Safety control and workplace security of FET Technology high school teachers: An Education Law perspective.

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Thesis accepted in fulfillment of the requirements for the degree *Doctor Philosophy in Education Law* at the North-West University

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Graduation: May 2022
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DEDICATION

I dedicate this study to my late father, Jan Oosthuizen. You were here when I started this journey, but never saw me reach the finish line. I still miss you every day, but I know you are smiling down on us while smoking your pipe.

SOLEMN DECLARATION

I, Josef Jacobus Oosthuizen, the undersigned, hereby declare that the work contained in this thesis titled:

Safety control and workplace security of FET Technology high school teachers: an Education Law perspective

is my own original work and that I have not previously in its entirety, or in part submitted it at any university for a degree.

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File name:	_13126628_JJ_Oosthuizen_03…226_Turnitin_PhD_Thesis_-
File size:	_13126628_JJ_Oosthuizen_03.12.20…5.78M
Page count:	269
Word count:	72,260
Character count:	400,518
Submission date:	03-Dec-2021 02:01AM (UTC-0800)
Submission ID:	13126628

ACKNOWLEDGEMENTS

To my Heavenly Father – for granting me the opportunity to undertake this journey and blessing me abundantly throughout. To You all the glory.

*

I would like to thank the following persons and institutions, without whom this study would not have been possible:

My loving wife Joelizma – for walking beside me during all the trials and tribulations of this immense journey, and for understanding and accepting the sacrifices that comes with a PhD. I am forever grateful for you.

My sons, Joop and Lian - thank you for being so patient with dad. You made me laugh in times when I needed it most, and kept me humble. Of all my life endeavours, I am the proudest of you.

Prof JP Rossouw - what an incredible privilege to work with you. Thank you for your academic guidance, encouragement and continued support during this journey. I will cherish our beekeeping and woodworking talks every time I think of this study. You are the consummate professional I strive to be one day.

Dr. Margaret Rossouw - my sincere gratitude for your words of encouragement and hospitality.

Prof Ewelina Niemczyk - thank you for your valuable input and guidance as my co-promoter during this endeavour. You have amazing motivational superpowers.

My mother, in-laws and family - thank you for your sincere interest, support and encouragement during my study. A special word of thanks to Illasha for her contagious enthusiasm, advice and believe in me.

My colleagues and friends - thank you for all your continued encouragement. A special thank you to Dr. Albert Kemp for his support and advice.

Staff of Ferdinand Postma Library – a special thank you to Christine Bronkhorst and Martha van der Walt for your friendly and competent assistance in locating the many resources.

NWU-UCDG grant, with gratitude for the substantial financial support that enabled me to do this empirical study as planned.

Dr. Jackie de Vos - for the professional manner in which you conducted the language editing and proofreading.

Lastly, but certainly not least, the Technology teachers who became part of my research - those who guide and prepare the next technological generation. May this study elevate your voices to the powers that be, as well as provide you with knowledge to empower yourselves in your workplaces, and ultimately keep all harm at arm's length.

"You never fail until you stop trying."

Albert Einstein

ABSTRACT

Workplaces of FET Technology high school teachers are internationally well documented as being hazardous, as is evident in court cases related to injuries and other forms of harm. Occupational diseases also emanate from these hazardous conditions in the workplace and pose an elevated risk to the health and wellbeing of FET Technology teachers. To ensure that workplaces are safe for these teachers, legislation, the common law and regulations require that safety control measures are implemented. The primary research objective of the study was to explore the nature of workplace security of FET Technology teachers by determining the influence of safety control measures on their workplace security, whether the physical infrastructure of their schools contributed to workplace insecurity, and how they interpreted applicable legal indicators and regulations.

To address the research objective of this empirical study, a qualitative methodology was employed, along with the research paradigm being constructivist by nature. The qualitative research within the constructivist paradigm entailed the undertaking of a phenomenological study. Through the rigorous process of analysis and interpretation, four important themes associated with workplace security and one relating to legal determinants were ultimately identified. To ensure richness of descriptive data, FET Technology teachers from all four districts in the North West province were purposively selected to participate in semi-structured face to face interviews. The analysis and interpretation of the interview data offered an analytical account of the data collected on the experiences of FET Technology high school teachers regarding workplace security in their workshops. The research findings indicated that several factors contributed to workplace insecurity amongst FET Technology teachers, with several key role players not fulfilling their professional responsibilities.

The single biggest factor in this study was undoubtedly the absence of relevant works inspectors and record-keeping as per regulations. The ripple effects of absent works inspectors, departmental officials not adhering to the GU&M Guidelines, non-compliant service providers and some SGBs not fulfilling their legal duties were felt in every sphere of workplace security. Furthermore, it was found that the implementation of health and

safety regulations by tasked DBE officials to ensure safe workplaces was also lacking. Not only were inspections on existing and newly installed machinery neglected, but school infrastructure that suffered earthquake damage and buildings constructed of asbestos contribute to the increased risk these teachers had to face. Some challenges regarding the supply of funding from SGBs for maintenance on machinery and safeguarding of workplaces were identified as well as a lack of professional support from the DBE regarding in-service training. The connection between teachers being uninformed about common-law principles relating to liability and the psychological security of teachers being negatively affected as a result also came to the fore. Two psychological factors were identified by the participants namely stress in the workplace and discipline and supervision. These are the result of supervising large classes during practical sessions, and resulting disciplinary problems. This had a detrimental effect on the educational practices and morale of the participating teachers and the quality of education.

Based on the research findings, nine recommendations were made to the DBE, SGBs, SMTs and teachers on aspects relating to the workplace security of FET Technology teachers. Amongst these are upholding the duty and accountability of the state in ensuring safe working environments, establishing a dedicated inspectorate for FET Technology workshops, addressing the psychological security of teachers by providing or enhancing support structures to reduce occupational stress. Another recommendation was mobilising teacher unions in ensuring the protection of FET Technology teachers' rights regarding labour regulations, with specific focus on COIDA. The aim of the above-mentioned recommendations is to contribute to improved implementation of legal determinants that influence workplace security and ultimately improve working conditions by regulating unsafe work environments leading to occupational injuries and diseases in FET Technology high schools.

Keywords

Workplace security, FET Technology teachers, high school workshops, safety control measures, physical infrastructure, occupational injuries and diseases, accountability,

delictual liability, teacher security, workshop hazards, unsafe working conditions, labour legislation, occupational health and safety, common law.

OPSOMMING

Werkplekke van Verdere Onderwys en Opleiding Tegnologie hoërskool-onderwysers is internasionaal goed gedokumenteer as gevaarlik, soos duidelik blyk uit hofsake wat verband hou met beserings en ander vorme van skade. Beroepsiektes spruit ook uit hierdie gevaarlike toestande in die werkplek en hou 'n verhoogde risiko vir die gesondheid en welstand van Verdere Onderwys en Opleiding (VOO) Tegnologie-onderwysers in. Wetgewing, die gemene reg en regulasies bepaal dat veiligheidsbeheermaatreëls geïmplementeer moet word om te verseker dat werkplekke veilig is vir hierdie onderwysers. Die primêre navorsingsdoelwit van die studie was om die aard van werkpleksekuriteit van Verdere Onderwys en Opleiding (VOO) Tegnologie-onderwysers te ondersoek deur die invloed van veiligheidsbeheermaatreëls op hul werkpleksekuriteit te bepaal. Verder is die moontlike bydrae van die fisiese infrastruktuur van hul skole tot hulle onsekerheid ondersoek, asook hoe hulle toepaslike resgbepalings en regulasies intrepreteer.

Om die navorsingsdoelwit van hierdie empiriese studie aan te spreek, is 'n kwalitatiewe metodologie aangewend, tesame met die navorsingsparadigma wat konstruktivisties van aard is. Die kwalitatiewe navorsing binne die konstruktivistiese paradigma het 'n fenomenologiese studie behels. Deur die streng proses van analise en interpretasie is vier belangrike temas wat met werkpleksekuriteit geassosieer word en een wat met wetlike determinante verband hou, uiteindelik geïdentifiseer. Om diepte in die beskrywende data te verseker, is Verdere Onderwys en Opleiding (VOO) Tegnologie-onderwysers van al vier distrikte in die Noordwes-provinsie doelgerig gekies om deel te neem aan semi-gestruktureerde persoonlike onderhoude. Die ontleding en interpretasie van die onderhouddata het 'n analitiese weergawe gebied van die data wat ingesamel is oor die ervarings van Verder Onderwys en Opleiding (VOO) Tegnologie hoërskoolonderwysers met betrekking tot werkpleksekuriteit in hul werkswinkels. Die navorsingsbevindinge het aangedui dat verskeie faktore bygedra het tot werkplekonsekerheid onder Verdere Onderwys

en Opleiding (VOO) Tegnologie-onderwysers, met verskeie sleutelrolspelers wat nie hul professionele verantwoordelikhede nakom nie.

Die enkele grootste faktor in hierdie studie was ongetwyfeld die afwesigheid van werksinspekteurs en rekordhouding soos wat regulasies vereis. Die rimpeleffek van afwesige werksinspekteurs, departementele amptenare wat nie die GU&M-riglyne nakom nie, diensverskaffers wat nie aan die vereistes voldoen nie en sommige skoolbeheerliggame wat nie hul wetlike pligte nakom nie, is in elke sfeer van werkpleksekuriteit gevoel. Verder is bevind dat die implementering van gesondheids- en veiligheidsregulasies deur die verantwoordlike Departement van Basiese Onderwys amptenare om veilige werkplekke te verseker ook ernstig ontbreek. Nie net is inspeksies op bestaande en nuut-geïnstalleerde masjinerie nagelaat nie, maar skoolinfrastruktuur wat aardbewingskade opgedoen het en geboue wat van asbes gebou is, dra by tot die groter risiko wat hierdie onderwysers moes trotseer. Sommige uitdagings met betrekking tot die verskaffing van befondsing deur skoolbeheerliggame vir instandhouding van masjinerie en beveiliging van werkplekke is geïdentifiseer asook 'n gebrek aan professionele ondersteuning van die Departement van Basiese Onderwys met betrekking tot indiensopleiding. Die verband tussen onderwysers wat oningelig is oor gemeenregtelike beginsels met betrekking tot aanspreeklikheid en die psigologiese sekuriteit van onderwysers wat as gevolg daarvan negatief geraak word, het ook na vore gekom. Twee psigologiese faktore is deur die deelnemers geïdentifiseer, naamlik stres in die werkplek en dissipline en toesig. Dit is is as gevolg van toesigpligte ten opsigte van groot klasse tydens praktiese sessies, en gevolglike dissiplinêre probleme. Dit het 'n nadelige uitwerking gehad op die onderwyspraktyke en moraal van die deelnemende onderwysers en die kwaliteit van onderwys.

Op grond van die bevindings is nege aanbevelings aan die Departement van Basiese Onderwys, skoolbeheerliggame, skoolbestuurspanne en onderwysers gemaak oor aspekte wat met die werkpleksekuriteit van Verdere Onderwys en Opleiding (VOO) Tegnologie-onderwysers verband hou. Onder hierdie is die handhawing van die plig en aanspreeklikheid van die staat om veilige werksomgewings te verseker, die

stigting van 'n toegewyde inspektoraat vir Verdere Onderwys en Opleiding (VOO) Tegnologie-werkswinkels, die aanspreek van die sielkundige sekuriteit van onderwysers deur die verskaffing of verbetering van ondersteuningstrukture om beroepstres te verminder. Nog ‘n aanbeveling was die mobilisering van onderwysersvakbonde om te verseker die beskerming van Verdere Onderwys en Opleiding (VOO) Tegnologie-onderwysers se regte met betrekking tot arbeidsregulasies, met spesifieke fokus op die *Compenastion for Occupational Injuries and Diseases Act* (COIDA). Die doel met genoemde aanbevelings is verbeterde implementering van regsdeterminante wat werkpleksekuriteit beïnvloed en uiteindelik werksomstandighede verbeter deur onveilige werksomgewings te reguleer wat lei tot beroepsbeserings en -siektes in Verdere Onderwys en Opleiding Tegnologie-hoërskole.

Sleutelwoorde

Werkpleksekuriteit, VOO Tegnologie-onderwysers, hoërskoolwerkswinkels, veiligheidsbeheermaatreëls, fisiese infrastruktuur, beroepsbeserings en -siektes, aanspreeklikheid, deliktuele aanspreeklikheid, onderwysersekuriteit, werkswinkelgevare, onveilige werksomstandighede, arbeidswetgewing, beroepsgesondheid en -veiligheid, gemenereg.

DEDICATION ii
SOLEMN DECLARATION iii
PROOF OF TURNITIN PROCESS iv
ACKNOWLEDGEMENTS v
ABSTRACT vii
OPSOMMING x
1 CHAPTER 1: PROBLEM STATEMENT, RESEARCH QUESTION AND DESIGN 1
1.1 Introduction 1
1.2 Research problem 1
1.3 Theoretical framework 3
1.3.1 Security and workplace safety 3
1.3.2 Psychological security 4
1.3.3 Physical security 4
1.4 Concept clarification 9
1.5 Research gap 11
1.6 Conceptual framework 12
1.6.1 An education law perspective 12
1.6.2 Sources of law 13
1.6.3 Philosophical orientation 15
1.7 Research questions 16
1.8 Research objectives 16
1.9 Research design 17
1.9.1 Research paradigm 17

1.9.2 Methodology 18
1.10 Ethical considerations 25
1.11 Chapter summary 26
2 CHAPTER 2: LEGAL DETERMINANTS FOR WORKPLACE SECURITY OF FET TECHNOLOGY TEACHERS 27
2.1 Introduction 27
2.2 Origin of law in South Africa 27
2.3 Sources of South African law 28
2.4 Statutory determinants 29
2.4.1 The Constitution of the Republic of South Africa, 1996 31
2.4.2 Education-specific legislation 37
2.5 Conclusion 47
3 CHAPTER 3: COMMON LAW IN WORKPLACE SECURITY OF FET TECHNOLOGY TEACHERS 48
3.1 Common law 48
3.1.1 The law of delict 49
3.1.2 Fundamental elements of delict 50
3.2 Conclusion 64
4 CHAPTER 4: REGULATORY FRAMEWORK FOR WORKSHOP INFRASTRUCTURE INFLUENCING WORKPLACE SECURITY OF FET TECHNOLOGY TEACHERS 66
4.1 Introduction 66
4.2 Legislation regulating immovable infrastructure 66
4.2.1 Regulations relating to Minimum Uniform Norms and Standards for Public School Infrastructure, 2013 67

4.3 Legislation regulating movable and immovable infrastructure 71
4.3.1 Guidelines for General Upkeep and Maintenance of Education Facilities, 2018 (GU&M Guidelines)..... 72
4.4 Legislation regulating health and safety in the workplace..... 82
4.4.1 Occupational Health and Safety Act 85 of 1993 83
4.4.2 Driven Machinery Regulations, 2015..... 86
4.4.3 Electrical Installations Regulations, 2009 89
4.4.4 Asbestos Abatement Regulations, 2020..... 90
4.4.5 Environmental Regulations for Workplaces, 1987 94
4.4.6 General Safety Regulations, 1986..... 98
4.4.7 National Building Regulations and Building Standards Act 103 of 1977 101
4.4.8 Compensation for Occupational Injuries and Diseases Act 130 of 1993 102
4.4.9 Post-Traumatic Stress Disorder – Circular Instruction No 172 of 2002 105
4.5 Conclusion..... 105
5 CHAPTER 5: RESEARCH METHODOLOGY..... 107
5.1 Introduction..... 107
5.2 Research philosophy..... 107
5.3 Qualitative approach..... 109
5.4 The researcher as research instrument..... 110
5.5 Research site selection..... 111
5.6 Participant selection..... 114
5.7 Participants for the individual interviews..... 115
5.8 Method of data generation..... 115
5.9 Semi-structured interviews 117

5.10 Process and methods of qualitative data analysis 117
5.10.1 Transcription and data management 118
5.10.2 Coding and developing themes 119
5.11 Trustworthiness 121
5.12 Ethical considerations 122
5.13 Conclusion 126
6 CHAPTER 6: EMPIRICAL DATA ANALYSIS 127
6.1 Introduction 127
6.2 Biographic profile of participants 130
6.3 Overarching theme: Workplace security 131
6.4 Theme 1: Physical security 131
6.4.1 Category 1.1: Workshop equipment compliance (movable assets) 132
6.4.1.3 Sub-category 1.1.3: Record-keeping and inventory 143
6.4.2 Category 1.2: Accidents and diseases affecting workplace security 144
6.5 Theme 2: Psychological security in the workplace 147
6.5.1 Category 2.1: Stress in the workplace 148
6.5.2 Category 2.2: Discipline and supervision 151
6.6 Theme 3: Influence of physical infrastructure on workplace security 155
6.6.1 Category 3.1: Structural defects of buildings 156
6.6.2 Category 3.2: Environmental factors 158
6.6.3 Category 3.3: Building inspections and maintenance 159
6.7 Theme 4: Safety control measures 160
6.7.1 Category 4.1: School safety control measures 161

6.7.2 Category 4.2: Departmental control measures 165
6.8 Theme 5: Legal determinants 168
6.8.1 Category 5.1: Constitution 169
6.8.2 Category 5.2: Education legislation 170
6.8.3 Category 5.3: Labour legislation 170
6.8.4 Category 5.4: Common law – Delict 172
6.9 Conclusion 174
7 CHAPTER 7: FINDINGS, CONCLUSIONS AND RECOMMENDATIONS 176
7.1 Introduction 176
7.2 The summary of the research 176
7.3 Findings and conclusions 179
7.3.1 Nature of workplace security of FET Technology teachers 179
7.3.2 Psychological security in the workplaces of FET Technology teachers 183
7.3.3 Safety control measures 185
7.3.4 Influence of physical infrastructure on workplace security 188
7.3.5 Nature of legal framework supporting workplace security 190
7.4 Recommendations to improve the workplace security of FET Technology teachers 193
7.4.1 Recommendation 1: Accountability and duty of the State 193
7.4.2 Recommendation 2: Dedicated inspectorate for Technology workshops 194
7.4.3 Recommendation 3: Responsibility of the governing body 194
7.4.4 Recommendation 4: Addressing the psychological security of teachers 195
7.4.5 Recommendation 5: Disciplinary measures 195
7.4.6 Recommendation 6: Alignment of departmental policy documents 196

7.4.7 Recommendation 7: Teacher union support 196
7.4.8 Recommendation 8: FET Technology teacher training 197
7.4.9 Recommendation 9: Principals and SGBs 197
7.5 Recommendations for further research 198
7.6 Contributions of the research 199
7.6.1 Contribution to education practice 199
7.6.2 Contribution to education law 200
7.7 Limitations to the study 200
7.8 Concluding remarks 200
8 REFERENCES 202
ADDENDUM A: CORRESPONDENCE E-MAIL FROM THE NORTH WEST EDUCATION DEPARTMENT 219
ADDENDUM B: LIST OF FET TECHNOLOGY SCHOOLS FROM THE NORTH WEST EDUCATION DEPARTMENT 220
ADDENDUM C: Permission to conduct research from the North West Department of Basic Education. 224
ADDENDUM D: Certificate of ethics approval 225
ADDENDUM E: Goodwill permission: school principal 227
ADDENDUM F: Goodwill permission: SGB 231
ADDENDUM G: Letter of informed consent: Participants 235
ADDENDUM H: Interview schedule 239
ADDENDUM I: Example of interview transcripts with coding 242
ADDENDUM J: Occupational diseases. 254
ADDENDUM K: Language Editor's Certificate 255

LIST OF FIGURES

Figure 2.1: Relation between original and subordinate legislation 30

Figure 3.1: Delictual liability..... 51

Figure 3.2: Fault as element of delictual liability..... 55

Figure 3.3: Harm as element of delict..... 62

Figure 4.1: Classification of Maintenance Guidelines..... 77

Figure 4.2: Driven machinery, tools and equipment utilised in FET Technology workshops 88

Figure 5.1: Provincial and municipal districts of the North West province, South Africa. 112

Figure 5.2: Coding-to-theory model..... 120

Figure 6.1: Coding of raw data and development of sub-categories 128

Figure 6.2: Overview of coding through sub-categories to overarching theme..... 129

Figure 6.3: Theme 1 – Physical security in the workplace..... 132

Figure 6.4: Theme 2 – Psychological security in the workplace 148

Figure 6.5: Theme 3 – Influence of physical infrastructure on workplace security 156

Figure 6.6: Theme 4 – Safety control measures to ensure workplace security 161

Figure 6.7: Theme 5 – Legal determinants..... 169

LIST OF TABLES

Table 1.1: Six steps of data analysis 22

Table 1.2: Lincoln and Guba's trustworthiness model 23

Table 2.1: Sources of South African law 28

Table 3.1: Distinction between a wrongful act and a criminal offence 50

Table 5.1: Number of schools and participants in site selection 113

Table 5.2: Six steps in data analysis 118

Table 5.3: Ethical guidelines for research 124

Table 6.1: Participant profile 130

LIST OF ACRONYMS

Acronyms: South African and international framework

ABS	Asbestos-built structures
ACM	Asbestos-containing materials
AIA	Asbestos inspection authority
CAPS	Curriculum Assessment Policy Statement
CCMA	Commission for Conciliation, Mediation and Arbitration
CIW	Capital Improvement Works
COC	Certificate of Compliance
COIDA	Compensation for Occupational Injuries and Diseases Act
CTE	Career and Technical Education
DBE	Department of Basic Education
DOL	Department of Labour
EEA	Employment of Educators Act
EGD	Engineering Graphics and Design
FET	Further Education and Training
FMS	Facility Maintenance Coordinator
GDE	Gauteng Department of Education
GU&M	General upkeep and maintenance
HE	Higher education
HOD	Head of Department
HVAC	Heating, Ventilation and Air-Conditioning
ITE	Industrial Technology Education
LRA	Labour Relations Act
MRR	Major repairs and major replacements
NCS	National Curriculum Statement
NEDLAC	National Economic Development and Labour Council
NEMA	National Environmental Management Act
NIOH	National Institute of Occupational Health
NOSA	National Occupational Safety Association
NSEF	Norms and Standards for Education Facilities
NW	North West
NQF	National Qualifications Framework

OEL	Occupational Exposure Limit
OHS	Occupational health and safety
OHSA	Occupational Health and Safety Act
PAM	Personnel Administration Measures
PAT	Practical assessment task
PPE	Personal Protective Equipment
PMD	Provincial maintenance director
PSP	Professional service provider
PTS	Permanent Threshold Shift
PTSD	Post Traumatic Stress Disorder
SACE	South African Council for Educators
SANS	South African National Standard
SAS	Subject Advisory Services
SASA	South African Schools Act 84 of 1996
SGB	School governing body
SMT	School management team
STEM	Science, Technology, Engineering and Mathematics
TED	Technology Engineering and Design
TES	Technology Education Shop
TVET	Technical Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
VET	Vocational Education and Training
WIL	Work Integrated Learning

CHAPTER 1: PROBLEM STATEMENT, RESEARCH QUESTION AND DESIGN

1.1 Introduction

The fundamental human rights of all South Africans are strongly emphasised in the Bill of Rights, chapter 2 of the Constitution of South Africa (1996). These rights include, amongst others, freedom, human dignity, and equality. Grogan (2017:4) and Rossouw (2016:23) state that these fundamental rights enshrined in the Constitution directly affect labour relations. Labour relations are specifically dealt with in section 23 of the Bill of Rights. This section includes, amongst others, the crucial right to just and fair conditions of work (section 23(1)). In addition, the Constitution stipulates in section 24(a) that "everyone has the right to an environment that is not harmful to their health or well-being". Rossouw (2016:77) is of the opinion that the level of employee well-being is directly connected to the fulfilment of their employer's legal duties. Ensuring that working conditions are safe and healthy is one of the three principal duties of employers (Grogan, 2017:62). Rossouw (2016:80) adds that despite the legal requirements, some teachers still experience their workplaces as not conducive to their well-being.

