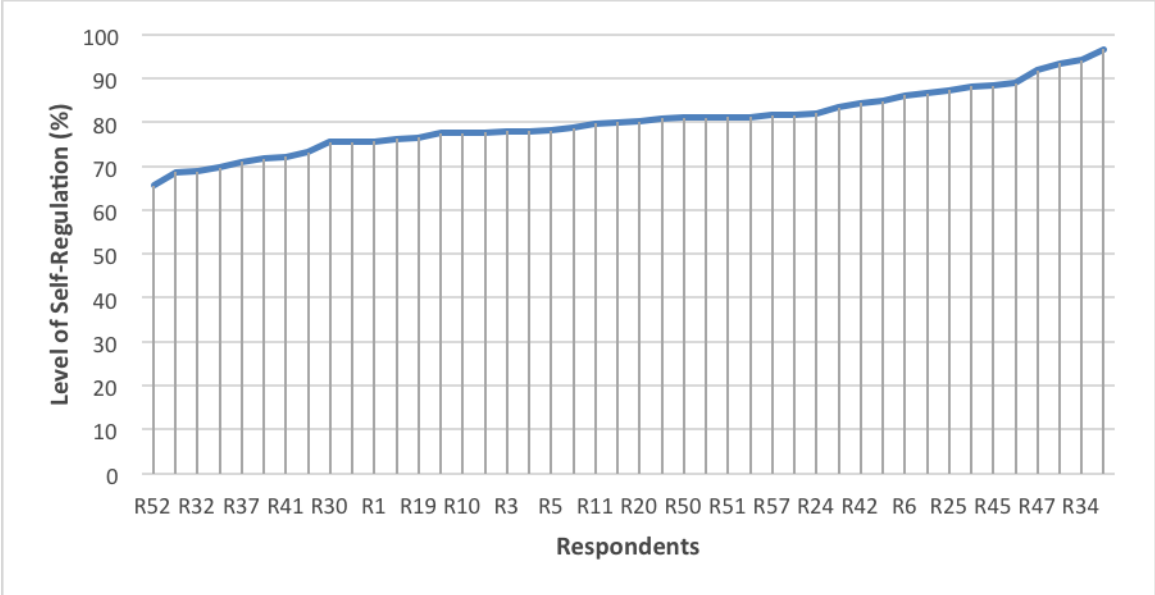

Figure 2: Level of Self-Regulation of the Respondents

Interview Results

Three semi-structured interviews were conducted with the aim of validating the results obtained through the questionnaire survey. The study sought to know the views of the respondents concerning the concept of self-regulation in South Africa, the level of adoption by construction organisations and whether self-regulation is practiced at individual or organisational levels. Interviewee 1 is a professional project manager who also doubles as the Head of OHS and tender management unit of a prominent construction firm in the Western Cape. They have had more than 20 years of experience. Interviewee 2 is a Health and Safety Site Officer. They work for a medium sized building construction firm based in Johannesburg, and have had more than five years of experience in the industry. Interviewee 3 is a Registered Quantity Surveyor and an Acting Chief Executive Officer of a construction firm that specialises in civil and mining works. Interviewee 3 has had more than 18 years of experience in managing various sizes of multi-disciplinary engineering projects from inception to client handover.

Interviewees 1 and 2 view self-regulation in an organisation as a “critical” aspect of OHS. Interviewee 1 does not believe that companies can self-regulate unless through dedicated training and there is a better appreciation of the purpose of OHS legislative requirements. Interviewee 2 added that the onus is on the contractor to ensure that workers adhere to health and safety procedures. Interviewee 3 thinks higher-grade contractors can better self-regulate as they have support resources that smaller organizations are unlikely to have e.g. establishing a H&S administrative unit, while smaller contractors may be unable to provide such. Likewise, Interviewee 2 contends that self-regulation will not eliminate Accidents Frequency Rates (AFR) absolutely; rather a leading factor that drives stakeholders towards good H&S practices. Interviewee 3 recommends outsourcing H&S to specialised organisations who are more knowledgeable about health and safety as a way of reducing accidents, injuries and fatalities on construction sites.

DISCUSSIONS

The findings of the study showed that there is a high level of voluntary self-regulation to OHS

requirements within contracting firms in South-Africa with a mean score of 80.36% and a standard deviation of 7.10%. The findings also validate self-regulation practices identified by Levinson (1984). While there is a paucity of quantitative studies on construction OH&S self-regulation, this finding is consistent with that of Umeokafor (2017) who examined, among many, the extent of various types of construction OH&S self-regulation in the Nigerian construction industry including pure, industry and enforced self-regulation. Umeokafor's study suggests pure self-regulation was mainly adopted in Nigeria followed by enforced self-regulation. Interviews in the current study indicate higher grade contractors self-regulate better than other forms of construction organizations. This finding is consistent with Umeokafor's study.

CONCLUSIONS

The research examined the level of self-regulation to OH&S requirements among contractors in South Africa. It emerged that the level of self-regulation to OH&S requirements by South African contractors is high. There is a paucity of data concerning the subject matter, specifically in South Africa. The progression of the conceptual framework and the issues highlighted in the literature review have framed a logical path from which future self-regulation tool will evolve. The study recommends that the government should encourage the use of voluntary self-regulation to augment the infrequent and ineffective enforcement regime and provide incentives such as preferential procurement for companies that self-regulate. It is also recommended that self-regulation should be used as a tool to rate contractors and that contractors should be mandated to advertise their self-regulation score alongside their cidb grade. Further research is recommended to investigate the relationship between the level of self-regulation to OH&S legislative requirements and the H&S performance/cidb grade of construction companies. Such study should test the hypothesis that there would be fewer accidents on construction sites in managed by contractors with high voluntary self-regulation to OHS legislative requirements compared to companies with lower levels of voluntary self-regulation. In addition, it is worth examining self-regulation in South Africa. The findings put forward in the current study can be streamlined and improved as a self-regulation measurement tool and validated in a comparative study. We acknoeldge the limited sample of the qualitative aspect of the study as a limitation of the study, thus should be viewed as indicative.

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