The range of teacher workplaces in a particular high school can be extensive. Workplaces in this instance can vary from normal classrooms, computer and science laboratories, art and music studios, gymnasiums, consumer study kitchens, sports fields, and technology workshops. The risks and hazards associated with each of these workplaces vary according to the specific subject content requirements set out in the National Curriculum Statement (hereafter NCS) of the Department of Basic Education (hereafter DBE) (2015). To mitigate the risks influencing the workplace security of Further Education and Training (hereafter FET) Technology teachers, it was imperative that effective safety control measures, as discussed below, be implemented.

1.2 Research problem

FET Technology teachers in high schools have unique working conditions compared to other teachers. Not only do their workplace conditions differ significantly but also the

particular legal determinants that govern them. The workplaces of local and international FET Technology high school teachers are well-documented as being hazardous, as is evident in numerous examples of court cases related to injuries and other forms of harm. Occupational diseases may also emanate from these hazardous conditions in the workplace and pose an elevated risk to the health and well-being of FET Technology teachers. To ensure that workplaces are safe for these teachers, legislation requires that safety control measures are applied. These measures were taken in response to a risk factor that has the potential to cause accidents or harm in the workplace. The purpose of safety control is to decrease or eliminate a risk completely. Safety control in FET Technology workshops is a responsibility that numerous stakeholders share. These stakeholders include the subject teacher, the Head of the Technology Department (HOD), the school principal, the school management team (hereafter SMT), and authorities from different state departments.

The first stakeholder is the teacher responsible for the particular workplace. The Occupational Health and Safety Act (OHSA) 85 of 1993 stipulates that employees have the responsibility to take reasonable care of their own health and safety (section 14(a)). Therefore, as part of looking after their own health and safety, FET Technology workshop teachers have the duty to inform their employers of hazards to their own health and safety, be it machinery, articles, or substances (section 13(a)). The second stakeholder – the HOD, or alternatively, the health and safety official – has the responsibility to report any hazards to the school's health and safety committee. The school principal as third stakeholder is usually the chairman of the health and safety committee. The safety representative of the SMT, as the fourth stakeholder, also serves on the committee. The NCS of the DBE (2015:14) stipulates that the SMT should take note of the implications of Technology workshops for school budgets. The SMT should also have a plan in place for the preventative and ongoing maintenance of machinery as well as provisioning for equipment failure. Obsolete equipment should also be phased out and replaced. The health and safety committee is required to meet at least once every three months (section 19(4)) and keep record of each recommendation made to an employer (section 20(2)(c)).

The relevant departmental authorities must then be informed about the findings of the committee.

The right to protection of the health and safety of workers as well as accountability of employers towards their employees are stipulated in the Labour Relations Act (LRA) 66 of 1995 (Rossouw, 2016:12). In addition to the shared responsibility for ensuring the protection of health and safety in FET workshops, teachers may still encounter some additional challenges in ensuring their own workplace security. These challenges may contribute to workplace insecurity of FET Technology teachers and may also be indicative of insufficient implementation of departmental safety control measures.

The objective of the current study was to identify possible factors that contribute to the problem as well as departmental stakeholders sharing the responsibility for the possible lack of workplace security of FET Technology high school teachers. The stakeholders from the different state departments that were involved include the DBE (employer), the Department of Labour (inspectorate) and the Department of Public Works (infrastructure).

1.3 Theoretical framework

1.3.1 Security and workplace safety

On the one hand, *security* is defined as a state of protection against physical, social, mental, financial, political, emotional, occupational and psychological circumstances (Cobuild, 2014:716). On the other hand, according to Bartlette (2013:2), the feeling of a lack of security can be caused by failure, damage, mistakes, accidents, injuries, or any other condition that can be regarded as unacceptable or unsatisfactory. Therefore, safety and security in all school environments can be categorised into two key components, namely the physical and psychological component (Astor *et al.,* 2010:824; Oosthuizen, 2005:14; Squelch, 2002:149). Lessing and Dreyer (2007:120) concur and add that the types of danger to security differ from one school to the next.

1.3.2 Psychological security

Stress is one of the major factors in the psychological security of teachers in the workplace. Pithers and Fogarty (1995) are of the opinion that stress among technology teachers is a serious problem and negatively affects teachers' health and performance. Occupational stress among Technology teachers in the United States of America (USA) has been researched as early as 1964 (Kahn *et al.*, 1964). Quick and Quick (1984) add that "occupational stress is an important topic in the teaching profession" because of the associated health problems and possible psychological factors linked to stress. Research conducted by Rutherford (2009) concurred with the international findings and revealed that South African teachers' psychological security was not adequately addressed or protected by the OHSA.

It is not feasible to separate the factors that influence the physical and psychological security of teachers in classrooms because both are affected by the same working conditions that exist in FET Technology workshops. I (the researcher) found that a limited amount of international research has been conducted on the psychological security of FET Technology teachers in Australia and the USA. No similar studies could be found on FET Technology teachers in the South African context. Therefore, there is a lacuna regarding the physical and psychological security of FET Technology teachers, especially regarding movable and immovable school infrastructure. Hence, this study focussed on how both factors influence the workplace security of FET Technology teachers.

1.3.3 Physical security

For the purpose of this study, the workplaces were divided into two focus areas.

The first focus area involved the indoor premises and/or open floor area where practical training took place. These work areas are usually large, open spaces with designated walkways and are demarcated where machinery is permanently fixed. Several workstations and benches may also be positioned according to the practical needs of the specific Technology workshop (i.e., mechanical, electrical, or civil). Additional machinery

like overhead air ventilation systems, gas installations and vehicle lifts are also considered part of this focus area.

The second focus area involved the physical building and/or structure in which the above-mentioned practical training took place. These structures may differ in design as well as materials used in their construction. The building also includes elements like the roof, ceilings, internal and external walls, windows, doors, stairways, railings, emergency exits, and outdoor training areas adjacent to the building.

1.3.3.1 Indoor risks and hazards

In the case of South African high schools where subjects in the technical pathway are presented in workshops, it is common knowledge that the threat to teachers' physical well-being is even greater than at non-technical schools due to the presence of dangerous machinery and hazardous working conditions (Els, 1994; Jurgens, 2019; Kruger, 2003; Oosthuizen, 2011; Schulte *et al.*, 2005:404). The range and scope of machinery and tools used in Technology workshops are broad and pose various hazards to both teachers and learners who operate them. Most of the indoor machinery used in the respective FET Technology workshops are regulated by the Driven Machinery Regulations 2015 and apply to the "design, manufacture, operation, repair, modification, maintenance, inspection and testing of driven machinery".

International research done on technology education supports the South African findings that school workshops are potentially hazardous places (Frantz *et al*., 1996:31-40; Gathercoal & Stern, 1987; Hall & Marsh, 2003; Love, 2013:28; Summan *et al.*, 2020:457-463; Toglia, 2009:17-21). Haynie (2008:94-98) believes that school workshops and laboratories in the USA are not as safe as in the past. This increased safety threat is attributed to the fact that school workshops attempt to simulate occupational or industrial environments (Gregson, 1996:29). Knight *et al*. (2000:2) add that injuries in the school environment in the USA is a serious community health problem.

The Ontario School Board's Insurance Exchange (OSBIE) agrees with the above and states that most liability claims they handled from 1997 to 2002 were those of students in

technical studies in schools (technical studies include car mechanics, metalworking and woodworking). According to this Canadian insurance company, technical studies workshops have been classified as "high risk" environments due to recurrence of accidents (regularity) and associated costs of treating injuries.

Not only are the tools and machinery used in Technology workshops considered hazardous but also occupational diseases that can emanate from using them over a prolonged period. Schedule 3 of the Compensation for Occupational Injuries and Diseases Amendment (COIDA) Act 61 of 1997 lists some occupational diseases that FET Technology teachers may experience. These diseases include lung diseases due to exposure to fibrogenic (asbestos) dust, organic dust, hardening agents, epoxy resins, soldering or welding fumes and isocyanates, allergic or irritant contact dermatitis, as well as conditions leading to hearing impairment due to exposure to excessive noise. Studies conducted by Summan *et al*. (2020) in 17 Canadian high schools with technology education shops (TESs) indicated that "almost 60% of the participating teachers were exposed to unacceptable levels of noise during teaching and working in TESs". Studies by Behar *et al.,* (2004) showed that teachers in especially woodworking and metalwork school workshops had a "high risk of contracting Permanent Threshold Shift (PTS) due to long term exposure to high noise levels". Apart from specific machinery that is extraordinarily noisy (i.e. wood planer), high levels of noise is also generated by inadequate room design and sound proofing conditions of workshops, as well as background noise generated by dust collectors, ventilation systems and adjacent rooms (Summan *et al*., 2020). In the general population, exposure to noise is associated with several physiological and psychological health effects including, in the shorter-term, irritability, headache, fatigue and insomnia or sleep problems; and in the longer-term, with noise-induced hearing loss, heart rate changes, hypertension, cardiovascular disease, digestive disorders and ulcers (Miki *et al*. 1998; Gitanjali & Ananth 2003).

If promulgated, the COIDA Amendment Bill, 2018 affords teachers, like all other employees, recourse to claim compensation for accidents and occupational diseases contracted in their workplaces. Section 22(1) of the COIDA Amendment Bill, 2018 states

that "an employee has the right to compensation in the case of disablement or death in the workplace". Section 65(1)(a) further states that an employee will be entitled to compensation provided for in the Act if it is proved "that the employee has contracted a disease mentioned in the first column of Schedule 3 and that such disease has arisen out of and in the course of his or her employment". In the case where an employee qualifies for compensation for a disease, section 67(1) states that compensation referred to in section 65(1) will be calculated on the basis of the earnings of the employee. The amount of compensation an FET Technology teacher qualifies for is consequently influenced by factors such as salary scale and type of disease. Schedule 4 of the COIDA Amendment Bill, 2018 further sets out criteria for compensation according to nature and degree of disablement.

1.3.3.2 Outdoor risks and hazards

While activities in school workshops can be classified as hazardous, the physical school building that facilitates teaching and learning can also be life-threatening. Several factors play a role.

- School building infrastructure

A tragic accident that took place in 2019 at Driehoek High School in Vanderbijlpark, Gauteng province, highlighted the dangers that failing infrastructure at schools can pose to learners' and teachers' physical safety. Four learners died, and 20 others were injured when an interleading walkway between two buildings collapsed. Although the collapsed walkway was not part of a Technology workshop per se, the physical structure in which practical training takes place can also be deemed as infrastructure at a school and should be governed by the same legal determinants as all the other physical structures on the school premises. Section 29(f) of the OHSA 85 of 1993 clearly stipulates the functions of inspectors, which include the inspection of school buildings. Reports of failing school infrastructure and hazardous building materials are also apparent in the print media – for example, "70 schools in SA red-flagged for structural defects" (Engineering News, 2019).

It is clear from the above that failing school infrastructure poses a threat to teachers' security in the workplace. The prevention of structural defects is closely linked to effective safety control measures. This study determined the role of safety control in the workplace of FET Technology high school teachers.

- Earthquakes

According to Rodgers (2012:01), earthquakes frequently damage or collapse school buildings across the world. Structural damages caused by seismic activity to schools in Klerksdorp in 2005, Carletonville in 2008, and Orkney in 2014 brought this relatively new hazard to the fore in South African schools. School buildings are vulnerable to earthquakes due to their distinctive physical design and organisational characteristics (Rodgers, 2012:6-8). Moreover, Technology workshops are even more vulnerable to earthquakes due to their design (i.e., physical size and high roofs). The design layout of large open-floor areas without supporting internal load-bearing walls is also a contributory factor to the vulnerability of workshops during earthquakes (Rodgers, 2012:9). School buildings and/or workshops in earthquake prone areas that are not earthquake-proofed, according to the National Building Regulations and Building Standards Act 103 of 1977, can be considered a physical threat to teachers and learners alike. School buildings, and especially the structures that hold technology workshops, located in the above-mentioned areas were evaluated during the data generation phase of the current study. Relevant legislation relating to earthquakes served as the legal basis.

- Asbestos

Asbestos is a banned substance in 60 countries across the world and was banned in South Africa in 2008. Diseases related to exposure to asbestos or asbestos dust are listed under Schedule 3 of COIDA 130 of 1993, which refers to, among others, asbestosis, lung cancers, and other forms of lung disease. Due to the ease of assembly, low costs, thermal properties and availability, numerous technology workshops were constructed of prefabricated asbestos panels. Asbestos buildings are defined as "any prefabricated building or structure not attached to the soil" under the OHSA 85 of 1993. The problems

relating to asbestos in public schools have been researched to a great extent in the USA by Cross (1986), Lang (1985), Stanley (1989) and Strohmeier *et al*. (2010). In South Africa, Grant (2017) focussed on schools in the Gauteng province. The following international newspaper headings further highlight the hazards that asbestos pose to teachers and learners:

- *£100,000 victory for school teacher exposed to asbestos in a prefabricated classroom* (Morgan, 2019);
- *More than 200 teachers died from asbestos – and kids are at risk in classroom* (Ellis, 2019);
- *Hidden danger: Are SA's schools made of asbestos killing our kids?* (Times Live, 2017).

A secondary objective of the current study was to determine if immovable school infrastructure, among others, contributes to the workplace insecurity of FET Technology teachers.

1.4 Concept clarification

First, it is important to clarify certain concepts in this study due to the complex, intertwined nature of Technology education and the law. This study was conceptualised in terms of and based on the dominant concepts of education law, workplace security of FET Technology teachers, and Further Education and Training (FET) in Technology.

Workplace is defined under the OHSA 85 of 1993 as "any premises or place where a person performs work in the course of his employment".

Workplace security involves physical security and safety of employees in their work environment.

Movable infrastructure includes all movable tools, equipment and machinery inside FET Technology workshops.

Immovable infrastructure is the physical building – i.e., foundations to roof and all fixed systems like electricity and air ventilations systems.

Hazard is a probable source of harm that may have an adverse health effect on a person.

Risk is the probability that a person may be harmed or suffers adverse health effects if exposed to a hazard.

Safety control are actions or measures taken to address hazardous conditions or situations to mitigate risks that may contribute to injuries or accidents in the workplace. The purpose of safety control is to decrease or eliminate a risk completely.

Labour relations refers to the relationship between employees and employers or groups of each.

Labour laws are legislation that governs employer–employee relationships.

As regards *FET Technology*, FET, within the framework of Technology education at South African schools, is the acronym for the Further Education and Training Phase: Grades 10–12 (DBE, 2016:3). For the purpose of this study, the focus was on the FET Technology specialisation fields in the technical pathway. It is important to note that the term *FET Technology* has been associated with technical subjects in South Africa since 2003 (DBE, 2016:3). Prior to 2003, technology subjects were known as Technical Civil, Technical Electrical, or Technical Mechanical. International terms for technical subjects include vocational education, apprenticeship training, engineering education, industrial arts, and technical education. Vocational Education and Training (VET) and Technical Vocational Education and Training (TVET) are preferred terms in Europe, while the name Career and Technical Education (CTE) or Industrial Technology Education (ITE) is used in the USA. According to Herschbach (2011:97), Maclean and Lai (2011:5), Sanders (2003:182) and Wells and Ernst (2012:29), other terms for subjects with similar content and learning aims include occupational education; technical trades and integrative science; technology

engineering and mathematics education (STEM); and technology, engineering and design education (TED). UNESCO (2011:4) describes vocational education as follows:

> … aspects of educational process involving, in addition to general education, the study of technologies and related sciences; as well as the acquirement of practical skills, attitudes, understanding, and knowledge relating to occupations in various sectors of economic and social life.

For the purpose of this study, *FET Technology* represented all the above-mentioned terms. The three specialisation fields of the technical pathway include Civil Technology, Mechanical Technology, and Electrical Technology.

Workmen's compensation: The Compensation Fund provides compensation for workers who get hurt at work or sick from diseases contracted at work, or for death as a result of these injuries or diseases.

Education law perspective: Russo (2015:vii) defines education law as a multifaceted combination of constitutional, statutory, regulatory and common (or case) law that unifies the two distinctive disciplines of education and law. It affects many aspects associated with schools, from their creation and governance to the rights of teachers, other staff members, learners and parents.

1.5 Research gap

A literature search on the workplace security of teachers as well as Technology education at high schools highlighted that in South Africa, research on Technology education at high schools have been conducted to a lesser extent than internationally. Even though Els (1994), Jurgens (2018), Kruger (2003), Maeko (2014) and Oosthuizen (2011) have conducted research on the duty of care of Technology teachers in South Africa, no research could be found on the workplace security of FET Technology teachers specifically. Completed research on the professional security of teachers in South Africa focuses on higher education lecturers (Bothma, 2015), Foundation Phase teachers

(Keating, 2011), Grade R teachers (Rossouw, 2014) and primary and secondary school teachers (Bartlette, 2013; Rutherford, 2009) respectively. It should be noted that workplace security and professional security also have distinct differences despite some similarities.

Although most of the above-mentioned education law research focused on professional security and the teacher's duty of care, none of them studied FET high school teachers' workplace security. I therefore believed that this study could contribute to a deeper insight into the workplace security of FET Technology high school teachers. As a result of the increase of possible risks and dangers that prevail in FET Technology high school workshops (Oosthuizen, 2011:1-5), it can be deduced that research is needed on the workplace security of teachers in such circumstances – a research gap that this study might fill.

1.6 Conceptual framework

Miles and Huberman (1994:18) describe a conceptual framework "as a visual or written product – one that explains, either graphically or in narrative form, the main things to be studied – the key factors, concepts, or variables – and *the presumed relationships* among them".

In this study, the key concepts are related to the law. The conceptual framework of this study – as presented in chapters 2 and 3 – was therefore constructed in the form of a legal framework, written from an education law perspective. The traditional legal research method (Russo, 2015:06) that was followed entailed close comparative reading and careful analysis of legislation, other legal documents and literature on the workplace security of FET Technology teachers.

1.6.1 An education law perspective

Russo (2015: vii) defines education law as "a multifaceted combination of constitutional, statutory, regulatory and common (or case) law that unifies the two distinctive disciplines of education and law". Education law affects the many aspects associated with schools

directly – from their creation and governance to the rights of teachers, other staff members, learners and parents. According to Oosthuizen *et al*. (2020:11), “education law is independent from both law and education and is therefore an interdisciplinary field of study”. The function of education law is to further establish a balance between the duties and mutual rights of all stakeholders and participants in the education environment (Oosthuizen *et al*., 2020:7). Professional teachers should have appropriate knowledge of education law (Coetsee, 2008:184). Studies in education law have indicated the lack of legal knowledge amongst teachers as the single most important reason for workplace insecurity (Rossouw & Mong, 2018:109). Education law can thus be summarised as a collection of legal rules that control relations within the educational realm (Jurgens, 2019:32). It is imperative that FET Technology high school teachers working in this realm are knowledgeable of this collection of rules. Knowledge of the law and the ability of teachers to implement these rules through safety control measures ultimately contribute to the level of security in their workplaces.

1.6.2 Sources of law

To determine the effect of legislation on the workplace security of FET Technology teachers, it was necessary to identify the relevant Acts and related regulations. Russo (2015:08) states that three broad categories of information need to be considered when examining legal issues: primary sources, secondary sources, and research tools. For this research, only South African sources were considered.

Primary sources of legislation include constitutions, statutes, regulations, and case law (Russo, 2015:09). Legislation can further be categorised into two forms, namely original legislation and subordinate legislation. Roos *et al*. (2020a:58) state that original (national) legislation is promulgated by the original authority of a legislative body. Subordinate legislation is issued under the authority of the original legislation. The full range of legislative provisions applicable to this study is offered in Figure 2.1 and presents a visual framework of the relationship between the Constitution and various forms of legislation that are applicable to this study.

1.6.3 Philosophical orientation

The constructivist paradigm was followed as philosophical assumption in this study. For this study, workplace security was linked to four types of theories: the theoretical aspects of three legal disciplines; and one psychological theory. The three legal disciplines included in the legal framework are fundamental rights, labour law, and the common law. As already mentioned, it is not possible to fully separate the physical and psychological elements that influence the workplace security of FET Technology teachers.

As psychological elements influence workplace security, this study was rooted in the theoretical–philosophical framework of the German concept of *geborgenheit*. According to Oosthuizen *et al.* (2015:03) and Oosthuizen *et al.* (2020:7), the essence of education law is embedded in the concept of *geborgenheit*. *Geborgenheit* is described as protection, security, comfort (reassurance), and freedom from danger (www.dict.cc). Serame *et al.* (2014:2) state that the "essential requirement of the best possible education for children is an environment of mental and physical safety".

According to South African common law, teachers not only have a legal duty to ensure the safety of learners entrusted to their care but must also identify and report unsafe conditions. Other legislation that specifically focus on a safe environment are found in the South African Constitution of 1996, the Children's Act 38 of 2005, the South African Schools Act (SASA) 84 of 1996, and the OHSA 85 of 1993.

Although many researchers have focused on the *geborgenheit* of learners in the school environment, Oosthuizen *et al.* (2020:7) emphasise that teachers are "dependent on protection by the state and their profession in order to function optimally". In the context of this study, this protection comprised of the implementation of safety control measures to enhance the safety of teachers in their workplaces. Oosthuizen *et al.* (2020:7) further mention that teachers become facilitators as well as recipients of *geborgenheit*. This, by implication, means that the level of *geborgenheit* teachers experience in their workplaces is directly proportional to the level of *geborgenheit* the learners experience. Rossouw and Mong (2018:109) claim that many teachers' rights to workplace security are marginalised

by the relevant authorities through unfair labour practices. Such practices include incompetent or inapt employer support and subsequently affect the quality of their service delivery. Oosthuizen *et al.* (2020:7) state that some of the facets related to the teacher's need for *geborgenheit* include "the position of the educator as a bearer of all constitutional rights, including the right to fair labour practices".

Moreover, Oosthuizen *et al.* (2009:18) emphasise that the purpose of education law is to establish an equilibrium for the mutual rights and responsibilities of educational role players to establish a harmonious environment of *geborgenheit*. It can therefore be assumed that, in turn, it would contribute to the professional security of teachers.

1.7 Research questions

Emerging from the problem statement, the primary research question was as follows:

- What is the nature of workplace security of FET Technology teachers?

In light of the above-mentioned background and the primary research question, I aimed to address the following secondary research questions:

- What is the nature of the legal framework that supports workplace security of FET Technology teachers?
- In which ways do movable and immovable school infrastructure influence workplace security of FET Technology teachers?
- How does the implementation of safety control measures influence workplace security of FET Technology teachers at their schools?
- How do FET Technology teachers interpret legal determinants and health and safety regulations in terms of their workplace security?

1.8 Research objectives

The primary objective of this study was to determine the nature of workplace security of FET Technology teachers.

The secondary objectives were as follows:

- to determine the nature of the legal framework that supports workplace security of FET Technology teachers;
- to establish in which ways movable and immovable school infrastructure influence workplace security of FET Technology teachers;
- to investigate how the implementation of safety control measures influence workplace security of FET Technology teachers at their schools;
- to determine how FET Technology teachers interpret legal determinants and health and safety regulations in terms of their workplace security.

1.9 Research design

This section provides information on the research design and the selected research methodology and paradigm for the empirical study.

A research design defines the processes for undertaking a study and indicates under what circumstances the data will be obtained, when and from whom (McMillan & Schumacher, 2014:27). The purpose of a research design, according to McMillan and Schumacher (2014:27), is "to stipulate a plan for producing empirical data that will be used to answer the research questions". A design that would produce legitimate, dependable assumptions from the responses to the research questions should be used. Any research design should include five main elements: the discussion of a conceptual and theoretical framework; utilised strategies to complete the research; evidence of sampling indicating how and where the research was conducted; the process of data generation; and the techniques used to analyse the gathered data (Punch, 2013:46).

To address the research questions of this empirical study, a qualitative methodology was employed.

1.9.1 Research paradigm

Creswell (2014a:6) states that our worldviews or paradigms are influenced by our perceptions and assumptions. They are, in turn, affected by our philosophical

dispositions, our principles, background, talent, personality, likes and dislikes. Moreover, they are likely to have an influence on how we approach our research (Oosthuizen *et al*., 2020:11).

Creswell and Creswell (2018:6) add that four worldviews are commonly deliberated in literature: post-positivism, constructivism, reformism, and pragmatism. The research paradigm of this study was constructivist in nature. The qualitative research within the constructivist paradigm entailed the undertaking of a phenomenological study. Merriam (2008:112) states that a phenomenological study describes the meaning of lived experiences from the viewpoint of those who have actually experienced the researched phenomenon. The phenomenon under study is usually an everyday experience and not an exceptional or unusual one. In the context of this study, the phenomenon under investigation was security in the workplace of FET Technology teachers.

1.9.2 Methodology

According to Leedy and Ormrod (2019:19), research methodology underwrites a researcher's general approach to conducting a research project. Mouton (2001:56) views research methodology as concentrating on the research procedure and the variety of tools and techniques to be used. As described earlier, a phenomenological constructivist approach was employed in this study.

The motivation behind purposively selecting schools that offer FET Technology subjects was discussed in detail in § 1.2.

1.9.2.1 Population and sampling

In the current study, I endeavoured to include teachers from all public high schools in all four districts of the North West (NW) province that offer FET Technology subjects. These schools are situated in both urban and rural areas and specialise in technical skills training. The objective of the study was to explore the workplace security of a specific group of teachers (i.e., FET Technology) in a specific work environment (i.e., public high schools in the North West province). The study population comprised of all FET

Technology teachers engaged in engineering studies at public high schools in the North West province. Schools from all four districts of the North West province were included.

The purposive sampling method, also referred to as judgment sampling, was employed (Etikan *et al*., 2016). This sampling method is used when participants are intentionally identified to participate due to specific qualities they possess. The researcher decides what information is needed on a subject matter and sets out to identify people who are willing and able to provide the information by means of their respective knowledge and/or experience (Bernard, 2002). The participants in this study (FET Technology teachers) were recruited from all above-mentioned schools (see Annexure B). Based on the documentation provided to me by the Subject Advisory Service of the North West Department of Basic Education, each school had between two to six employed FET Technology teachers. The sample was drawn purposively from this population (approximately six teachers per district). The inclusion criterion for this study was that the participating teachers were appointed to teach FET Technology (mechanical, electrical, and civil) at public high schools in the North West province. In those schools where more than two Technology teachers were employed at the time of the study, preference was given to those with more teaching experience who were deemed to have a deeper and broader understanding of the phenomenon under investigation.

1.9.2.2 The role of the researcher

McMillan and Schumacher (2014:338) state that for research designs to be dependable and effective, they must also adhere to valid research ethics. The reliability of a study is reliant on the researcher's trustworthiness and can only be achieved when they conduct the study ethically (Merriam, 2016:234). Dwyer (2009:58) is of the opinion that the insider researcher is more easily accepted and trusted by participants due to a shared camaraderie. This leads to research participants being more open and accepting of the researcher and in the process results in greater depth of the data collected.

The role of the researcher as a potential insider in a study is a complex one. Dwyer (2009:54) describes an insider researcher as someone who shares the same identity,

characteristics or work experience with the study participants. In this instance, it is important to describe my professional environment, since it supported the notion of being an insider researcher in this study.

At the time of the study, I was employed with the North-West University (NWU) as a lecturer in the School of Science, Mathematics and Technology for Education. I trained prospective FET Technology teachers in Civil Technology and was responsible for all educational activities in the Civil workshop. Therefore, I shared similar workplace conditions as the study participants.

Concerning my training, I hold a Higher Education Diploma in Technical Education and an MEd degree in Education Law, focusing on OHS legislation and policy in FET high school workshops. In addition, I was an FET Technology teacher for 12 years and have intimate knowledge of the physical environment, working conditions and safety control in FET high schools. I also visited some of the schools considered as potential sites in this study during work-integrated learning (WIL) in my capacity as NWU lecturer.

Furthermore, due to my previous involvement as FET Technology teacher and my role as lecturer, it was clear that I had a vested interest in the study findings. Recognising my professional interest, I consciously engaged in and monitored every step of the data analysis and interpretation, since an accurate and uncompromised reflection of workplace security was essential, not only in guiding me to provide authentic feedback to the participants but also in preparing my students through valuable training for similar working conditions.

1.9.2.3 Data generation methods

On the grounds of the phenomenological study, open-ended questions for interviews were drafted to explore FET Technology teachers' perceptions of safety control and workplace security at their high schools. I collected the information. All schools from all four districts in the North West province were visited to conduct face-to-face interviews, whereas interviews with some schools were conducted via phone. When a physical

meeting was not possible due to COVID-19 restrictions, or for any other reason, I proceeded with telephone interviews.

I decided to use a semi-structured questioning and funnelling approach. According to McMillan and Schumacher (2014:359), topics for discussion are selected beforehand, but the phrasing and order of the questions are determined by the researcher. The interview commenced with general biographic and demographic questions, then key questions were asked, which required probing depending on the participants' responses. The location and time of the interviews were determined by the availability and preference of the participants. The average duration of each interview was 45 to 60 minutes. Each interview was recorded with the participants' permission granted in the consent form.

1.9.2.4 Recruitment of participants

After securing ethical clearance from the Research Ethics Committee of the NWU and the Head of DBE of the North West province, I sought permission from the principals of the purposively selected schools – i.e., those offering the FET Technology programme – to conduct research with their FET Technology teachers. Teachers who taught FET Technology and granted their informed consent to be interviewed became participants in this study. An independent recruiter invited all the FET Technology teachers from each participating school. The recruiter e-mailed the teachers an invitation consent letter, which included an explanation of the study and what participation in the study entailed. Adhering to all applicable ethical standards, the possible risks and benefits of the study were declared. The letter also clearly stated that participation was voluntary, responses would be kept confidential, participants could withdraw from the study at any time, and that minimal disruption to the normal work schedules of the participants would take place. Potential participants had the choice to contact me (the researcher) with any questions prior to their engagement in the study. My contact details were provided in the invitation consent letter. Teachers who made an informed decision to participate in the study were asked to sign the consent form and return it to the independent recruiter for safekeeping.

The signed consent forms along with the contact information of the participating teachers were passed on to me.

1.9.2.5 Data analysis

After the interviews, I transcribed each interview through transcription software on a personal computer. The audio files from the interviews were transcribed into narrative form and then organised to begin the data analysis process. A specific examination process of data analysis must be followed after qualitative data generation (Creswell, 2014b). Table 1.1 below lists the six steps of data analysis that Creswell (2014b:55) proposed to collect and code data. These steps were implemented in this study.

Table 1.1: Six steps of data analysis

(Adapted from Creswell, 2014b:55)

Steps	
1	Organise and prepare the data for analysis by arranging and sorting the information.
2	Read through all the data to get a general sense of the information, and even write down general ideas about the data.
3	Code the data by organising the data into chunks of information and write down categories.
4	Provide meaningful descriptions of the categories or themes for analysis.
5	Present the results of the analysis narratively to convey the findings. The narrative may include a detailed discussion of several themes, or a discussion of interconnecting themes.
6	Interpret the results of the analysis to finally answer the research question.

Transcribed and member-checked interviews with each participant were imported into the Quirkos® data analysis software, which served as a database. Quirkos® allowed me to systematically analyse the text, code and categorise information, sort and locate important data segments, build descriptions and themes and, finally, provide visual display in the form of tables and figures. The analysis took place continuously during the management process. Transcribing the interviews served as a primary examination, which assisted me to obtain a general idea of the data. I proceeded by using the inductive approach – moving from the transcribed interviews to codes. I coded each data segment (i.e., each interview) separately. Some of the codes were predesigned based on the interview questions (*a priori* codes); others emerged from the accumulated data. After coding the entire text, I prepared a list of all the codes, grouped comparable codes, recognised unique codes, and then grouped the codes into a more manageable number of themes. The themes were then explored in line with the research questions.

1.9.2.6 Trustworthiness

Lincoln and Guba (1985:314) developed a model with four applicable criteria to assess the trustworthiness of any type of research. The criteria include truth value, applicability, consistency, and neutrality. Lincoln and Guba (1985:314) added common definitions to the four criteria (see Table 1.2) to indicate their specific applications in qualitative research.

Table 1.2: Lincoln and Guba's trustworthiness model

Criterion	Application in qualitative research
1. Truth value	Credibility
2. Applicability	Transferability
3. Consistency	Dependability
4. Neutrality	Confirmability

(Adapted from Lincoln and Guba, 1985:314.)

To ensure the trustworthiness and credibility of a study, the researcher must be responsible in conducting the study in an ethical manner. Member checking is the first criterion to ensure credibility. I sent each participant a transcript of their personal interview after it had been transcribed. This gave the participant (member) an opportunity to verify (check) the content and suggest amendments if necessary. According to Maxwell (2013:126), “this is the single most important way of ruling out the possibility of misconstruing the meaning of what participants had said”.

Transferability, according to Lincoln and Guba (1985:317) is “showing that the findings have applicability in other contexts”. In qualitative research this is not an attempt to generalise, but the researcher has to make it possible for readers to make their own deductions as to whether findings may be applicable to other similar settings. The transferability of a study can be enhanced by implementing thick description and purposeful sampling. Thick description is described by Nieuwenhuis (2016:124) as when a researcher “provides the reader with a full and purposeful account of the context, participants, and research design so that readers can make their own decisions about transferability”. Thick description should also include contextual information about the selected research sites.

The third criterion to enhance trustworthiness is dependability. The procedures followed during analysis, the exact context, and sampling of participants have to be thoroughly described to compile a rich, thick description of the research. To ensure adequate engagement in data generation, sufficient time was spent to gather data to achieve “data saturation” – that is, when no meaningful data can further be expected and the data generation process is concluded. This strategy is used to get as close as possible to the participants’ understanding of the phenomenon and should be combined with intentionally looking for conflicting or opposing cases (Merriam, 2016:247, 259).

Lincoln and Guba (1985:317) describe confirmability as “the degree of neutrality or the extent to which findings of a study are shaped by the participants and not by researcher bias, motivation or interest”. To reduce the effect of researcher bias, Nieuwenhuis (2016:125) proposes that researchers “need to admit their own predispositions”. This can

be achieved by implementing member checking, and keeping an "audit trial" which includes raw data, and details the course of the research (Nieuwenhuis, 2016:125). Researchers therefore becomes more mindful of their own unintended bias or possible individual prejudice regarding the research topic.

1.10 Ethical considerations

It was noted in the discussion of my role as researcher (§ 1.9.2.2) that an ethical approach to a study is important. This study was undertaken with the highest regard for ethical considerations. The first step in the ethics process was to apply for ethical approval from the Research Ethics Committee of the NWU to engage in a scientific project with human participants. After receiving approval and a research ethics number, I approached the Head of the DBE of the North West province to obtain the necessary permission to conduct research at high schools offering FET Technology subjects. After both permissions were granted, goodwill permission was then sought from the selected school principals, as well as informed consent from the participants who were willing to participate in the interviews. I provided clarification of the intended research by means of the invitation letter which clearly described the purpose of the study and gave assurance of confidentiality and minimal disruption to the normal work schedules of the participants. It was clearly indicated that participation in the study was voluntary and participants had the right to withdraw at any time during the process without prejudice and penalty.

Moreover, the interview questions were not sensitive in nature, and no risks were anticipated. The possibility that participants were hesitant or uncomfortable to answer certain questions was also considered. In such cases, the participants were informed that they were not obliged to answer questions they did not feel comfortable answering; I was therefore sensitive to any uncomfortableness. During the drafting of the interview schedule, I was mindful of such a possibility and did not include questions that might evoke emotional reactions.

Furthermore, the privacy of participants was respected and guaranteed by conducting the interviews in confidentiality. They were also informed that the gathered information was coded and interpreted to explore the phenomenon of workplace security of FET Technology teachers without revealing their names or their schools.

The accuracy of the research was validated through various strategies and different sources. Ethical guidelines warning against potential supressing, falsifying or inventing findings were strictly followed. Participants who wanted feedback on the study were informed that I would validate their contribution through member checking. Participation in the research was confidential but not anonymous. It was important to identify the four participating districts in the findings of the study, since demographics had an influence on workplace security in the participants' schools. Lastly, all collected data are stored digitally in an encrypted folder on my computer and on an external flash drive which is locked in a secure file cabinet in my office.

1.11 Chapter summary

To present a rationale for the study this chapter has described the orientation and research problem. After stating research problem, the research questions and objectives, the conceptual framework was discussed, as well as the qualitative research design. In the next chapter the legal determinants affecting the workplace security of FET Technology teachers will be presented

CHAPTER 2: LEGAL DETERMINANTS FOR WORKPLACE SECURITY OF FET TECHNOLOGY TEACHERS

2.1 Introduction

It is well-documented that the workplaces of local and international FET Technology high school teachers are hazardous. Injuries and occupational diseases may also derive from these hazardous workplace conditions and pose a higher risk to the health and well-being of FET Technology teachers. To mitigate the risks influencing the workplace security of FET Technology teachers, it is imperative that safety control measures are implemented as set out in legislation. In this chapter, the various education law determinants – i.e., the statutory provisions that impact human rights, education-specific legislation, and common law relating to FET Technology workplaces – that contribute to safe workplaces of FET Technology teachers are discussed and analysed.

2.2 Origin of law in South Africa

Bray (2005:3) contends that "the history of a nation has a major influence on the development of a country's legal system". In this regard, South African law is no exception, and during the amalgamation of various legal systems, they influenced one another. The most important legal systems are mainly Dutch (Germanic) and Roman law brought to South Africa by the East India Company in 1652. The British occupation of South Africa resulted in the English law, and case law also played a significant a role in shaping South African law. Van der Merwe and Du Plessis (2004:2) concur by saying that the legal framework of legal principles and basic institutions in South Africa is mostly Anglo European.

According to Kleyn and Viljoen (2010:19), the history, origin and development of South African law can be ascribed to the following reasons: first, legal history explains the character of law as the past brought about the present; second, knowledge of legal history facilitates necessary change in law by addressing past wrongdoings in the present; third, legal history is a living law in that the historical component of legal history, namely the

common law, is still in force today in South Africa; and fourth, legal history links South Africa with other countries and thus become part of a global entity that brings all countries' application of law closer together.

2.3 Sources of South African law

According to Bray (2005:51), the sources of law refer to the places where law originated. Van der Merwe and Du Plessis (2004:36) add that the South African Constitution (1996) does not contain a specific list that mentions the sources of South African law. The sources of South African law and their description are tabulated below (Table 2.1).

Table 2.1: Sources of South African law

SOURCE	DESCRIPTION
Constitution	The Constitution reflects the founding values of the South African community and is the highest authority of legislation in the country. It contains rules and laws that outline how the country should be governed as well as the powers and functions of the State (Van der Merwe & Du Plessis, 2004:36).
Legislation	Legal rules laid down by competent organs of state. These legal rules are in writing and are known as laws, regulations, proclamations, and statutes (Kleyn & Viljoen, 2010:21).
Common law	"Uncodified legal traditions derived from Roman-Dutch and English law developed and adapted in accordance with the South African legal background and culture" (Roos, 2020c:111).
Case law **(Court case reports)**	Case law is court case reports and is based on the interpretation and application of the law by judges and magistrates. These reports create or follow legal precedents (Rossouw, 2020:257).

2.4 Statutory determinants

The most relevant legal determinants and safety control measures regarding workplace security are discussed in this section. The emphasis is on legal determinants that bind various stakeholders in the school as workplace and specifically those stakeholders responsible for safe workplaces in FET Technology high schools.

As illustrated in Table 2.1, laws and legal rules are laid down by organs of state which have been declared competent and are known as laws, regulations and proclamations. According to Bray (2005:30) and Kleyn and Viljoen (2010:210), the government has three main functions. The first is to make laws. This refers to its legislative authority. The second function is to apply and enforce laws (executive authority), and the third function is to resolve legal disputes (judicial authority). Legislation can be categorised into two forms, namely original legislation and subordinate legislation. Oosthuizen *et al.* (2020:58) state that original (national) legislation is promulgated by the original authority of a legislative body. Subordinate legislation is issued under the authority of the original legislation. Figure 2.1 presents a visual framework of the relationship between the Constitution and various forms of legislation.

THE CONSTITUTION OF THE REPUBLIC

ORIGINAL LEGISLATION

Ordinary parliamentary legislation

Education legislation

- South African Schools Act 84 of 1996
- The Employment of Educators Act 76 of 1998
- The South African Council for Educators Act 31 of 2000

General legislation

- Labour Relations Act 66 of 1995
- Occupational Health and Safety Act 85 of 1993
- Compensation for Occupational Injuries and Diseases Act 130 of 1993
- Compensation for Occupational Injuries and Diseases Amended (COIDA) Bill, 2018
- The Basic Conditions of Employment Act 75 of 1997.

SUBORDINATE LEGISLATION

FET Technology specific regulations

- Minimum Uniform Norms and Standards for Public School Infrastructure, 2013
- Driven Machinery Regulations, 2015
- Asbestos Abatement Regulations, 2020
- Environmental Regulations for Workplaces, 1987
- General Safety Regulations, 1986
- Electrical Installation Regulations, 1992.

Figure 2.1: Relation between original and subordinate legislation

(Adapted from Roos *et al*., 2020a:58)

It is imperative that FET Technology high school teachers are knowledgeable about original as well as subordinate legislation applicable to their respective workplaces. They should specifically be well-informed about the practical implementation of safety measures to prevent workplace insecurity.

2.4.1 The Constitution of the Republic of South Africa, 1996

Most states have a constitution – the highest and most important legislation under which a country is governed (Kleyn & Viljoen, 2010:210). The Constitution of the Republic of South Africa, 1996 (hereafter the Constitution) regulates the formulation and implementation of legislation, as well as the relationship between citizens and the State. The Constitution was promulgated on 8 May 1996 and amended on 11 October 1996.

The Constitution officially came into operation on 4 February 1997 (Oosthuizen *et al.* 2020:16). Van der Merwe and Du Plessis (2004:37) remark that the Constitution is a major source of individual rights and duties of all citizens. Oosthuizen *et al.* (2020:16) regard section 1 of the Constitution as its founding provision and further state that the Republic of South Africa was founded on several values. These values include the supremacy of the Constitution, rule of law, human dignity, equality and freedom, among others. Smit (2009:21) supports this and adds that the preamble of the Constitution "connects to the creation of a community based on democratic values, social justice and fundamental human rights". Venter (2000:142) describes human dignity as the principal core value of the Constitution, supported by the two other founding values of equality and freedom.

Currie and De Waal (2013:10) concur with the above by stating that the Constitution not only defines the rights of citizens but also the duties of the State towards its citizens. The rule of law is therefore entrenched in the founding provisions contained in section 1(c) of the Constitution. It declares that state institutions are bound to act in accordance with legislation and that power over anyone cannot be exercised by the State unless the law permits it to do so (Currie & De Waal, 2013:11). In this study, it was important not only to

determine the rights of FET Technology teachers as regards safe workplaces but also the responsibilities and accountability of state institutions involved in education.

Section 2 of the South African Constitution defines the status of the Constitution as follows:

> This Constitution is the supreme law of the Republic; law or conduct inconsistent with it is invalid, and the obligations imposed by it must be fulfilled.

According to Oosthuizen *et al.* (2020:16), this implies that the Constitutional Court may challenge any other South African Act or regulation in terms of conforming to the rights of citizens as included in the Bill of Rights. The rights and duties of citizens are enshrined in and protected by the Bill of Rights (chapter 2 of the Constitution). The aim of the Bill of Rights is to provide protection so that human dignity can remain unharmed and that individual differences are permitted, valued and encouraged.

Moreover, Oosthuizen *et al.* (2020:17) highlight that the Bill of Rights has two distinctive characteristics. The first pertains to the State's duty to not only respect all teachers' fundamental rights but also "promote and fulfil" these rights (section 7(2) of the Constitution). In the context of this study, the basic rights of FET Technology teachers to have safe workplaces are the shared legal obligation of all state institutions tasked with education. These include the departments of Education, Labour and Public Works. The second characteristic entails the provision of section 8(2). In a traditional sense, a bill of rights regulates the "vertical or direct" relationship between the State and individuals (Currie & De Waal, 2013:41). This means that individuals are meant to be protected from state power by means of provisions that cannot be violated by law or the conduct of organs of state (Currie & De Waal, 2013:32). However, the 1996 Bill of Rights recognises that the State is not the only possible threat to an individual's rights, but other individuals as well. This application is known as the "horizontal or indirect" application of the Bill of Rights and takes place when there is a provision of ordinary law (customary law, common

law, or legislation) that intervenes between the Bill of Rights and the individuals who are bound by that law. Currie and De Waal (2013:34) further highlight the importance of distinguishing between the beneficiaries in the direct application of the Bill of Rights. An individual's legal right to something makes them a beneficiary of that right. The duty-bearer in respect of that right has the legal duty to uphold the right of the beneficiary. In the context of this study, state organs like schools are the duty-bearer of the fundamental rights of teachers (Oosthuizen *et al.*, 2020:17).

2.4.1.1 The right to fair labour practices

Everyone has the right to fair labour practices. Currie and De Waal (2013:473) state that the specific entrenchment of labour rights in the South African Constitution is unique to the South African Bill of Rights and was partly influenced by the historical role black trade unions played in the downfall of apartheid. The Constitution refers to "workers", not "employees" (Beckmann & Fűssel, 2011:562). Therefore, teachers are regarded as workers before the law. Even though this section of the Bill deals directly with labour relations, it does not refer to safe workplaces specifically. The issue of fairness in labour practices was highlighted in *Council of Mining Unions v Chamber of Mines of SA* (1985) 6 ILJ 293 IC 295C. The Industrial Court inferred that the "concept of fairness and lawfulness were not necessarily equivalent concepts". It could also be reasonable to assume that it may be seen as an unfair labour practice to expect employees to work in a hazardous and insecure environment and that section 23 of the Bill of Rights together with the provisions of the Employment Equity Act 55 of 1998 (1998) would establish a strong case for unfair labour practices. In the context of this study, unfair labour practices entailed the expectation of FET Technology teachers to work in unsafe buildings, or cases where their workplaces or working conditions were hazardous.

In addition to the Employment of Educators Act (EEA) 76 of 1998, which regulates most labour relations matters affecting teachers at public schools, there are also several other general labour laws applicable to FET Technology teachers in their workplaces. Some of these labour laws include the Labour Relations Act 66 of 1995 and the Basic Conditions

of Employment Act 75 of 1997. Rossouw (2016:03) describes labour relations "as the primary and secondary relationship or relation between the employer, employee and the state". Primary and secondary relationships are regulated by the State through the implementation of labour legislation and structures like the Commission for Conciliation, Mediation and Arbitration (CCMA) to ensure that disputes and grievances are resolved successfully.

It is important to highlight the individual employment relationship between a specific employer and a specific employee in a workplace, since teachers are exposed to a wide range of different working conditions. According to Rossouw (2016:03), this relationship only exists at workplace level and is considered a primary relationship in labour relations. For this study, this individual relationship was represented by FET Technology teachers (employees) and the State (employer) via the Department of Basic Education (DBE).

2.4.1.2 The right to a safe and healthy environment

Everyone has the right to work in an environment that is not harmful to their health or well-being and to have that environment protected through legislative and other measures. The provision regarding a safe and healthy environment highlights two important aspects in teachers' workplaces: the environment in which work takes place, and their health or well-being. According to Currie and De Waal (2013:518), the term "environment" is not defined in the Constitution but is defined in the National Environmental Management Act (NEMA) 107 of 1998 as "the surroundings within which humans exist and that are made up of the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being". Currie and De Waal (2013:518) further state that if the well-being of a person suffers due to a threat caused by a feature of the environment, it would be an infringement of section 24. For this study, the environment entailed all immovable assets (i.e., physical buildings) and movable assets (i.e., equipment and machinery used in FET Technology workplaces).

"Health" in the workplace includes all hazards affecting teachers' physical and mental well-being. Internal hazards in FET workshops can include conditions like poor ventilation, toxic fumes, excessive noise and unsafe machinery. These hazards may also contribute to the contracting of occupational diseases as set out in the COIDA Amended Bill, 2018. Further possible health hazards stemming from external conditions outside workshops can include structures constructed of unsafe building materials like asbestos or those deemed to be unsafe according to the OHSA 85 of 1993. Currie and De Waal (2013:519) argue that the "health" aspect of the provision is recognised in some respects under the common law. From a labour perspective, Grogan (2017:62) adds that employers also have a duty towards their employees to ensure that the working conditions of their employees are safe and healthy.

Section 24 further declares that the State must take "reasonable legislative and other measures" to ensure a safe and healthy environment. This means that environmental legislation as well as OHS legislation must be considered. In *Government of the Republic of South Africa v Grootboom* (2001), Judge Yacoob J remarked that even though the State is required to adhere to section 24, the mere presence of legislative measures is not likely to create "constitutional compliance". He continued by saying that "the State is obligated to act to achieve the intended result, by supporting legislative measures through appropriate, well directed and implemented programs".

Protection against harm in the work environment is provided by the OHSA 85 of 1993 as well as sections 29 and 2(4)(j) of NEMA. Section 29 declares that workers are exempt from negative consequences for declining to do work that is harmful to their health. Section 2(4)(j) states that workers must be informed of dangers in the workplace and have the right to refuse work if these hazards are harmful to their lives or their work environment.

The focus of this study was not only to determine how safe the work environment of FET Technology teachers is but also how effective the regulatory measures are that govern it. Currie and De Waal (2013:17) state that accountability is one of the most important

provisions in the Bill of Rights. One of the most prominent provisions is the right to just administration (section 33).

2.4.1.3 Just administrative action

The underlying "basic values and principles governing public administration" in South Africa include, amongst others, accountability, honesty and openness (Currie & De Waal, 2013:17). Squelch (1999:362) argues that the core principle of section 33 is to protect people from one-sided, subjective administrative decisions and actions by administrative organs. Rossouw *et al.* (2020:250) contend that "everyone has the right to administrative action that is legal, rational and procedurally just". The promulgation of the Promotion of Administrative Justice Act 3 of 2000 was the result of the State's obligation in section 33(3)(b) to "give effect to these rights". *Administrative action* in accordance with section 33 is defined by Currie and De Waal (2013:645) as follows:

> any exercise of public power by state organs except in the following instances: firstly, legislators on national, provincial and local level when they perform legislative functions; secondly, the judiciary in the exercise of their legal functions; thirdly, the president in the exercise of constitutional powers as Head of State; and fourthly, the cabinet and provincial cabinets when they make political decisions.

Administrative processes, systems and practices are an integral part of society and workplaces. The principle of fairness in this instance is entrenched in the Constitution as a fundamental right. It needs to be acknowledged that unfair administrative actions and abuse of power during the apartheid era as well as the subsequent impact it had on workers may have been grounds for including this section in the Constitution. Rossouw (2015:50) highlights the importance of public officials working in the administrative domain to treat all citizens fairly. Rossouw (2010:35) further regards just administrative action as an essential element of workplace security for teachers.

As noted previously, the South African Constitution requires the government to respect the principle of accountability. Cabinet members (e.g., the Minister of Basic Education) are individually and collectively accountable to parliament for just administrative action or lack thereof in their departments. Currie and De Waal (2013:17) state that "members of the provincial executive councils are in turn held accountable by their respective provincial legislatures". An example of lack of administrative action and accountability was highlighted during a portfolio committee meeting of the North West Education Department recently. Cilliers (2020) reported that an amount of R225 million earmarked for school infrastructure projects had to be returned to the national treasury for not being disbursed. The funds have subsequently been allocated to the province of Mpumalanga. Since 2018, when the North West Education Department was put under administration, an amount of R351 million has been returned to the treasury. These funds were not spent to address the crucial need in the province for new schools, substandard sanitation and dilapidated school buildings. Gavin Edwards – a political spokesperson for education in the province – remarked that "the ambiguity regarding the role and responsibilities of executive members and responsible officials during the administration process, contributed to the poor performance of departments under administration".

The principle of accountability is especially critical in matters of national and provincial budgetary processes. Just administrative action entails transparency, responsibility and effective financial management in all spheres of governance so as to ensure that workplaces are maintained and safe from hazards.

2.4.2 Education-specific legislation

According to Roos *et al.* (2020a:59), education legislation involves the legal requirements that determine the rights and obligations of various parties involved in education as stakeholders. These stakeholders include government, teachers, managers, learners, parents, the community, churches, and the business sector, for example. Education legislation applicable to the FET Technology high school teacher is discussed next.

2.4.2.1 South African Schools Act 84 of 1996

According to Roos *et al.* (2020a:60), SASA deals with the establishment of a uniform system for public schools for the organisation, control, management and financing of schools. The applicable objectives in SASA are highlighted to focus on the workplace security of FET Technology teachers.

- Norms and standards for basic infrastructure and capacity

Section 5A of SASA prescribes the minimum norms and standards for basic infrastructure and capacity in public schools. Sub-section 5A(2) states that "the norms and standards contemplated in sub-section (1) must provide for, but not be limited to 2(a) school infrastructure, 2(b) capacity of a school and 2(c) provision of learning and teaching support material". SASA should be read in conjunction with the regulations relating to Minimum Uniform Norms and Standards for Public School Infrastructure 2013, since regulation 4(3) specifically addresses building materials (i.e., asbestos) used in the construction of school infrastructure. It is important to emphasise regulation 4(3) in conjunction with section 5A in the context of this study, as asbestos as building material used in Technology workshops (immovable infrastructure) directly influence workplace security. For the purposes of this Act, section 5A is discussed in detail in § 2.4.2.1.

- School code of conduct

Section 8(1) of SASA stipulates that a code of conduct (school rules) must be drawn up by the governing body of a public school in consultation with the learners, parents and teachers attached to the school. Smit *et al.* (2020:307) mention that the code of conduct, according to section 8(2), must "establish a disciplined and purposeful school environment, dedicated to the improvement and maintenance of the quality of the learning process".

By implication, this means that a state of security must prevail in the school within which purposeful education can take place (Smit *et al.*, 2020:307). Misconduct of learners in

school workshops not only threaten their own safety and that of their fellow learners but also infringes on the right of other persons, including the teacher (see § 4.4.6). The Guidelines for the Consideration of Governing Bodies in Adopting a Code of Conduct for Learners (1998(c)) define misconduct that may lead to suspension in regulation 11 and list instances of misconduct applicable to workplace security, such as (a) conduct that endangers the safety and violates the rights of others; and (c) possession, use, transmission or visible evidence of narcotic or unauthorised drugs, alcohol or intoxicants of any kind.

Regulation 11(a)(c) should be read with regulation 2A(1–3) of the General Safety Regulations, 1986 (see § 4.4.6) which pertains to intoxication. It states:

> it is not permitted for any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a workplace, or have in his or her possession any intoxicating liquor or drugs.

Disciplinary issues and learner misconduct in workshops also affect the psychological security of FET Technology teachers, and school governing bodies (SGBs) must therefore take regulation 2A(1–3) in consideration along with other school rules when a code of conduct is drawn up with regard to policy for FET Technology workshops. The seriousness of the misconduct of a learner who threatens the workplace security of a teacher by violating workshop safety rules or being intoxicated in the workshop should thus be considered as aggravating in the measures for suspension or expulsion.

- Functions of SGBs

Doubell (2012:32) underscores that SASA imposes certain duties on SGBs, which also determine safety management of all school infrastructure, including FET Technology workshops. Section 5(5) stipulates that a governing body is responsible for determining safety policy, and section 16(2) of SASA stipulates that "a governing body stands in a position of trust towards the school". This implies that the SGB is obliged to promote the best interests of the school. Oosthuizen and De Wet (2016:77) claim that SGBs have a

duty to administer and control school facilities, which include FET Technology workshops. These operations may entail maintenance, minor/major repairs and replacements of school infrastructure, as specified in the General Upkeep and Maintenance (GU&M) Guidelines (§ 4.3.1).

School principals, on the other hand, are responsible for the professional management of the school as head. Oosthuizen and De Wet (2011:53) make a clear distinction between control and management by stating that control is the recommendation of policy and strategy, while management is concerned with their implementation. The SGB must, therefore, according to section 20(1)(e) of SASA, support the principal and teachers in their professional activities. This means that, according to section 16A(2)(a), the principal is not only responsible for the management of workshop machinery and infrastructure but also shares a responsibility with the SGB. Therefore, both the SGB and principal can be held accountable for the health and safety of teachers in FET Technology workshops.

- Responsibility of the State

Aspects relating to the responsibility of the State to fund public schools are stipulated in section 34 of SASA. Sub-section 34(1–2) declares:

> (1) the State must fund public schools from public revenue on an equitable basis in order to ensure the proper exercise of the rights of learners to education and the redress of past inequalities in education provision.
>
> (2) the State must, on an annual basis, provide sufficient information to public schools regarding the funding referred to in sub-section (1) to enable public schools to prepare their budgets for the next financial year.

Sub-section (1) clearly indicates that the State (Department of Education) is responsible to fund schools from public revenue (taxes). According to regulation 16.4.6 of the GU&M Guidelines, the National Treasury provides budget allocations for GU&M to the National

DBE. Provincial departments of education are responsible for managing the budget allocations, providing educational facilities and providing resources for capital improvement works (CIW). District offices are responsible for looking after and maintaining their own facilities and reporting to the Provincial DBE, which also assists them in dealing with their own CIW. Schools are responsible for looking after and maintaining their own facilities and reporting to the district office, which must also assist them in the undertaking of GU&M activities. Although the chain of funding from the State through all relevant departments are clear, they are not solely responsible for funding. Section 34 of SASA indicates the involvement and responsibilities of SGBs with regard to funding, which is discussed next.

- Responsibility of the SGB

According to Makoelle and Burmistrova (2020:06), the SGB is given full control over school finances as per sections 34 and 43 of SASA. Section 21 of SASA also makes provision for the SGB to apply for additional functions, like improving and maintaining school infrastructure, determining the extramural curriculum, purchasing educational materials or equipment, and paying for services rendered to the school. Mestry (2013:163) adds that the SGB is fully responsible for administering school funds and provincial departments of education have very little influence on a school's finances. SASA (1996) also clearly states that the SGB should take all reasonable measures to supplement sources provided by the State by initiating fundraising projects with the aim to improve the quality of education for its learners.

Regulation 2.4.4 in the Technology CAPS (2014, a–c) states that SMTs must provide sustainable support to Technology workshops and "should take note of the implications that the Technology workshop has on (sic) the budget of the school". The SGB should provide a working budget to Technology workshops to plan for the completion of learner practical assessment tasks (PATs), but more importantly, to allow for the replacement of tools and equipment as well as consumable materials. The responsibility of the SGB regarding maintenance is confirmed in CAPS (2014, a–c):

> … preventative maintenance of training equipment should take place on a regular basis, as well as provisioning for the inevitable failure of equipment, while a plan should also be in place to regularly phase out and replace obsolete equipment and tools.

Lastly, the SGB should also take note of regulatory standards concerning specialised personal protective equipment (PPE) for teachers, norms and standards regarding class sizes, and hazards in workplaces.

2.4.2.2 The Employment of Educators Act 76 of 1998

The EEA 76 of 1998 (1998(b)) aims to determine the conditions of employment, the discipline, the retirement and the dismissal of teachers (Rossouw*,* 2020:251). In the context of this study, the regulations pertaining to the workplace security of FET Technology teachers were highlighted. Section 8 of the EEA provides, amongst others, the following:

(1) that educators are guilty of misconduct if they-

(a) fail to comply with the Employment of Educators Act or any other statute, regulation or obligation relating to education;

(e) endanger their life and / or the life of others in their service because they disregard safety rules or regulations;

(i) fail to carry out a lawful assignment without good cause.

In light of the above, FET Technology teachers are therefore guilty of misconduct if they fail to comply with the EEA, the OHSA, the Driven Machinery Regulations 2015, or any other statute or regulation applicable to FET Technology workshops. They would also be guilty of misconduct if, in the performance of their duties, they endanger their own lives, the lives of their learners, or any other person's life by disregarding safety rules or

regulations, specifically regulations applicable to moveable infrastructure in their workshop like machinery (section 18(1)(a)). This Act also applies in cases where Technology teachers do not carry out legitimate instructions from the DBE, the principal, the SGB or the HOD without valid reason (section 18(1)(i)). The EEA 76 of 1998 requires FET Technology teachers to thoroughly familiarise themselves with the provisions set out therein to prevent possible dismissal or disciplinary action.

- Core duties

It is important to specify exactly what the term "lawful assignment" in section 11(1)(i) entails in the context of the workload, duties and responsibilities of FET Technology teachers. Although employees may be found guilty of misconduct in cases of refusal to abide by a lawful assignment prescribed in this Act, it should be read in conjunction with the Personnel Administration Measures (PAM). Rossouw (2016:64) mentions that PAM forms part of the EEA 76 of 1998 and includes terms and conditions of services related to FET Technology teachers who are employed by the DBE. PAM is not applicable to FET Technology teachers appointed to SGB positions. According to Chapter A of PAM, the core duties during a formal school day of a Post level 1 Master Teacher (Annexure A4) are "teaching duties, extra and co-curricular duties, administrative duties, interaction with stakeholders, communication and mentoring". For the purpose of this discussion, the focus revolves around teaching duties of FET Technology teachers. Teaching, according to Annexure A4 3(1), entails all duties associated with class teaching and academic-related matters, as well as practical teaching in workshops involving PAT.

It is crucial for FET Technology teachers to take cognisance of the provisions set out in the EEA 76 of 1998 and PAM, since these directly affect their workplace security during formal school days. It is common practice for school principals to give FET Technology teachers assignments related to maintenance and upkeep of school infrastructure due to their expertise in technical fields. These assignments include everything from electrical work and/or installations in school buildings, metalwork and welding of gates, security fences, sports equipment and facilities, maintenance of school vehicles, general

woodworking, carpentry, and building construction. Principals may be motivated to save money or time by assigning these tasks to FET Technology teachers instead of using an authorised professional service provider (PSP) as prescribed in regulation 12.2.2 of the GU&M Guidelines. The case of *Van der Merwe v Tom Naudé*, 1995 (Case Number: 6801/94) relates to this discussion – a matter that was initially settled out of court and was later ordered by the High Court of South Africa as a deed of settlement (Kruger, 2003:132). A Grade 10 learner from the Tom Naudé High School sustained multiple injuries while assisting his workshop teacher with electrical repair work on the school grounds. The learner was holding the ladder on which his teacher was standing at the time of the accident. The teacher accidentally fell off the ladder, landing with the ladder on top of the learner. In the process, the learner broke his left leg and also sustained knee, head and neck injuries. The injuries resulted in the learner using crutches for a long period of time, and he continued walking with a limp two years after the accident. The boy's father filed a claim for damages on his behalf. He argued that the teacher and principal were negligent, as his son was under their supervision and control on the day of the accident. The parties reached a settlement agreement before the court case began, after which the school paid R40 000 in damages (Rademeyer, 1995:6).

Although the extent of the teacher's injuries is not known, this case also demonstrates the legal implications of the safety of learners assisting teachers when doing maintenance or repairs as per assignment from the principal. Although teachers have a legal right to refuse such an assignment on the basis that it is not specified as a core duty in PAM, the tendency might be not to decline to comply with the request to prevent the perception of non-compliance with section 11(1)(i) of the EEA related to a "lawful assignment". Irrespective of the legal position, the refusal of teachers to comply may also lead to unpleasant working relations with the school principal, and many teachers are reluctant to place themselves in such a position. If a teacher decides to voluntarily accept the assignment and is seriously injured in the process, they would not be entitled to the benefits provided for and prescribed in section 22(4) of COIDA (see § 4.4.8) which states:

> for the purposes of this Act an accident shall be deemed to have arisen out of and in the course of the employment of an employee notwithstanding that the employee was at the time of the accident acting contrary to any law applicable to his employment or to any order by or on behalf of his employer.

Principals must therefore understand that unlawful assignments may result in them being personally liable under the common law as a result of the assignment not being part of the core duties of an FET Technology teacher in the course of their employment.

- Additional duties

There are instances where FET Technology teachers hold technical or trade qualifications and skills that are similar to PSP and can provide the same service (e.g., an Electrical Technology teacher trained as a qualified electrician). According to item C(7) of PAM, an FET Technology teacher may perform additional duties for payment by subjecting to some of the following provisions:

(i) That participation by educators is optional and not compulsory.

(ii) That the payment is linked to additional work requirements, and not usual duties which may or may not have been performed during this time.

(iii) That the educator has performed his/her duties at a satisfactory level and the tasks/assignments does not interfere with the normal duties of the educator. In this regard the principal/supervisor of the educator will need to sign a statement to this effect.

(iv) That the employer and employee sign a contract which would detail the nature of the task, the time frames, the deliverables, the authorization by the principal/supervisor, the remuneration, the time frames of the contract and any other relevant details.

(v) That the employer, at an appropriate level, verifies and signs off on all work, confirming that it has been done to the satisfaction of the employer.

(vi) That the employer designs the necessary criteria, forms and registers to manage the system.

Based on these provisions, principals, according to item C(7) of PAM, are obliged to follow nearly the same provisions for appointing an FET Technology teacher to perform additional duties for payment as in the case when services are acquired from a qualified PSP. The main difference, as stated in regulation 12.2.2(f) of the GU&M Guidelines, is that the PSP must provide a "guarantee of completed work, and would be liable for any faults, latent defects or system malfunctioning during the guarantee period or defects liability period, which should not be less than six (6) months".

In summary, FET Technology teachers should take cognisance of the EEA 76 of 1998 in conjunction with PAM to fully understand the implications these have on their workplace security when doing any work outside the scope of their employment. These implications may have serious repercussions in the case of incidents resulting in injury or death in the workplace.

2.4.2.3 The South African Council for Educators Act 31 of 2000

According to Roos *et al.* (2020a:61), the South African Council for Educators (SACE) Act "contains provisions on the composition of the council, disciplinary procedures that may be taken by the council, the Code of Professional Ethics, as well as fees payable to the council". Joubert and Prinsloo (2015:175) add that section 2 of this Act seeks to give direction to teachers in the following regard:

(a) to provide for the registration of educators;

(b) to promote the professional development of educators; and

(c) to set, maintain and protect ethical and professional standards for educators, by means of the functioning of the council.

Section 5(b)(i) of the SACE Act 31 of 2000 provides that SACE "with regard to the promotion and development of the education and training profession must promote, develop and maintain a professional image". According to section 5(c)(i), SACE must "compile and maintain a code of professional ethics" to promote the image and professionalism of the teachers.

2.5 Conclusion

In this chapter, the fundamental human rights as protected by the South African Constitution and the resulting rights contained in the Bill of Rights were discussed, since they are applicable to the workplace security of FET Technology teachers. These rights include the right to fair labour practices (section 23), the right to a safe and healthy work environment (section 24), and just administrative action (section 29).

The implementation of the values and rights entrenched in the South African Constitution by all the responsible stakeholders is essential to ensure that workplaces in FET Technology high schools are safe. The duties of these stakeholders are enshrined in national and educational legislation and provide guidance on funding and management of all aspects concerning infrastructure as well as labour relations concerning teachers.

CHAPTER 3: COMMON LAW IN WORKPLACE SECURITY OF FET TECHNOLOGY TEACHERS

3.1 Common law

Common law in South Africa can be defined as “uncodified legal traditions derived from the Roman-Dutch and English law of the seventeenth century which were developed and adapted in accordance with the South African legal background and culture” (Rossouw, 2016:29). Roos *et al.* (2020c:111) state that common-law principles are directly or indirectly embodied by many statutory provisions related to education.

For common-law principles to be valid, they must be consistent with the provisions set out in the Constitution. Section 24(a) of the Constitution states that all persons have a right to “an environment that is not harmful to their health or wellbeing”. This constitutional principle extends to working conditions in the workplace. Grogan (2001:56) claims that workers were exposed to unfair labour practices prior to the adoption of the South African Constitution in 1996 and that these practices were due to deficiencies in common-law employment contracts. According to Grogan (2001:56), a safe work environment is regarded as one of the three principal duties of an employer.

Common-law principles are also considered when determining employment contracts between an employer and an employee (Rutherford, 2009:37). Employment contracts contain the rights and duties of both the employee and the employer (Rossouw, 2004:21) and should therefore include the basic principle of providing a safe work environment. Failure to provide a safe work environment by the employer may result in injuries or other forms of damage and the employer being held liable to pay damages as compensation.

The following sub-sections focus on the elements of delict that are applicable to employers who fail to provide a safe work environment. In the current study, the application of delict stretches beyond the employment relationship and also applies to damage to learners and other role players in the school context. So, while educators as

employees can hold the employer accountable for injuries, they are also in a position where they should ensure a safe environment for learners.

While a wide variety of common-law principles are to a greater or lesser extent applicable to the context of workplace security, this study mainly focuses on the law of delict.

3.1.1 The law of delict

The law of delict in South Africa falls within the field of private law. According to Loubser *et al.* (2018:5), the Romans considered the law of delict as part of the law of obligations. In the case of a delict, someone is obligated to compensate another for the harm that was caused. Rossouw (2006:37) describes a delict as “an obligation that arises towards another party” and shows similarities to a contract. However, unlike a contract, there is no initial agreement between parties in the delict (Rossouw, 2006:37). According to Kruger (2003:92), someone (the offender, who, in a court case, is called the defendant) can be held liable for the damage to another person (the aggrieved party, in a court case, the claimant) as a result of their wrongful actions. As the defendant has an obligation to make good on the damage they have caused if found liable, the claimant has a corresponding right to claim compensation. The law of delict is known in the USA, Australia and other countries as tort law (Rossouw, 2006:33).

Neethling *et al.* (2015:3) state that a delict is not the only form of unlawful or impermissible conduct, and a clear distinction must be made between a delict and a crime. Apart from the law of delict, public law (criminal law) also takes note of a criminal offence, namely a crime. Rossouw (2006:37) mentions that it is here “where the state becomes involved as prosecutor, and the aim is punishment of the offender if found guilty”. To explain the fundamental differences between these two legal principles, they are schematically presented in Table 3.1.

Table 3.1: Distinction between a wrongful act and a criminal offence

Wrongful act	**Criminal offence**
Civil Law	Public Law
Law of Delict	Criminal Law
Wrongful act	Crime
Liability	Criminal offence
Wrongdoer / offender	Criminal
The aggrieved	The victim
The offender is held liable for damages	Criminal receives imprisonment or pays a fine
The burden of proof: On a balance of probabilities	The burden of proof: Beyond reasonable doubt
The aggrieved party institutes a claim	The State prosecutes the offender

Adapted from Roos *et al.* (2020a:94)

For the purposes of this study, the focus was primarily on the five fundamental elements of liability found in delict.

3.1.2 Fundamental elements of delict

According to Loubser *et al.* (2018:25), Neethling *et al.* (2015:6) and Roos *et al.* (2020c:111), five fundamental "umbrella" elements must be present before a person can be held liable for the damage another person suffers, namely conduct (or act), wrongfulness, fault, causation, and harm (damage). If any one or more of these elements cannot be proven, there is no possibility of a liability claim succeeding (Neethling *et al.*, 2015:6). Figure 3.1 presents a schematic representation of delictual liability.

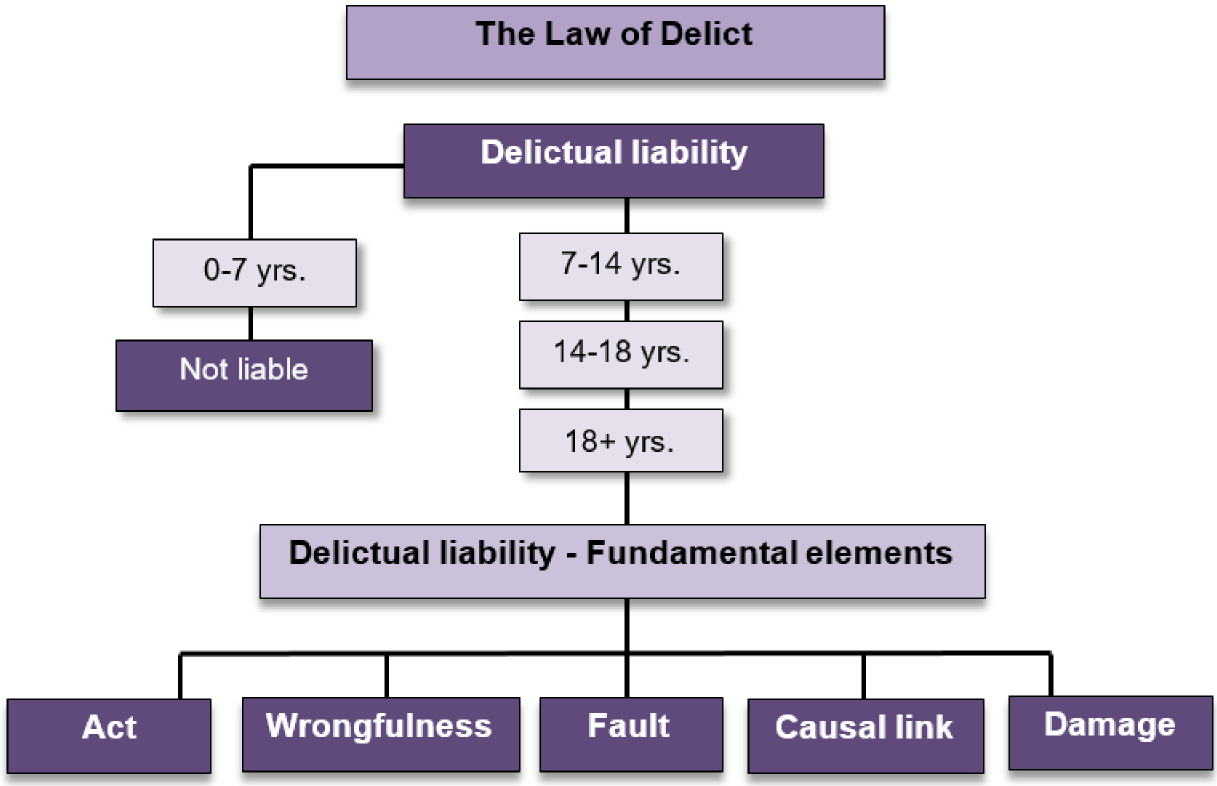

Figure 3.1: Delictual liability

3.1.2.1 Conduct as element of delict

According to Neethling *et al.* (2015:28), *conduct* is a voluntary human act (commission) or omission. An act in the context of delictual liability has the following characteristics:

- The action can be in the form of a positive physical act (*commissio*), or a failure to act (*omissio*);
- Only conduct by a natural or juristic person as opposed to that of an animal can be regarded as an action. It is accepted that a juristic person (a school or the State) can act through its organs or functionaries (teachers, the SGB, and officials) and can therefore be held liable for the actions of their organs, functionaries, or employees;

- Human behaviour or activity is regarded as an action if it is done voluntarily, which implies that the person must have the mental ability and be in the position to make a sound decision and adequately control their body movements (Neethling *et al.*, 2015:28).

3.1.2.2 Wrongfulness as an element of delict

The term wrongfulness can be described as "not according to the law", "unlawful", "unreasonable", and "wrong". Neethling *et al.* (2015:35) highlight that an action must be unlawful (wrongful) before liability can follow. Van der Walt (1993:559) adds that "wrongfulness is the infringement of a person's subjective right, or the non-compliance with a statutory duty". When such a right is violated, wrongfulness can be established.

Moreover, the question of wrongfulness involves a dual investigation. First, it must be determined whether the act caused an adverse effect, and second, whether it took place in an unlawful or unreasonable manner. In the law of delict, the wrongfulness of an action is always determined with reference to a specific consequence related to the damage or injury. When a consequence does not exist, wrongfulness cannot be proven (Neethling *et al*., 2015:37).

Certain aspects of wrongfulness have a direct bearing on the focus of this study and hold certain implications for teachers' workplace security. These are discussed next.

- Infringement of a right

According to Loubser *et al.* (2018:184), wrongfulness can "either focus on the infringement of a right (for example an employee's right to a safe and healthy work environment), or on the breach of a duty (employers' duty to ensure a safe and healthy working environment)". Wrongfulness is applicable both ways, since rights and duties are related.

- Violation of a legal duty

If it is found that a legal duty rests on an employer (DBE) to ensure a safe work environment for employees (FET Technology teachers) and they failed to fulfil this duty without any justification (and the failure resulted in harm), it can be regarded as unlawful (Neethling *et al*., 2015:59). If an employer, for instance, gives an unlawful order to a teacher who is in violation of their duties, or infringes on their rights, the employer acted wrongfully and may be held delictually liable. An example of this type of violation includes ordering teachers to work in unsafe or unhealthy work environments.

- Statutory duties of teachers

Legislation and subordinate legislation determine the duties and responsibilities of teachers. If teachers disregard these duties without any justification and their actions result in personal harm or harm to others, their failure in this regard is considered unlawful (Oosthuizen *et al*., 2020:190). One such example is the duty to report and act on all hazards and dangerous situations in the workplace. Failure to do so is a breach of statutory duty and can be considered wrongful.

- Prior hazardous actions

Persons act illegally when they create a new source of danger through a positive action (*commissio*) and then fail to remove the danger (*omissio*), with the result that harm occurs due to the failure (Neethling *et al*., 2015:62). If, for example, a Technology teacher turns on the workshop's main power supply or the power supply of a specific machine and then instructs a learner to clean the machinery, the teacher can be held liable if the learner is consequently injured.

- Absence of control over a dangerous object

Control over dangerous or potentially dangerous objects (such as workshop machinery) implies that a legal duty rests on the person in charge (teacher) to prevent someone else (learners) from being harmed in such conditions (Neethling *et al*., 2015:65). According to Loubser *et al.* (2018:128), this legal duty entails that the person in charge of such a dangerous object must exercise extreme caution.

- Relationship of trust between the parties involved

Oosthuizen *et al*. (2020:99) state that there should be a relationship of trust between employers and their employees. FET Technology teachers often perform their legal duties in environments hazardous to their health, and a legal duty rests on employers to act from a position of trust to ensure compliance to safety regulations. Therefore, wrongfulness in relation to workplace security can be assigned to both employers and employees, depending on their respective duties or rights in a specific context.

3.1.2.3 Fault as an element of delict

Fault is the reprehensible attitude or behaviour of someone who has acted unlawfully (Neethling *et al.*, 2015:133). Squelch (2001:145) defines fault as the "blameworthiness or the reprehensible state of mind or conduct of someone who has acted wrongfully". Neethling *et al.* (2015:133) state that fault in South African law is a prerequisite for someone to be held delictually liable. A schematic representation of fault as an element of delictual liability is presented in Figure 3.2.

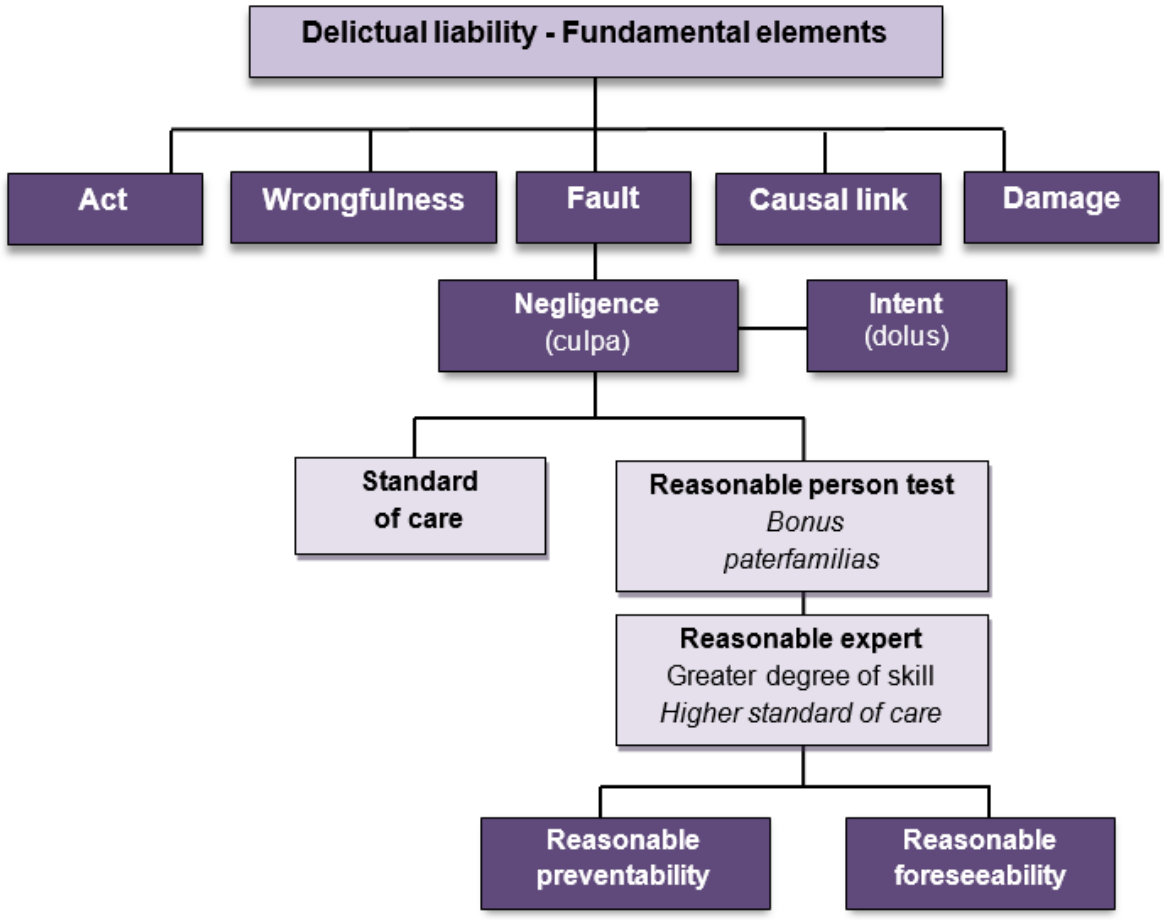

Figure 3.2: Fault as element of delictual liability

[Adapted from Loubser *et al.* (2018:144) and Neethling *et al.* (2015:133-184).]

- Accountability

Joubert and Prinsloo (2008:148) and Neethling *et al.* (2015: 136) state that before it can be determined whether a perpetrator's behaviour is accompanied by fault, it must be established that they are accountable. This means that their mental abilities must be of such a nature that fault (intent or negligence) can be assigned to them. Joubert and Prinsloo (2008: 148), Loubser *et al.* (2018:101) and Neethling *et al.* (2015:137) further claim that for a person to be considered not accountable, one or more of the following factors must be present: youthfulness; mental disease; illness and emotional distress; intoxication; and provocation. Teachers and learners are equally liable if their conduct is in violation of any OHS regulations that govern health and safety in school workshops (see § 4.4.6(a)). Secondary school learners would not be excluded from accountability merely on account of youthfulness. If it is found that a defendant was accountable at any time during the act which caused possible harm, it must also be determined if intent or negligence was present. Fault can manifest as either intent or negligence.

- Intent

Loubser *et al.* (2018:144) state that "a person will be at fault when he or she intends to cause another person harm, knowing that is wrong to do so". Boberg (1991:268) defines intent as a state of mind where the offender commits a certain act knowing that it is wrong and what the consequence would be. Intent therefore consists of two elements, namely wilfulness and awareness of wrongdoing (Neethling *et al*., 2015:139).

An investigation into intent is grouped into three forms (Loubser *et al.*, 2018:145) and is decided on individual, case-by-case basis, depending on the facts of the incident. The court must decide what the defendant had in mind when committing the act. According to Loubser *et al.* (2018:145), this includes direct intent (*dolus directus*), indirect intent (*dolus indirectus*), and acceptance of ensuing harmful consequences (*dolus eventualis*). It can be generally accepted that employers would not intentionally cause any harm to employees in their service, but they may do so indirectly (*dolus indirectus*) by not complying with the legal duty to ensure employees' health and safety. While the principles

of delict also apply to learners, the current study focused on employer accountability (liability). Vicarious liability of the employer (defined and discussed later) is also applicable to the employer–employee relationship where teachers are involved.

- Negligence

In the case of negligence, a person is blamed for an attitude or behaviour of carelessness, as they, by not paying enough attention to what they do, do not comply with the legally expected standard of care (Neethling *et al*., 2015:143). Loubser *et al.* (2018:153) add that in the case of negligence, “liability is based on the law’s disapproval of a defendant’s conduct”. According to Chamblin (1999:100), there are several definitions for negligence. These include failure to apply the standard of care as required by the particular circumstances during an action; failure to apply the standard of a reasonable person under the same circumstances to prevent harm to others or to protect others from danger; negligent conduct despite recognisable dangers; and actions that may result in an unreasonably high risk of harm. All the circumstances in a specific case must be considered before it can be determined whether a defendant’s actions were negligent (Neethling *et al.*, 2015:147). One factor to consider is things (for example, machinery in workshops) that are dangerous in themselves and require greater care than in ordinary circumstances.

- The reasonable person test

The reasonable person test is used to determine whether a person's action or omission was of such a nature that the damage or harm can be blamed on them by law (Brazier & Murphy, 1999:231; Oosthuizen *et al.*, 2020:102). This test is based on the following question: How would a reasonable person have acted in the same circumstances? Before this question can be answered, it must first be determined what the legal view of a reasonable person is. Loubser *et al.* (2018:154) state that "the reasonable-person criterion is an expression of what society expects of its members in their everyday life". According to Neethling *et al.* (2015:147), the reasonable person is a fictional person who is not extraordinarily gifted, careful or educated but is also not undeveloped, does not take indifferent chances, or shows no discretion. Harlow (2005:48) adds that the standard of behaviour of the reasonable person can also be measured against common sense and reasonableness.

To determine whether a person's conduct was negligent, it is measured against the conduct of a reasonable person. According to Botha *et al.* (2009:193), Joubert and Prinsloo (2008: 148) and Squelch (2001:145), two questions should be raised: Could the reasonable person foresee that harm could be the result of their actions? And could the reasonable person take steps to prevent the foreseeable harm? Loubser *et al.* (2018:157) further add that "one cannot establish negligence unless one can prove that the harm arising from the defendants' conduct was reasonably foreseeable". Hence, the reasonable person test for negligence consists of two components, namely reasonable foreseeability, and reasonable preventability.

- Foreseeability of harm

In a case of alleged negligence, the court asks the following question: How big was the chance that adverse consequences would occur? (Oosthuizen *et al.*, 2020:102). If there was a high probability that harm would occur, the reasonable person is expected to have been able to reasonably foresee it. For example, a school reports infrastructure damage

to a Technology workshop that poses a physical threat to all persons that use it. If a reasonable official of the DBE could have foreseen an accident due to the structural damage after the warning, it can be expected that the actual official could reasonably foresee that, not addressing the threat, detrimental consequences would follow. The DBE can therefore be found negligent for not acting to prevent harm from occurring.

- Preventability of harm

The second leg of the reasonable person test is the answer to the question as to whether the reasonable person in the same circumstances would have been able to prevent the occurrence of damage (Neethling *et al.,* 2015:154). The question is: Would a reasonable person have been able to prevent the harm? And the follow-up question is: Did the defendant take sufficient (reasonable) steps to prevent the occurrence of damage? For example, if the reasonable Civil Technology workshop teacher would have taken reasonable steps to remove loose sawdust lying around the table saw before learners worked on it, it can be expected that the defendant would have been able to prevent possible damage. Within reasonable limits, it is expected of Technology educators to foresee circumstances or situations that may cause harm and to act accordingly to prevent such circumstances or situations. The same principle would apply to the SGB in the case that they do not foresee that neglected maintenance on workshop machinery may lead to accidents or injury to teachers and the body does not act preventively by conducting inspections and ensuring a safe work environment.

- Reasonable expert

Teachers are regarded as professional persons, and due to their specialised training, they are expected to show a higher degree of care in the practise of their profession (Neethling *et al*., 2015:151). FET Technology teachers have studied for a qualification that enables them to work with dangerous machinery in workshops and understand the risks it presents to their own health and safety as well as that of the learners under their care. They are thus more knowledgeable about machinery and safety conditions in Technology

workshops than the ordinary (reasonable) “person on the street”. Therefore, the teacher’s action is no longer measured against the basic “reasonable person” standard but rather against the (increased) standard of the reasonable expert (Oosthuizen *et al*., 2020:104). According to Beckmann (1989:61) and Brazier and Murphy (1999:248), legislation and case law identify the expert (qualified teacher) as someone who is knowledgeable, skilled and competent. Furthermore, they know the nature of children as well as risks that may be present in their workplace. They are aware the fact that they must provide first aid in an emergency but that they may not give medical treatment or medicine to learners. They are also assumed to be knowledgeable about the legal provisions applicable to their profession. Keeping these expectations in mind, qualified teachers’ actions are measured against such higher standards of care when necessary to determine possible negligence.

- Vicarious liability

Vicarious liability is applicable to the employer–employee relationship and arises “where one person is indirectly liable, without fault on his or her part, for the delict of another” (Loubser *et al.*, 2018:33). According to Smit *et al.* (2020:200), certain requirements must be present for employers to be held vicariously liable. These requirements include that an employer–employee relationship must exist and the wrongful act by the employee must be conducted while acting within the course and scope of his or her employment.

3.1.2.4 Causation

A causal connection between an action and damage must be present to claim for delictual liability (Neethling *et al*., 2015:187). A person can therefore not be held liable for damage if causation cannot be proven. According to Loubser *et al.* (2018:102) and Neethling *et al.* (2015:188), there are two types of causality, namely factual causality, and legal causality.

Delictual liability is not established if it is not proven that the act of the defendant is the cause of the damage experienced by the aggrieved party. To determine whether there was a causal connection between the act and the harm to the plaintiff, available evidence

must be used (Neethling *et al.*, 2015: 189). Loubser *et al.* (2018:123) claim that “legal causation is used to limit any liability to those consequences that one can fairly attribute to the defendant”. The purpose of determining legal causation is thus to set boundaries for liability because in certain situations, there can be an endless series of consequences due to the defendant’s wrongful act (Neethling *et al*., 2015:201).

3.1.2.5 Harm

Loubser *et al.* (2018:75) state that “there must be some actual or potential harm” for a delict to arise. When claims for damages due to possible harm are pursued, “plaintiffs are seeking compensation or reparation for damage to, or the loss of harm resulting from a violation of their interest” (Loubser *et al.*, 2018:75). Figure 3.3 presents a schematic representation of harm as an element of delictual liability.

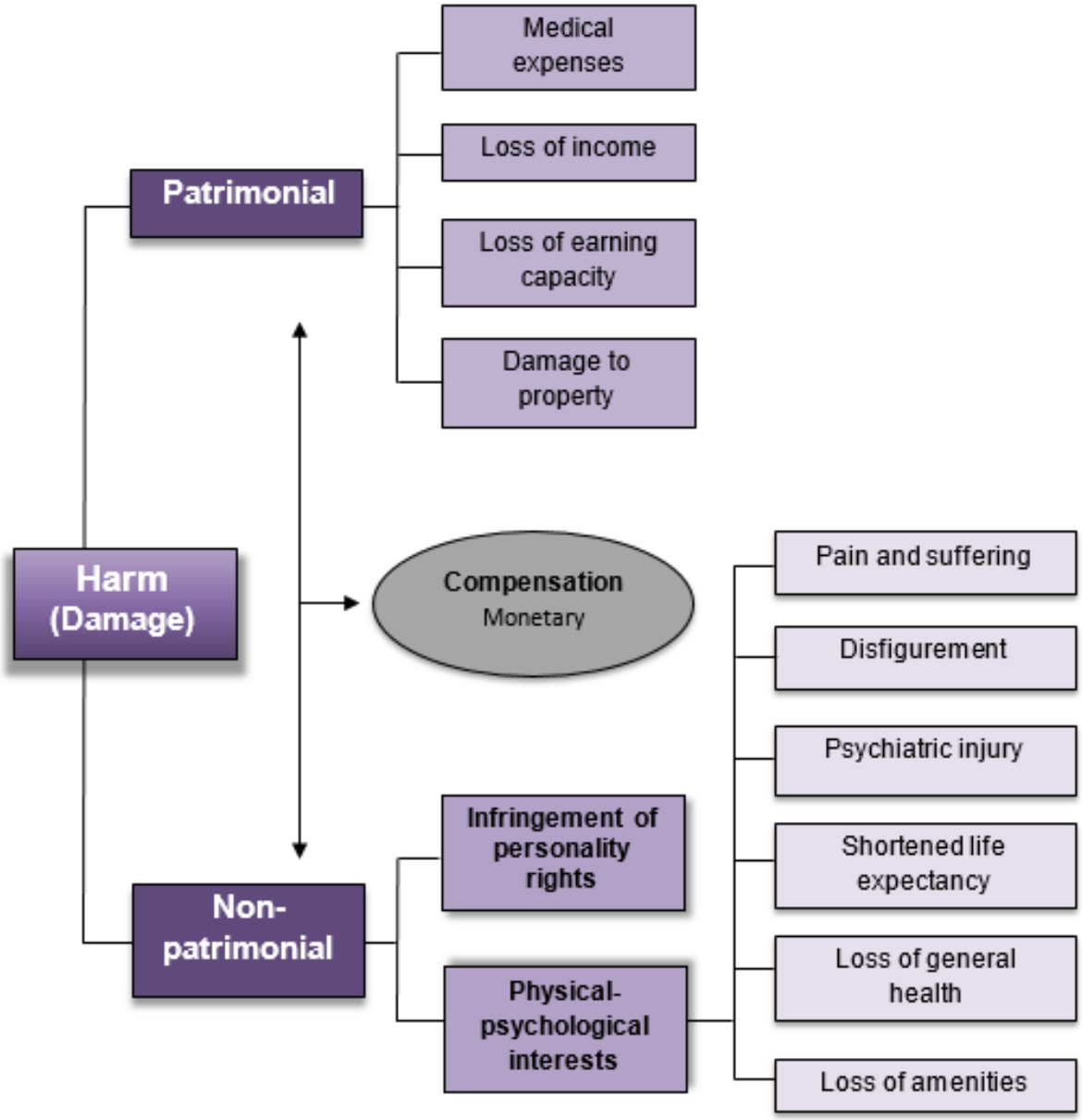

Figure 3.3: Harm as element of delict

[Adapted from Loubser *et al.* (2018:94), Neethling *et al*. (2015:227–272) and Oosthuizen *et al*. (2020:187).]

According to the law of delict, there are two forms of harm, namely patrimonial harm, and non-patrimonial harm. Harm is also referred to as damage.

(a) Patrimonial harm

Patrimonial harm can be defined as "the loss or depreciation of an asset or the occurrence or increase of a property debt" (Neethling *et al*., 2015:230). According to Oosthuizen *et al*. (2020:100), patrimonial harm falls into three broad categories, namely: (i) damage to property; (ii) medical expenses; and (iii) loss of income and earning capacity.

Medical expenses are expenses that must be incurred due to injuries sustained by a teacher because of the intentional or negligent conduct of the offender (in this case, the school, or the DBE). In cases where teachers sustain injuries or contract an occupational disease as part of their employment, they are entitled to compensation for patrimonial loss under COIDA 130 of 1993 as prescribed in Schedule 2 and 3 of COIDA (see § 4.4.8).

(b) Non-patrimonial harm

According to Loubser *et al.* (2018:83), non-patrimonial harm "entails all forms of harm that one cannot measure in monetary terms". Neethling *et al.* (2015:251) associate non-patrimonial harm with "interest of personality". Non-patrimonial harm can be divided into two categories, namely infringement of personality rights and physical–psychological interests. Compensation for the infringement of personality rights include bodily (physical–mental) integrity, dignity, privacy, identity, and reputation. Neethling *et al.* (2015:253) elaborate that physical–mental harm also includes when a person suffers psychiatric injury like PTSD.

Physical–psychological interests include pain and suffering, disfigurement, psychiatric injury, shortened life expectancy, and loss of amenities. Although the Compensation Fund does not compensate for pain and suffering, it does cover loss of movement or

use of one's body (see § 4.4.8). The element of harm and the process of determining compensation from the Compensation Fund are complex and controversial, as the case of *Jooste v Score Supermarket Trading (Pty) Ltd (Minister of Labour intervening) (CCT15/98)* [1998] ZACC 18; 1999 (2) SA 1; 1999 (2) BCLR 139 (27 November 1998) illustrated (see § 4.4.8). FET Technology teachers must therefore be aware of the limitations regarding compensation for non-patrimonial harm they may suffer in the course of their employment. They should not only consider taking additional steps to protect themselves with additional disability cover but also ensure they keep meticulous record in cases where negligence can be proven on the part of the employer. The preliminary report of the second draft of the Compensation Fund states that "employer negligence also include[s] a defect in the condition of the premises, place of employment, material or machinery in the business concerned where the employer was aware of the defect but still failed to correct it". This proof may entitle them to increased compensation under COIDA as per consideration of the Director-General of the Department of Labour (DOL). However, Loubser *et al.* (2018:553) acknowledge that "very few cases of negligence have been accepted".

3.2 Conclusion

This chapter provided a general conceptualisation of delictual elements as contained in the law of delict. The five fundamental elements of delict were discussed. Mention was made of the accountability of the State, harm as element in determining compensation for occupational injuries and diseases, and determining fault. The literature review indicated the importance of clearly defined responsibilities and task requirements for teachers and all stakeholders to ensure workplace security in FET Technology high schools.

In chapter 4, the regulatory framework for workshop infrastructure related to the workplace security of FET Technology teachers is analysed and discussed.

CHAPTER 4: REGULATORY FRAMEWORK FOR WORKSHOP INFRASTRUCTURE INFLUENCING WORKPLACE SECURITY OF FET TECHNOLOGY TEACHERS

4.1 Introduction

The statutory determinants regulating workplace security and how they apply to FET Technology teachers were discussed and analysed in the previous chapter. These determinants were human rights, education-specific legislation, and the common law. In this chapter, legislation pertaining to health and safety, general upkeep and maintenance of infrastructure and compensation for injuries and diseases are deliberated. To indicate the application of different legislation pertaining to workplace security specifically, a distinction is made between moveable and immovable assets. Moveable assets include legislation affecting all aspects surrounding workshop equipment and machinery in FET Technology workshops, while immovable assets include legislation relating to physical infrastructure (buildings) and related installations. Lastly, legislation relating to occupational injuries and diseases arising from workplace conditions in FET Technology workplaces are also reflected on.

4.2 Legislation regulating immovable infrastructure

To manage the risks associated with FET Technology workshops, it is imperative that legal measures are employed to safeguard the physical and psychological security of FET Technology teachers in their workplaces. The guidelines regulating immovable infrastructure (buildings and installations) that contribute to workplace security are discussed in this section.

4.2.1 Regulations relating to Minimum Uniform Norms and Standards for Public School Infrastructure, 2013

The norms and standards referring to infrastructure for public schools are defined in this regulation and should be read in conjunction with section 5A of SASA. SASA does not regulate all expected norms and standards that may affect security in the workplace. However, a few provisions in SASA that address the influence infrastructure may have on workplace security in FET Technology workshops are highlighted. Section 5A(1) of SASA states that the Minister of Basic Education may prescribe regulations for the minimum norms and standards for basic infrastructure and capacity at public schools. It is further stated that:

> 5A (2) The norms and standards contemplated in sub-section (1) must provide for, but not be limited to, the following:
>
> (1) (a) school infrastructure;
>
> (b) capacity of a school in respect of the number of learners a school can admit; and
>
> (c) the provision of learning and teaching support material.
>
> (2) (a) school infrastructure, the availability of—
>
> (i) classrooms;
>
> (ii) electricity;
>
> (iii) water;
>
> (vi) laboratories for science, technology, mathematics and life sciences; and
>
> (ix) perimeter security;
>
> (b) in respect of the capacity of a school—

(i) the number of teachers and the class size;

(iv) classroom size.

(c) in respect of provision of learning and teaching support material, the availability of—

(i) stationery and supplies;

(ii) learning material;

(iii) teaching material and equipment;

(iv) science, technology, mathematics and life sciences apparatus; and

(vi) school furniture and other school equipment.

The provided norms and standards in section 5A(2)(a–c) address school infrastructure with specific reference to Technology laboratories as well as capacity in the school and the provision of equipment and apparatus for Technology. The application of this sub-section to workplace security in FET Technology workshops is discussed in detail below.

(a) Infrastructure

Infrastructure refers to aspects such as classroom facilities and the availability of technology laboratories (Roos *et al.*, 2020a:101). According to Jurgens (2019:47), section 5A of SASA does not explicitly mention school workshops but only refer to Technology laboratories. Although section 5A(3) stipulates that the SGB must compile a policy to comply with the norms and standards of infrastructure of the school, Jurgens (2019:48) found that most SGBs are ignorant or unaware of the need for an FET Technology workshop policy, since it is not explicitly referred to in section 5A. The duties of the SGB in relation to infrastructure (movable assets) of FET Technology workshops were discussed earlier (§ 2.4.2.1).

(b) Capacity

Smit *et al.* (2020:318) describe the norms and standards for capacity as the teacher–learner ratio in the school and the number of learners in the class. Jurgens (2019:48) underscores that section 5A does not distinguish between the capacity of ordinary classrooms and FET Technology workshops. However, Annexure A of the regulations relating to Minimum Uniform Norms and Standards for Public School Infrastructure (hereafter referred to as regulations relating to Minimum Uniform Norms) specify the specific norms for minimum education areas. The minimum unit size prescribed for Civil, Mechanical and Electrical Technology workshops is 180 m^2 in comparison to a Technology classroom of 60 m^2. Furthermore, the teacher–learner ratio in the above-mentioned workshops is specified in the Technology CAPS Gr. 10–12 (2014:114) as a ratio of 1:15 for all practical work and should not be exceeded at any time. No mention is made in CAPS regarding the number of learners allowed per Technology subject for theoretical classes. The teacher–learner ratio for secondary schools in 2021 is 1:32.

(c) Support material, equipment and apparatus

According to Jurgens (2019:47), dangerous machinery, equipment, or apparatus (movable assets) associated with FET Technology workshops are not specified in section 5A, which may result in SGBs not taking cognisance of the requirements necessary for their maintenance and repair. Therefore, Jurgens (2019:324) proposed that section 5A be amended to include specific reference to school workshops, equipment and workshop machinery.

(d) Infrastructure building materials

The norms and standards for public school infrastructure also addresses building materials used in the construction of school infrastructure in regulation 4(3) by stating that as far as schools contemplated in sub-regulation (1)(b) are concerned:

> (a) and for the purposes of sub-regulation 1(b) (i), all schools built entirely from mud as well as those schools built entirely from materials such as asbestos, metal and wood must be prioritised.

It is partly due to regulation 4(3) of the regulations relating to Minimum Uniform Norms and section 5A of SASA regarding school infrastructure that a case was brought by *Equal Education and another v Minister of Basic Education and others* 2018 (9) BCLR 1130 (ECB). The case is commonly known as the "mud schools" case. The editor of the court transcripts summarised the case as follows:

> The applicant contended that the formulation of regulation 4(5)(a) gave the government, including MEC and Heads of Provincial Education Departments, a means of escaping the obligation to provide adequate school infrastructure necessary to fulfil the right to basic education. The court in its judgement ordered an amendment to sub-regulation 4(3)(a) read with regulation 4(1)(b)(i) of the regulations which state that it is inconsistent with the Constitution and invalid insofar as it omits to deal with schools which are built partly from mud, asbestos, metal and wood, and must within a period of three years from the date of publication of the regulations, be replaced. The word 'entirely' whenever it appears in regulation 4(3)(a) is struck out alternatively, the phrase 'Schools built entirely' is struck out wherever it appears in regulation 4(3)(a), and is replaced with the words 'classrooms built entirely or substantially.

The most important aspect that emerged from this case, for the purpose of this study, is that infrastructure "constructed entirely or substantially from asbestos", which may include FET Technology workshops, must be replaced within a period of three years from the date of the publication of the amended regulations. The State may no longer contest

compliance with these regulations based on the availability of resources or non-compliance of other government agencies jointly responsible for infrastructure.

The implications of the regulations of Minimum Uniform Norms for FET Technology workshops are important to note. Not only do the regulations specify the minimum workshop size and maximum teacher–learner ratio in FET Technology workshops but also regulations pertaining to maintenance and inspection of equipment. Schools and their respective SMTs as well as role players in the DBE responsible for infrastructure management must therefore ensure that these norms and standards are enforced. The workplace security of FET Technology teachers is directly affected by the application of these norms and standards, and non-compliance by the Department makes it liable under the common law.

4.3 Legislation regulating movable and immovable infrastructure

The guidelines regulating only immovable assets (buildings and installations) were discussed in § 4.3. Legislation – which include both moveable and immovable infrastructure – that contribute to workplace security is further discussed.

The case of *Equal Education and another v Minister of Basic Education and others* 2018 (9) BCLR 1130 (ECB) stressed the Department's legal duty to maintain school infrastructure as set out in the regulations relating to Minimum Uniform Norms and Standards and SASA 1996. The case focused mostly on the specific construction materials of school infrastructure, as stated in regulation 4(3)(a), and the timeframe in which replacement of the mentioned school infrastructure must take place, according to regulation 5A. The guidelines specifically applicable to the upkeep and maintenance of FET Technology workplaces are discussed below.

4.3.1 Guidelines for General Upkeep and Maintenance of Education Facilities, 2018 (GU&M Guidelines)

The General Upkeep and Maintenance (GU&M) Guidelines for Education Facilities were released by the National DBE in March 2018. The document has been issued in terms of SASA 84 of 1996, as amended, and aims to guide the "basic education sector, stakeholders, and service providers on the procedures and protocols for looking after and maintaining basic education facilities". These guidelines not only address the integrated approach to upkeep and maintenance of movable and immovable infrastructure in FET Technology workshops but also the roles and responsibilities of various role players involved at every level of the basic education sector. The specific implications of these guidelines for the workplace security of FET Technology teachers are henceforth highlighted.

4.3.1.1 Primary objectives

The primary objectives of the GU&M Guidelines are set out in regulation 3.1(a–e), which are "to guide the basic education sector on the approach to be adopted in looking after and maintaining its education facilities". The intended outcomes of the GU&M Guidelines as stated in regulation 3.2(d) are to ensure that teaching, learning and support functions take place in a safe, hygienic and conducive environment. According to regulation 4(a)(e), the scope of applicability of these guidelines includes all public schools as well as equipment used for specialised educational requirements such as in technical schools.

4.3.1.2 Purpose of guidelines

(a) Physical environment

The main purpose of upkeep and maintenance of facilities, according to regulation 7(a), is "to look after and maintain education facilities, creating and enabling an environment that is conducive and appropriate for the purpose the facility was designed for". In the

context of this study, the primary purpose of FET technology facilities is to facilitate formal practical assessment requirements as set out in regulation 5.3.1 of the Technology CAPS (2014).

A primary purpose, according to regulation 7(c)(ii), is "to ensure the well-being, occupational health and safety of facility users" and (v) "ensure compliance with applicable legislation such as the Occupational Health and Safety Act, National Building Regulations, and applicable municipal by-laws and ordinances".

The regulations thus state that all legal determinants of health and safety must be complied with, including upkeep, maintenance and inspections of machinery by all relevant stakeholders. These stakeholders include the teacher, school, works inspectors, and relevant departmental officials in the Infrastructure Unit of the DBE.

Sub-regulation 7(vi)(3) further states that the "purpose is to prevent financial and non-financial costs that might be incurred as they relate to loss of productive time due to breakdowns or unconducive working and learning environment".

It is important to note that facility users and harmful work environment referred to above are applicable to both learners and teachers. A harmful work environment includes all hazards found in FET Technology workshops – i.e., unsafe machinery, unsafe physical infrastructure, excessive dust, noise, toxic fumes, exposure to ACM, and all other factors related to well-being.

The application of the GU&M Guidelines in FET Technology workshops is of crucial importance for workplace security. They do not only regulate the process of upkeep and maintenance of movable and immovable infrastructure but also clearly state every key role player's function, duties and regulatory measures to be taken to ensure safer physical FET Technology workplaces. Compliance with this regulation would also lead to improved psychological security of teachers, which is discussed next.

(b) Psychological environment

The cost of insufficient upkeep and maintenance to the psychological workplace security of all teachers is acknowledged in regulation 7(c)(vi). It states that the lack of upkeep and maintenance of infrastructure can result in increased stress and anxiety levels, inability to concentrate, increased rate of sicknesses (e.g., respiratory illnesses) due to unsafe conditions, depression, and/or misplaced anger caused by non-operational machinery.

Not only the condition of physical infrastructure but also the legal consequences that may arise in cases of harm and liability weigh heavy on teachers' minds. Many articles on the psychological security of teachers began to appear in educational journals from 1930 onward (Adams,1999:7), with stress being identified as one the most prominent factors (Smith & Milstein, 1984:39–51). Selye (1974), who is coined the father of the study of modern stress, was the first to suggest that there is a distinct but equal correlation between the demands of a work environment and the individual's response (stress or not) to these demands.

Empirical research on occupational stress amongst FET Technology teachers were found to be limited (Pithers & Fogarty, 1995:3–14). Pithers and Fogarty compared occupational stress amongst a sample of Australian vocational teachers and a comparative business/professional group by using the Occupational Stress Inventory (OSI) test instrument. The OSI measured occupational stress, psychological strain and coping resources. The most important factors that were identified that had the greatest influence on occupational stress in these vocational teachers were role and work overload, with stress related to learner discipline the least. They concluded that "occupational work stress among technology educators was considered to be serious, which in turn had implications on their health and work performance" (Pithers & Fogarty, 1995:9).

Milner (1996) researched the sources of occupational stress as perceived by vocational and technical education teachers in the USA. He supported the view of Pithers and Fogarty (1995) by saying that "the sources of occupational stress experienced by vocational and technical education teachers have not been sufficiently identified nor documented". He found that teachers in vocational and technical education had "responsibilities that extended beyond the normal classroom, since practical training involve instruction in the use of sophisticated, and often dangerous, tools and equipment in often hazardous environments". Milner (1996:82–87) found that work overload regarding administration and time management contributed most to stress. This stress manifested as fatigue as a result. He concluded that school management must "become attuned to the issues related to occupational stress and make commitments to provide the necessary support to assist teachers alleviating this serious problem" (Milner, 1996:85)

Adams (1999) researched occupational stress amongst vocational teachers in the USA – which included agricultural, technology and trade and industrial education – across nine vocational areas. She cited Heath-Camp and Camp (1990), who researched problems among beginner vocational teachers but highlighted the difficulties of finding any other research related to stress in vocational teachers. Like Milner (1996) and Pithers and Fogarty (1995), she identified role overload as a contributing factor to occupational stress. She concluded by saying that school administrators should provide vocational teachers with up-to-date resources and technologies to improve, change or eliminate conditions that contribute to excessive stress levels.

Brewer and McMahan (2003) researched job stress and burnout among industrial and technical teacher educators in the USA and confirmed the findings of Adams (1999), Milner (1996) and Pithers and Fogarty (1995). They found that lacking organisational support from schools was a contributing factor to job stress and stated that burnout was influenced by the age and years of work experience of industrial and technical teachers.

All of the above researchers used common factors or stressors associated with general occupational stress amongst all teachers as starting point; however, none specifically addressed the unique circumstances, conditions and situations faced by FET Technology teachers in their workplaces. Boldrini *et al.* (2018) tried to address these issues amongst vocational teachers in Switzerland and identified several factors, with the most prominent factors related to workplace security being stressful relations with principals and school administrations as well as classroom management in cases of disruptive and challenging students. Boldrini *et al*. (2018) further stated that "classes were hard to manage due to the students' behavioural problems, [which] included acts of violence or aggressive behaviour". No mention was made of factors relating to physical infrastructure (machines and buildings) or any regulatory measures regarding health and safety or otherwise. It could thus be assumed that infrastructure and the legislation that governs it were not considered to be contributory factors to stress in this study.

Although the above-mentioned international studies focused on occupational stress of vocational teachers specifically, no comparative research could be found in the South African context. The aim of this study, however, was not to determine all the factors or variables that contribute to stress in the workplace but only to identify what situational stress (physical) factors may influence the psychological security of FET Technology teachers.

(c) Maintenance

Under the general GU&M Guidelines, regulation 10(3) distinguishes between two types of maintenance: corrective maintenance and preventative maintenance (see Figure 4.1). In this discussion, examples are given of instances where both types are applicable to workplace security in FET Technology workshops.

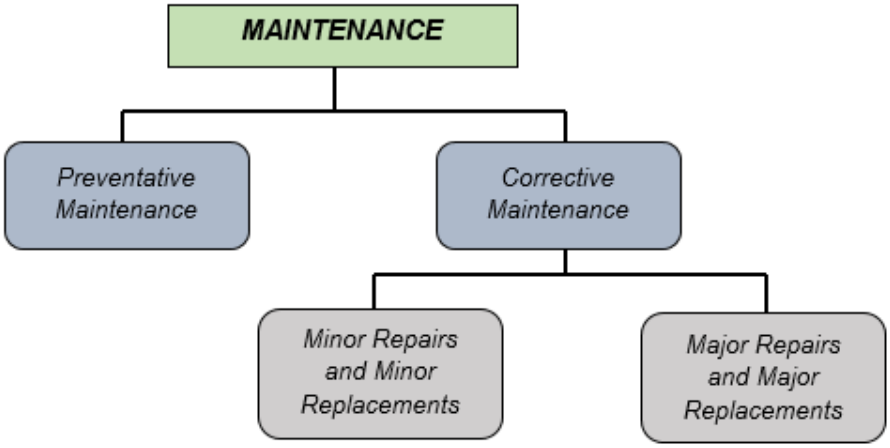

Figure 4.1: Classification of Maintenance Guidelines

(GU&M Guidelines, 2018:39)

Regulation 10(3)(d) describes preventative maintenance in the context of FET Technology workshops as a planned activity which typically includes scheduled maintenance during predefined intervals. The intention is to prevent system failure and may include inspections, testing, calibration, surface or component cleaning, and lubrication. Preventative maintenance is usually undertaken by the FET Technology teacher, another designated person tasked with maintenance, cleaners, or a PSP.

Furthermore, corrective maintenance is divided into two groups: minor repairs and maintenance, and major repairs and maintenance. Regulation 10(3)(e) describes minor repairs and maintenance as activities that are carried out on equipment or machinery after a total failure has occurred or functionality has been affected by breakage (i.e., broken blades, drill or cutting bits, sanding belts, malfunctioning parts, etc.). This maintenance is usually undertaken by the FET Technology teacher, a designated person tasked with

maintenance, or a PSP. The school usually provides the funding for this type of maintenance.

Major corrective maintenance usually involves the services of a PSP and is usually not undertaken by the teacher. According to regulation 12.2 of the GU&M Guidelines, such maintenance includes instances where "there was an emergence of failures or total breakdown due to normal wear and tear, accidents, system malfunction, incorrect operations, human error, or abuse". Failures could also be attributed to instantaneous or gradual deterioration over time. It is usually these types of repairs that are problematic for some schools due to the scarcity of PSP with the required expertise and access to spare parts. These major repairs are also expensive and time-consuming. Regulation 12.2.2 declares the duties of the Department regarding service providers as follows:

> In order to manage costs, and approve service providers the department should compile a database. Work must be approved and/or certified by a professional in the built environment, or Works Inspector. The service provider has to provide a guarantee for his/her work and would be liable for any system malfunctioning for no less than six (6) months.

The implications of regulation 12.2.2 for FET Technology workshops are that the Department is responsible for the appointment of a PSP as well as ensuring that the services they provide comply with applicable legislation, such as the OHSA. Inspections of services must be conducted by works inspectors for approval, and the PSP would be held liable for services rendered for a period of six months. If the Department does not adhere to these regulations, they can be held liable for damages under the common law. In the context of this study, major repairs and maintenance may include all movable (machinery and equipment) and immovable (building) infrastructure.

(d) Asbestos

The regulations to ban asbestos in South Africa came into effect in 2008. They gave effect to prohibition of the use, processing and manufacturing of asbestos and asbestos-containing materials (ACM). Although asbestos was effectively banned, it polluted the environment with hazardous materials that are still a health threat today. Several FET Technology workshops or classrooms were constructed of asbestos or ACM in the previous dispensation due to its good insulating properties and low cost. These workshops are still found in various provinces in South Africa, including the North West province. Some are fully or partially constructed with ACM. According to Grant and Otter (2017), a National Economic Development and Labour Council (NEDLAC) research paper found that "as many as 80% of state buildings contain asbestos materials and products, including insulation materials used for insulating and hot water piping". The general considerations in management and maintenance of asbestos-built structures (ABS) are discussed in regulation 13.1 of the GU&M Guidelines and should be read in conjunction with and construed in the context of the Asbestos Abatement Regulations 2020 (§ 4.4.4). The DOL, as part of the OHSA, implemented the new Asbestos Abatement Regulations in 2020. The latter applies to the DBE as an employer of thousands of teachers and other education staff (Grant & Otter, 2017). According to Rees (2007), the DBE has a legal duty as an employer to enforce these regulations in the interest of occupational health. Grant and Otter (2017) state:

> the Department must take steps to identify the risk of asbestos in school buildings, compile a written inventory, inform health and safety representatives, inform any person who will be doing work at the school or is likely to disturb the asbestos, regularly assess the condition of the asbestos containing structures and maintain the asbestos in a good state of repair or remove it if necessary.

Although the Department recognises that ABS should be high priority, it was only after the verdict of *Equal Education and another v Minister of Basic Education and others in 2018 (9) BCLR 1130 (ECB)* that the court ordered the Department to amend section 5A of SASA to “classrooms built entirely or substantially” of asbestos and that these must be replaced within three years in accordance with the Regulations, the National Building Regulations, SANS 10400, and the OHSA 85 of 1993.

The implications of this court case for FET Technology workshops are that the Department must remove all fully or partially constructed asbestos workshops within the prescribed timeframe. This eliminates the threat that asbestos pose to not only learners' well-being but also the workplace security of FET Technology teachers. This also limits the chances of contracting an occupational disease associated with asbestos exposure in the workplace.

(e) Works inspectors' involvement

The National DBE receives funding from the National Treasury, which, in turn, funnels it to the provincial education departments, district offices, circuit offices, and school and boarding facilities in the respective provinces, as illustrated in regulation 16(c)) of GU&M (2018). The Department of Public Works has a transactional relationship with the provincial education departments, since it is also funded by the National Treasury. This transactional relationship is important to highlight in the scope of this study, since most problems affecting workplace security are directly influenced by the involvement of works inspectors of the Department of Public Works housed at district offices.

The absence of regular inspections by works inspectors in FET Technology high schools has been identified as problematic by Jurgens (2019:318), Kruger (2003:13) and Oosthuizen (2011:167). Findings by Jurgens (2019:318) suggest that inspections were not conducted on machinery used in Mechanical Technology workshops as per

regulations. Furthermore, teachers accused the Department of not adhering to section 8(2)(a–b) of the OHSA, which requires regular inspections on workshop machinery. Kruger (2003:13) supports the findings and adds that machinery should be inspected regularly to create a safe work environment for teachers and learners. Although Jurgens (2019), Kruger (2003) and Oosthuizen (2009) focused primarily on the required inspection of machinery (movable infrastructure) inside FET technology workshops, the duties of works inspectors also include inspecting all risks associated with immovable infrastructure like school buildings. It is important to note that works inspectors specialise in certain fields according to their technical or engineering qualifications in mechanical, electrical technology, or building construction, and therefore can only conduct inspections in their respective fields.

The duty and responsibility of works inspectors to conduct safety inspections are affirmed in section 29(1–4) of the OHSA and include special powers to impose prohibitions on any person for non-compliance of the Act (section 30). The stipulated minima ratio for works inspectors proposed by the GU&M Guidelines are "1 x Works Inspector per 100 education facilities to be looked after by him/her". The role and responsibilities of works inspectors in relation to the GU&M Guidelines are stipulated in regulation 17.1 and include:

> … assisting the FMC with assessment of GU&M needs of their education facilities; assess the work carried out by service providers on repairs and replacements and sign them off, recommending payments towards such services and assess the materials earmarked to be declared as condemned and obsolete and sign them off as decommissioned.

Except for inspections as per regulations on movable infrastructure (machinery) in FET Technology workshops, works inspectors are also responsible to inspect buildings (immovable infrastructure) and risks associated with asbestos, structural defects caused by natural disasters and all building regulations as included under the OHSA 85 of 1993.

It is important to note that various circumstances may contribute to the reported lack of inspections by works inspectors (see § 6.7.2.1) and such a lack may not only be attributed to perceived incompetence or laziness. The North West Provincial Education Department was placed under administration in 2018 and underspent infrastructure project funding of R225 million in 2019/2020 (Cilliers, 2020). These factors were mentioned in the School Infrastructure 2019/20 Mid-year Report (PMG, 2020) to have affected appointing and retaining the services of works inspectors, which, in turn, could have affected inspections in North West schools.

The importance of works inspectors as stakeholders in ensuring and maintaining the workplace security of FET Technology teachers cannot be overemphasised. The legal duty placed jointly on the Departments of Basic Education and Public Works to appoint officials who can properly manage funding, supply an adequate number of qualified works inspectors with sufficient resources to conduct inspections, and comply with all regulations pertaining to movable and immovable school infrastructure should be strictly enforced. This is not only instrumental in ensuring the workplace security of FET Technology teachers but also the security of all learners under their care.

In summary, the GU&M Guidelines are instrumental in providing guidance to the basic education sector, stakeholders and service providers on the procedures and protocols for ensuring workplace security in education facilities used by FET Technology teachers.

4.4 Legislation regulating health and safety in the workplace

The OHSA 85 of 1993 is supported by subordinate legislation, regulations and codes of practice which provide guidelines on health and safety in all workplaces, including FET Technology workshops. There are 21 sets of regulations that form part this Act, and the specific regulations pertaining to this study are discussed below.

4.4.1 Occupational Health and Safety Act 85 of 1993

The purpose of the OHSA is contained in the long title as follows:

> To provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of operating equipment and machinery; the protection of persons other than persons at work from threats to health and safety arising out of or in connection with the activities of persons at work; establish an Occupational Health and Safety Advisory Board; and provide for matters connected therewith.

One focus of this study was to determine how or if the implementation of safety control measures contribute to workplace security, and this Act and the regulations pertaining to it are paramount in creating and maintaining a safe workplace for FET Technology teachers. Kruger (2003:15) argues that OHSA does not provide for workplaces reserved exclusively for teaching and learning purposes at schools. However, Roos *et al*. (2020a:82) are of the opinion that it "applies to schools equipped with workshops or any other facilities that may pose a danger to the personal safety of employees or others". According to Jurgens (2019:126), it is because of this disparity that the Act provides guidelines and measures to be taken by all employers to ensure the health and safety of their employees, irrespective of varying workplace classifications.

4.4.1.1 Difference between occupational health and occupational safety

Occupational health and safety are regulated by the OHSA 85 of 1993. It is necessary to distinguish between the meanings of the two terms to indicate the different applications and requirements applicable to FET Technology teachers.

Occupational health, according to Adams and Mitchell (2013:2), refers to the identification and control of the risks and hazards in the workplace which concern employees' overall

well-being. These hazards may lead to work-related or occupational diseases and illnesses and must be proactively identified by employers in order to implement health programmes to improve employee health. Hazards include physical substances such as excessive noise, dust, toxic fumes, asbestos and unsafe immovable infrastructure as well as emanating psychological factors related to these hazards.

According to Adams and Mitchell (2013:2), occupational safety deals with the causes of accidents at work and ways to prevent unsafe conditions in the workplace through the implementation of safety measures. These measures include the implementation of regulations relating to safety policies and committees, inadequate or defective machinery, failure to comply with safety rules, and all regulations applicable to movable and immovable infrastructure.

Occupational health and safety therefore encompass both the psychological and physical well-being of workers in the workplace.

4.4.1.2 Duties of employers

The OHSA specifically addresses the duties and responsibilities of employers, employees, and other persons in the workplace. Section 8(1) of the OHSA states that “employers have a legal obligation to be responsible for and maintain, as far as is reasonably practicable, a workplace that is safe and without risk to the health of his employees”. Moreover, in terms of section 8(2)(d), the employer must establish the hazards to the health and/or safety of persons in the following circumstances:

- any work that is performed;
- any article or substance that is produced, processed, used, handled, stored, or transported;
- any plant or machinery that is used;

- what precautionary measures should be taken with respect to such work, article, substance, plant, or machinery in order to protect the health and safety of persons, and providing the necessary means to apply such precautionary measures.

According to Kruger (2003), in the context of FET Technology workshops, section 8(1) refers to the employer as the State or as delegated authority, the DBE and schools. Section 13(a–c) states that the employer has a legal duty to inform persons working on the premises of possible health and safety risks. These risks are not limited to the work areas inside workshops but the physical building as well. Section 14(a) states that employees are responsible for their own and other persons' health and safety through their actions and oversights. Section 14(c) further states that employees must obey lawful orders regarding health and safety from their employer and are, according to section 14(d), obligated to report any hazardous situations in the workplace to the relevant authorities. In terms of section 17(1), every workplace with more than 20 employees is obligated to select and appoint a health and safety representative. Darlow and Louw (2011:23) state that safety representatives must have sufficient knowledge about workshop environments and machinery. Each school must establish a health and safety committee, whose duty it is to address the necessary statutory and regulatory requirements. Section 19(4) states that the health and safety committee shall hold meetings as often as may be necessary, but at least once every three months, at a time and place determined by the committee. The functions of health and safety representatives in the health and safety committee, according to section 18(1), may include monitoring and addressing OHS concerns of facilities. They also include the examination of complaints by any employee relating to that employee's health or safety at work.

The implementation of the above-mentioned regulations in the context of Technology workshops is crucial to ensuring a safe work environment. Section 24(1)(a) describes the

circumstances under which certain incidents must be reported to inspectors. These incidents include, among others:

> [a person using machinery in the workplace] dying, becoming unconscious, suffers the loss of a limb or part of a limb or is otherwise injured or becomes ill to such a degree that he is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or to continue with the activity for which he was employed or is usually employed.

Section 29(1)(a–i) describes the functions of inspectors and elaborates in section 30(1) on the special power of inspectors when performing their functions under this Act.

Although Kruger (2003:15) argues that this Act does not primarily provide for premises used exclusively for teaching purposes in schools, Roos *et al.* (2020b:20) claim that this Act also applies to FET Technology high school workshops. Even though the Act specifically refers to health and safety in the use of machinery and hazardous substances, it also extends to all school infrastructure such as buildings, staircases and storage facilities (Roos *et al*., 2020a:82).

4.4.2 Driven Machinery Regulations, 2015

These regulations were conveyed from the Machinery and Occupational Safety Act promulgated on 26 February 1988. The Minister of Labour amended this regulation in 2015. This is aligned with the principles contained in the OHSA (1985). Regulation 2 states that “these regulations shall apply to the design, manufacture, operation, repair, modification, maintenance, inspection and testing of driven machinery”. The regulation mentions precautions that specifically address, among others, driven machinery that is commonly used in all Civil, Mechanical and Electrical Technology workshops. Several studies on the use of driven machinery in FET Technology workshops and the danger it

poses to teachers have been conducted. For the purposes of this study, all driven machinery used in FET Technology workshops were listed according to subject area, since it can be assumed that all driven machinery may lead to accidents and injuries. However, the specific machinery that leads or contributes to diseases as prescribed in Schedule 3 of COIDA 130 of 1993 is emphasised. The main focus of the discussion is on the health risks that certain machinery poses to the workplace security of FET Technology teachers.

Driven machinery commonly found in all three Technology specialisation fields include sanding machines (metal and wood), grinding machines, air compressors, and all other revolving machinery not specifically specified in the regulations. Machinery commonly found in Civil Technology workshops includes circular saws, band saws, wood planing machines, wood morticing, mixing, agitating, or similar machines. Mechanical Technology workshops comprise machinery like shears, guillotines and presses, rolls and calenders, slitting machines, lifting machines, and lifting tackles. However, regulations on certain machinery, such as drills and lathes, artificial ventilation systems (§ 4.4.6) and welding, flame cutting and soldering machinery (§ 4.4.7), were omitted from this regulation. Therefore, the legislative intent must be followed carefully so that the regulation is read as all-encompassing of machinery in general (Darlow & Louw, 2010:137). Figure 4.2 below indicates the different machinery, tools and equipment specified by all regulations (§ 4.3.2, 4.3.3 and 4.3.6) as used in the subject fields of FET Technology.

All the driven machinery mentioned in the regulations may contribute to occupational injuries and diseases as listed in Schedule 2 and 3 of COIDA 130 of 1993. The injuries and diseases related to the use of specific driven machinery are discussed in § 4.4.8.

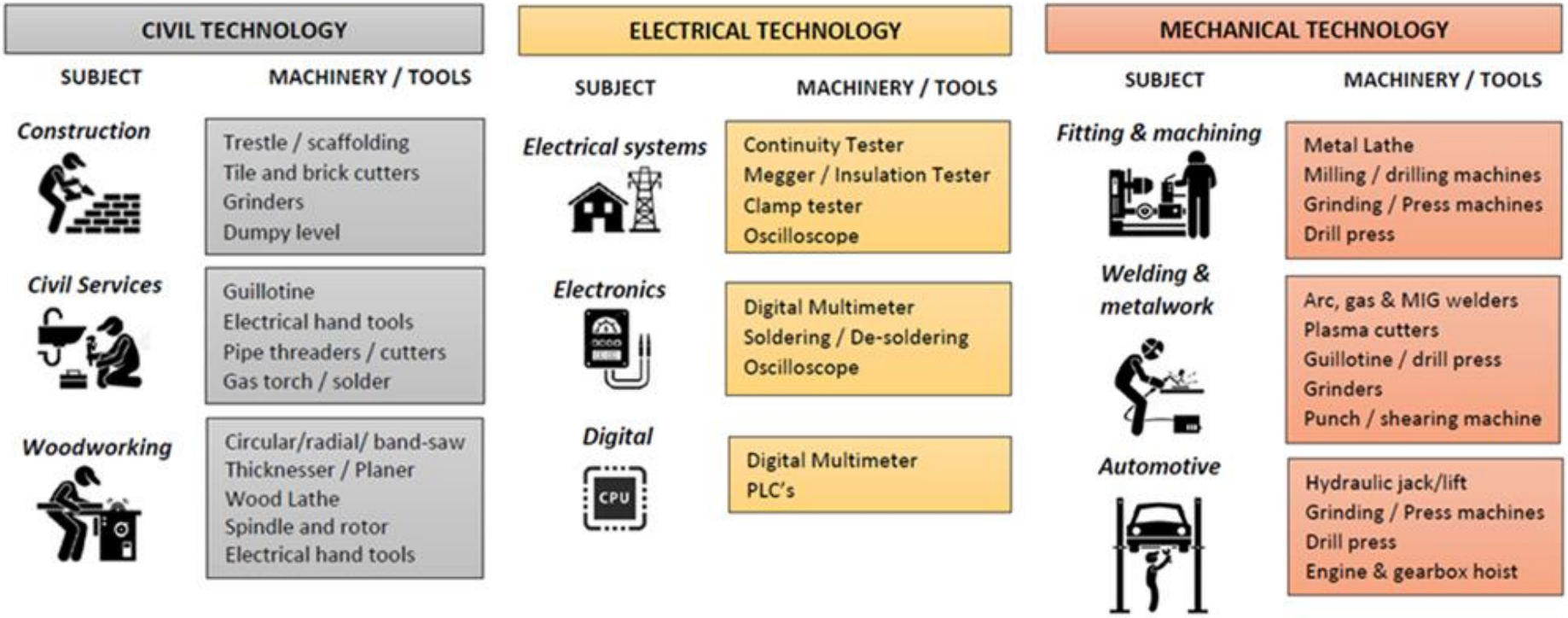

Figure 4.2: Driven machinery, tools and equipment utilised in FET Technology workshops

(Adapted from DBE (2015:61); www.dreamstime.com/free-photos; http://www.clipart.com.)

4.4.3 Electrical Installations Regulations, 2009

Regulation 2(1) of the Electrical Installation Regulations 2009 states that it is applicable to all users of electrical installations and approved inspections authorities, suppliers, electrical contractors, suppliers of materials, and other electrical articles. As the availability of three-phase, four-wire electricity supply is considered essential in Technology workshops, according to CAPS (2014), all fixed and portable machinery should conform to the specifications set out in this regulation. This regulation is of particular importance to all stakeholders responsible for the provision, installation, inspection and certification of all new machinery delivered to FET Technology workshops as stated in the GU&M Guidelines. The stakeholders include departmental officials tasked with infrastructure, PSP, works inspectors, and schools.

According to Regulation 6(1), the responsibility for electrical installations rests on "the user of an electrical installation, and shall be responsible for ensuring the safety, safe use and maintenance of the electrical installations he uses…" The applicable user in this case would include the school and the SMT. Regulation 10(2–3) further states that "every user shall have a valid COC in respect of every such instillation, and as the case may be shall on request produce the certificate of compliance for that installation to an inspector or inspection authority". Darlow and Louw (2011:284) noted that the connection of electrical machinery at the supply terminals (i.e., distribution board) also form part of electrical installations. Regulation 12(3) provides more clarity by stating that "the issue of a valid COC after completion of the work is the responsibility of the person who undertakes to do the electrical installation". This includes all appointed PSP rendering services to FET Technology high schools. Darlow and Louw (2011:282) highlight the misconception that electrical installations can only be carried out by accredited persons. However, any competent person may perform electrical installations (i.e., Electrical Technology teachers qualified as electricians) provided that "the completed work still has to be verified, certified, tested and inspected by the appropriate accredited person". The responsibility of works inspectors with regard to these regulations is self-explanatory.

Schools are therefore responsible to comply with this regulation by ensuring that all current and newly installed electrical installations are issued with a valid COC and that the certificate is available on request in the event of inspection by a works inspector or inspection authority (Darlow & Louw, 2011:283).

4.4.4 Asbestos Abatement Regulations, 2020

The new Asbestos Abatement Regulations 2020 – which repeal the old Asbestos Regulations 2001 – was published by the Minister of Employment and came into operation on 10 November 2020. The Asbestos Abatement Regulations introduce several new duties for employers whose employees may be exposed to asbestos dust during the course and scope of their employment.

According to Collier *et al.* (2020), the new duties for employers entail the keeping of an inventory, conducting risk assessments, and implementing a management plan. Regulation 4 and 5 require employers to employ a competent person to compile an asbestos inventory and risk assessment. Regulation 5(7) states that the inventory and risk assessment must be reviewed by an approved inspection authority (AIA) at intervals not exceeding six years. Regulation 6 further require employers to create a management plan and employ a competent person to address key issues like the reduction of risk in cases of emergencies (i.e., broken asbestos panels), repair work and removal work. Diseases related to exposure to asbestos or asbestos dust are listed under Schedule 3 of COIDA (130 of 1993), which refers to, among others, asbestosis, lung cancers, and other forms of lung disease.

(a) Asbestos in schools

The problems related to asbestos in public schools have been researched internationally to a great extent by Cross (1986), Lang (1985), Stanley (1989) and Strohmeier *et al.* (2010). Grant and Otter (2017) state that "there were 224 mesothelioma deaths recorded between 2003 and 2012 among teaching professionals" in the UK, even though "the UK's department for education noted that

it is difficult to directly link a death from an asbestos-related disease and exposure in a specific occupation because the disease takes such a long time to develop”. The department continued by saying that “there have been a few compensation cases where British courts have ruled that people may have contracted mesothelioma after being exposed to asbestos fibres at school”.

On the contrary, Grant and Otter (2017) reported:

> no recorded cases of mesothelioma have been reported of teachers as a result of exposure to asbestos in schools in South Africa, but attributed it to the absence of information regarding the source of exposure to asbestos in the National Cancer Registry.

Grant and Otter (2017) elaborated that “the definitive link between asbestos exposure and cancer” was affirmed as early as 1960 through research conducted by Dr Christopher Wagner from the National Institute for Occupational Health (NIOH). Although the research focus of Grant and Otter (2017) was mostly on asbestos in South African schools in the Gauteng province, the use of asbestos panelling in the construction of Technology classrooms and workshops is commonplace across the country. In research conducted by the NIOH (Phillips *et al.*, 2007), it was found that buildings containing asbestos posed a minimal threat to the occupants’ health, but the contrary was true in cases where ACM structures were broken or in disrepair. This affirms that asbestos infrastructure with broken or dilapidated panels, like some FET Technology workshops, should be classified as a priority during major maintenance or repair due to the elevated risk it poses to occupants. The DBE adopted regulations in 2013 stipulating that all schools made of asbestos had to be replaced by 29 November 2016. The DBE did not meet the deadline as per its own regulations.

(b) Duty of employers regarding asbestos

The South African lobby group *Equal Education* started a campaign against the DBE in 2017 to demand that the eradication and replacement of all classrooms built

substantially from asbestos were prioritised (Groenewald, 2018). This campaign ultimately led to the court case (see § 4.2.1(d)) of *Equal Education and another v Minister of Basic Education and others in 2018 (9) BCLR 1130 (ECB).* The Asbestos Abatement Regulations of 2020 apply to every employer where persons may be exposed to asbestos dust while carrying out work at their workplaces (regulation 2(1)). Regulation 4(1) states that employers must obtain the services of a competent person to keep an asbestos inventory and ensure that all materials identified as, or assumed to be, ACM, as contemplated in regulation 3, are entered into and kept at the workplace or premises. Regulation 4(2) is applicable to the SGB and states the following:

> … if there is any disagreement as to whether any substance is in fact asbestos, the health and safety representative, health and safety committee or a person nominated by the employees may require that a sample of that substance be taken and definitive identification of the substance be determined by an approved inspection authority, provided that the cost of the identification is borne by the employer.

Regulation 7(2) addresses the responsibility of employers to ensure that employees are adequately and comprehensively informed and trained on both practical aspects and theoretical knowledge of the contents and scope of these regulations. Regulation 9(1) declares that the employer must control the exposure of persons to asbestos if levels of exposure were determined to be at or below the Occupational Exposure Limit (OEL). Sub-regulation (2) states that these control measures "include limiting the number of persons exposed, period of exposure and limiting the amount of asbestos dust, if reasonably practical". Regulation 23(a) further stipulates that an employer must keep records of all inventories of asbestos in place, asbestos risk assessments, air monitoring results, medical surveillance reports, disposal certificates and clearance certificates as required by regulations.

The dangers associated with removing or demolishing asbestos are strictly regulated, and registered asbestos contractors are legally obligated to produce a clearance

report from an AIA to confirm that facilities are safe to use between phases of demolition or after demolition has taken place. The AIA is appointed by the DOL and ultimately determines the risk of asbestos exposure. Regulation 13 of the Asbestos Abatement Regulations (2020) describes the standardised procedures to be followed. If no clearance report was issued after the first phase was completed, it is possible that teachers and learners may have been exposed to ACM. The SGB must ensure that regulations governing the demolition of asbestos infrastructure are strictly followed and that proper record is kept.

Regulation 13.2.3 of the GU&M Guidelines states that intervention should take place in the form of medical surveillance in the case of high-risk exposure. Myeni and Ngcobo (2020) highlight that the Department as employer is responsible for ensuring a safe work environment by replacing and/or maintaining ACM structures in FET Technology workplaces. They add that the Department must implement a medical surveillance programme to test and monitor teachers who have been exposed to high levels of asbestos. In case of non-compliance with these regulations, the State is liable for damages under the common law. Such a case may also result in compensation claims under COIDA 130 of 1993. As noted by Grant and Otter (2017), it would unfortunately be difficult for teachers to prove causation for harm related to asbestos under the common law because it is nearly impossible to prove a direct link to an asbestos-related disease without records of risk assessment or medical surveillance.

The new Asbestos Abatement Regulations (2020) have become significantly more applicable to FET Technology workshops built of ACM and the teachers who work in them daily. Employers are now obligated under the new regulations to take additional measures to ensure that employees are protected from asbestos – which include stricter record-keeping, medical surveillance in cases of contamination, and shorter time frames to replace asbestos-containing buildings. Teachers and their SMT must ensure that these regulations are strictly followed to ensure safe and healthy workplaces.

4.4.5 Environmental Regulations for Workplaces, 1987

The Workplace Environmental Regulations were adopted from the Machinery and Occupational Safety Act 6 of 1983. It was promulgated by the Minister of Labour on 16 October 1987 and has not yet been amended. The following minimum requirements are applicable in FET Technology workshops: lighting, ventilation and noise. These regulations must be read in conjunction with the regulations relating to Minimum Uniform Norms and Standards for Public School Infrastructure, 2013.

(a) Lighting

The employer/responsible institution must, according to regulation 3(1), "cause every workplace in his undertaking to be lighted in accordance with the illuminance values specified in the Schedule to these regulations". Regulation 3(3)(c) states that glare on rotating machinery must be eliminated to such a level that hazardous stroboscopic effects are nullified. All FET Technology workshops must, therefore, have adequate lighting as per specified luminance and lighting must also be inspected regularly for upkeep and maintenance as prescribed in the GU&M Guidelines (2018). Basic upkeep of facilities like keeping workshop windows clean to ensure adequate natural lighting in workspaces should also be adhered to.

(b) Ventilation

The regulations relating to ventilation are of particular importance in FET Technology workshops, since several diseases listed in Schedule 3 of COIDA 2018 are associated with poor ventilation. Regulation 5(1) states that employers shall ensure that every workplace in their undertaking is ventilated, either by natural or mechanical means, in such a way that:

(a) the air breathed by employees does not endanger their safety;

(b) the time-weighted average concentration of carbon dioxide therein, taken over an eight-hour period, does not exceed one half per cent by volume of air;

(c) the carbon dioxide content thereof does not at any time exceed three per cent by volume of air;

(d) the prescribed exposure limits for airborne substances therein are not exceeded; and

(e) the concentration therein of any explosive or flammable gas, vapour or dust does not exceed the lower explosive limit of that gas, vapour or dust.

The focus of regulation 5(1) is on the quality of air, specifically concerning the concentrations of carbon dioxide, airborne substances, flammable gas, vapour, and dust. It is important to note that no reference is made to artificial ventilation systems in the Environmental Regulations for Workplaces (Darlow & Louw, 2011:231) and that these should be read in conjunction with regulation O(4–6) of the National Building Regulations and Building Standards Act 103 of 1977. Regulation O(4)(2)(b) specifies that provisions for artificial ventilation must be made in any room "where there will be dust, gas, vapour or volatile matter which may be dangerous to safety or health". According to Jurgens (2019:137), effective ventilation is essential when working with oxygen and acetylene gas bottles, as there is a significant risk of inhaling welding gasses while welding. The lack of ventilation may also lead to secondary conditions when inhaling welding gasses or vehicle exhaust fumes.

The implication of this regulation is that the Department is responsible to compile a risk assessment of the dust levels in Civil Technology workshops as well as the levels of carbon dioxide and other volatile matter in Mechanical Technology workshops. The results of the risk assessment would give guidance in deciding whether air ventilation systems must be installed, or whether other respiratory PPE should be provided. Irrespective of the assessment results, employers must still ensure that air breathed by employees does not endanger their safety.

(c) Housekeeping (capacity)

As already discussed in § 4.2.1(b), regulations relating to the capacity of FET Technology workshops were stipulated in section 5A of the Norms and Standards for School Infrastructure. Regulation 6(2) states that the employer/responsible institution must provide an effective minimum floor area of 2,25 m^2 to every teacher in a school workshop. According to Darlow and Louw (2011:14), the school/responsible institution must determine how many learners should be accommodated in their workshops and how supervision and control can be reasonably applied. Although Darlow and Louw (2011) suggest that schools/responsible institutions must determine the number of learners in this regard, the maximum number for practical work is prescribed in CAPS (2014). However, no workshop has the same floor space, layout or possible blind spots behind machines or walls, and the SGB should take note that CAPS (2014) only refers to the maximum number and less learners may be accommodated if the workshop layout is limited. Furthermore, every indoor work area (school workshop) must be kept clean, orderly and free of materials and tools. This implication of regulation 6(2) for FET Technology workshops are that schools are responsible for housekeeping, must ensure that minimum prescribed floor areas are observed and that regular cleaning is done as part of general upkeep as prescribed in the GU&M Guidelines 2018.

(d) Noise and hearing conservation

Subject to the provisions of regulation 7(2), no employer shall require or permit an employee to work in an environment in which they are exposed to an equivalent noise level equal to 85 dB(A) or higher. As in the case of ventilation, the assessment of risk is also applicable to noise, and employers must assess the potential exposure of teachers to noise. This is especially applicable to Mechanical and Civil Technology workshops. In cases where noise levels cannot be reduced, regulation 7(7) states that employers shall provide, free of charge, hearing protectors to each employee. These may also include custom-made hearing protection, according to Darlow and Louw (2011:06). The regulation further states that no person shall be allowed to work in or enter such noise zone unless they wear such hearing protectors in the correct manner.

The practical implications of this regulation for FET Technology workshops are different from what may be found in the industry. Although some machinery like thickness planers, saws, grinders, loud vehicle engines and others may produce noise levels of 85 dB(A) or higher, they are not used every day and do not pose a constant threat. The difficulty to hear conversation when using low-end hearing protectors or earmuffs also makes communication with learners during practical work very difficult and cumbersome. Employers also have the duty to ensure that teachers wear PPE provided by them (Darlow & Louw, 2011:06).

The Noise-induced Hearing Loss Regulations (2003) elaborate on regulation 7 above and set out the specific responsibilities of the employer in cases where it is suspected that employees have already sustained hearing damage. Regulation (7)(1) states that noise levels must be monitored continuously, and regulation 8(1) states that employers shall establish and maintain a system of medical surveillance for all employees exposed to noise at or above the noise-rating limit. According to regulation 8(2)(b), medical surveillance must consist of periodic audiograms which are performed by a competent person in accordance with SABS 083, and during the first three years of employment such medical surveillance should be done at least annually. All FET Technology teachers working in environments with noise levels higher than 85 dB(A) should thus have been tested during the first three years of employment to assess their levels of hearing. Regulation (10) states how assessment records, noise-monitoring records and medical surveillance records must be kept. All records must be kept for 40 years, and training records with regard to noise must be kept for the entire working career of the employee (Darlow & Louw, 2011:136).

The regulations above clearly set out the procedures in the assessment of potential noise exposure by means of medical surveillance and record-keeping. Darlow and Louw (2011:3) emphasise that these medical surveillance records are essential as evidence in later cases of possible claims by employees under COIDA 130 of 1993 (§ 4.4.8). Rossouw *et al.* (2020:259) state that the employer has a duty to take reasonable precautions to provide a safe and healthy work environment.

Therefore, it can be argued that reasonable steps include providing FET Technology teachers who work in noisy conditions with specialised PPE and keeping medical surveillance records of their hearing up to date by doing regular testing. If schools do not take reasonable precautions to address the risk of excessive noise in workshops, they could be sued under the common law for damages resulting from injury or illness.

4.4.6 General Safety Regulations, 1986

The General Safety Regulations pertain to equipment and general working conditions in workplaces. As discussed in § 4.4.1 and 4.4.2, the use of PPE is mandatory in the operation of driven machinery or in any unsafe workplace conditions that necessitate it. Although specific PPE pertaining to ventilation and noise has already been discussed in § 4.4.5, they are included again under general PPE for all workplace conditions. Sub-regulation 2(1) emphasises the responsibility of the employer relating to PPE and states:

> every employer and every user of machinery shall conduct a risk assessment of the conditions or situation that may arise from using machinery, and take such steps as may under the circumstances be necessary to make such condition or situation safe.

Regulation 2(2) further states:

> where it is not practicable to safeguard the condition or situation contemplated in sub regulation (1), the employer of machinery, shall provide free of charge and maintain in a good and clean condition such safety equipment and facilities as may be necessary…

Regulation 2(3) states that the safety equipment and facilities contemplated in sub-regulations (1) and (2) shall include:

> (a) suitable goggles, spectacles, face shields, welding shields, visors, hard hats, protective helmets, caps, gloves, gauntlets, aprons,

> jackets, capes, sleeves, leggings, spats, gaiters, protective footwear, protective overalls, or any similar safety equipment or facility of a type that will effectively prevent bodily injury.
>
> (e) protective ointments, ear-muffs, ear-plugs, respirators, breathing apparatus, masks; air lines, hoods, helmets, or any similar safety equipment or facility of a type that will effectively protect against harm.

Moreover, according to regulation (6), "an employer shall not require or permit any employee to work unless such an employee uses the required safety equipment or facility provided in terms of this or any other regulation". The employer must thus not only provide appropriate PPE to teachers working in hazardous environments; the employer must also ensure the supplied PPE is used accordingly. This responsibility would usually be undertaken by the HOD or elected health and safety representative, while teachers must also accept responsibility for their own health and safety.

(a) Intoxication

Regulation 2A(1–3) pertains to intoxication and states the following in this regard:

> it is not permitted for any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a workplace, or have in his or her possession any intoxicating liquor or drugs.

Although teachers being intoxicated during their duties is considered to be a form of misconduct, this is not part of the focus of this study. This regulation is also applicable to learners doing practical work (PAT) in school workshops and therefore directly influences the workplace security of teachers who supervise them. The conduct of intoxicated learners in school workshops may contribute to psychological insecurity (stress) in teachers, as they are responsible and liable for the safety of all persons under their care. The school code of conduct (§ 2.2.3.1) should take this regulation into consideration when classifying the seriousness of the offence compared to when

not being present in a workshop full of dangerous machinery. Also, the Department must take note of the common-law principle of accountability when schools are prohibited by them to expel these learners. It is foreseeable that teachers or other learners may be harmed by their actions, and the Department or school may be sued for damages or injuries resulting from the conduct of intoxicated learners.

(b) First aid

Regulations pertaining to first aid, emergency equipment and procedures are set out in regulation 3(1–9); here it is stated that "an employer shall take all reasonable to ensure that persons at work receive prompt first aid treatment in case of injury or emergency". Furthermore, the employer "shall also provide a first aid box or boxes at or near the workplace which shall be available and accessible for the treatment of injured persons at that workplace". Regulation 4 gives clarity on the administering of first aid:

> the employer shall take steps in the workplace as contemplated in the Basic Conditions of Employment Act 75 of 1997, that at least one person is readily available during normal working hours, who is in possession of a valid certificate of competency in first aid.

Considering a first-aid scenario in a school workshop, a teacher may not have sufficient time to find the designated person as stated in regulation (4). In the case where a teacher must act immediately to a medical emergency, liability may be assigned for damages forthcoming due to their lack of competency in first aid. Therefore, the professional development of teachers by the DBE through first-aid certification is essential to ensure workplace security.

(c) Welding, flame cutting and soldering

The majority of welding, flame cutting, soldering and similar operations takes place in the Mechanical Technology workshop and is regulated by regulation 9. Sub-regulation (1) states that no operations may be undertaken, unless (a) "the person operating the

equipment has been fully instructed in the safe operation and use of such equipment and in the hazards which may arise". According to Darlow and Louw (2011:231), the "safety equipment needed for this type of work has to be supplied by the employer, which goes one step further than the equipment required in regulation (2)". The regulations relating to gas and oxygen cylinders used for welding, cutting and soldering are stipulated in the Pressure Equipment Regulations 1993 and should be read as encompassing the General Safety Regulations 1986. Darlow and Louw (2011:231) elaborate on regulation (5), which addresses using this machinery in confined spaces and the issue of ventilation. They state that this sub-regulation should be read as a whole in conjunction with the Environmental Regulations for Workplaces, 1987. Employers must therefore ensure that specialised PPE needed in Mechanical Technology workshops is supplied and that gas and oxygen cylinders are inspected and secured as per regulations.

4.4.7 National Building Regulations and Building Standards Act 103 of 1977

The objective of this study was not only to determine how safe environments inside FET Technology workshops are but also the physical infrastructure that facilitates teaching and learning. The aim of the National Building Regulations and Building Standards Act 103 of 1977 is "to provide for the promotion of uniformity in the law relating to the erection of buildings in the areas of jurisdiction of local authorities; for the prescribing of building standards; and for matters connected therewith". The regulations and building standards make up the legal framework that governs construction at local government level, such as public-school infrastructure. The regulations focus on aspects like structural design elements of new and existing buildings (part B1), and section 12(1–3) stipulates the process of demolition or alteration of certain buildings. This is particularly important when considering action to be taken by the designated officials in the Provincial Infrastructure Unit, especially where school buildings have been damaged by earthquakes or neglected to the point of becoming derelict. It is also applicable where other structural failure of school infrastructure took place, like the 2019 Driehoek High School disaster where four

learners died and 29 others were injured when an interleading walkway between two buildings collapsed (§ 4.1.2.2).

4.4.8 Compensation for Occupational Injuries and Diseases Act 130 of 1993

Loubser *et al.* (2018:551) summarise the operation of COIDA by stating that "an employee who is harmed in the course of his/her employment has the right to claim patrimonial loss only…" They continue by stating:

> COIDA replaces the common-law position by abolishing the employees' common law delictual claim against their employer and introducing a compensation system that allows employees to obtain limited compensation from a statutory compensation fund to which employers are obliged to contribute.

The Act addresses, among others, the right of employees to compensation for occupational injuries (chapter IV); the procedure of claiming for compensation (chapter V); determination and calculation of compensation for temporary, total or partial disablement as set out in Schedule 2 of the Act (chapter VI); specified occupational diseases and compensational calculations thereof as set out in Schedule 3 of the Act (chapter VII); and issues relating to medical aid (chapter VIII). The right of employees to compensation for occupational injuries are subject to the conditions set out in section 22 (chapter IV).

The Act makes provision for all injuries and diseases that FET Technology teachers may sustain or contract in the course of their employment. The preliminary report of the second draft of the Compensation Fund (National Treasury, n.d.) defines an accident under COIDA as "a personal injury, an illness or the death of the employee during the course of their employment". The report continues by defining an occupational disease as "a disease that has arisen out of and in the course of employment". COIDA abolished the right of employees to submit delictual common-law claims against their employers by introducing a no-fault-based compensation

system for injuries and occupational diseases (Loubser *et al.*, 2018:550). This system compensates employees regardless of negligence on the part of their employers. Loubser *et al.* (2018:552) state that the validity of this exclusion of employers' liability was challenged in the case of *Jooste v Score Supermarket Trading (Pty) Ltd (Minister of Labour intervening)* (CCT15/98) [1998] ZACC 18; 1999 (2) SA 1; 1999 (2) BCLR 139 (27 November 1998). In this case, Ms Jooste was an employee of Score Supermarkets when she fell and injured herself at work. She brought a common-law claim for damages against her employer, who argued that the provision in COIDA prohibits employees to make such claims against their employers. The Constitutional Court found that although it "was clear that the challenged provision differentiated between employees and non-employees, viewed in the context of the Act as a whole, it was rationally connected to the legitimate purpose of the Act".

Driven machinery (§ 4.4.2) may also contribute to occupational injuries as listed in Schedule 2 of COIDA 130 of 1993. These include loss of metacarpals, fingers, hands, limbs, eyes, loss of sight, ears, and loss of hearing. Injuries resulting in employees being permanently bedridden or totally disabled is also included in Schedule 2. Occupational diseases are listed in Schedule 3 of COIDA 130 of 1993 and are categorised according to the description of the disease as well as the substances that employees handle or are exposed to in workplaces (see Annexure D). Annexure D is an amended schedule of diseases that may occur in Civil, Mechanical and Electrical Technology workshops where handling of or exposure to asbestos and organic dust, soldering or welding fumes, irritants or liquids and excessive noise may take place.

Section 22(1) of the Act further states:

> … if an employee meets with an accident resulting in his disablement or death such employee or the dependants of such employee shall, subject to the provisions of this Act, be entitled to the benefits provided for and prescribed in this Act.

Section 22(4) further states:

> an accident shall be deemed to have arisen out of and in the course of the employment of an employee notwithstanding that the employee was at the time of the accident acting contrary to any law applicable to his employment…

In the case where an FET Technology teacher is involved in an accident in their workplace during the normal course of their employment, they would be entitled to compensation as prescribed in the Act, unless the accident was attributed to the serious and wilful misconduct of the teacher. If an employee is injured outside the normal course of their duties, the Director-General may refuse the allocation of compensation due to the injury not being part of the employee's normal day-to-day duties. The right of employees to compensation for occupational diseases is subject to the conditions set out in section 65 (Chapter VII). Section 65(1)(a) states that an employee shall be entitled to compensation if it is proved to the satisfaction of the Director-General "that the employee has contracted a disease mentioned in the first column of Schedule 3 and that such disease has arisen out of and in the course of his or her employment". Thus, the burden of proof is on the teacher to provide evidence that the disease arose in the course of their employment. Proof of causation between the disease and the workplace conditions during employment may be difficult in cases where no proof of record exists to the contrary. However, section 66 states that "if an employee who has contracted an occupational disease was employed in any work mentioned in Schedule 3 in respect of that disease, it shall be presumed, unless the contrary is proved, that such disease arose out of and in the course of his employment". The implementation of regulations (§ 4.3.4 and 4.3.5) to establish and maintain a system of medical surveillance and record-keeping in the DBE would ensure that teachers have access to supporting medical records. Moreover, it can also lead to preventative measures for early detection and treatment of diseases associated with FET Technology workshops.

4.4.9 Post-Traumatic Stress Disorder – Circular Instruction No 172 of 2002

Circular Instruction No 172 as regards compensation for post-traumatic stress disorder (PTSD) was issued by the South African Department of Labour (DOL, 2002) on 30 October 2002. This document gives guidelines on the handling and processing of PTSD in the workplace.

Section 1 defines PTSD as "an occupational injury and should therefore be regarded as an unforeseen incident or an accident as required by COIDA statute". For teachers to be eligible for benefits under the Act:

2. the employee experienced an extreme trauma or unusual stressor that arose out of and in the course of employment, and

4. employment-related trauma or stressor was a positive factor in the development of PTSD, or played an active role in the course.

The above-mentioned guidelines are applicable to the psychological security of FET Technology teachers and should be read in conjunction with COIDA 130 of 1993.

4.5 Conclusion

Considering the legislation that regulates movable and immovable infrastructure, sufficient measures and protection do exist to ensure the workplace security of FET Technology teachers. Although legislation is sufficient, not only due diligence but also the legal duty of all responsible key stakeholders is necessary to ensure the physical and psychological security of FET Technology teachers. It is evident from the literature that psychological security, and specifically stress, in FET Technology teachers is an international problem that needs focused attention. Apart from ensuring safe workplaces, legislation pertaining to occupational diseases should also be strictly enforced, since it is evident that foreseeable precaution is the main focus. Employers can minimise or even eliminate hazards that contribute to occupational diseases and

should take cognisance of all legal determinants that regulate workplaces, since learners use the same facilities and are also in harm's way. It is not enough that legislation exists to ensure the workplace security of FET Technology teachers if its implementation is ineffective and subsequently deny them their legal rights.

CHAPTER 5: RESEARCH METHODOLOGY

5.1 Introduction

In chapters 2, 3 and 4, the legal determinants, the common law and the regulatory framework for the study were discussed by applying the traditional legal research method. The key concepts were *legal principles* and *determinants*, as they related to education and the specific focus of the study. Legislation relating to safety control and workplace security was examined to better understand how the law relates to the perceptions of FET Technology teachers regarding their workplace security.

This chapter provides a detailed description of the research approach employed in this study as well as a philosophical assumption of the main research design and the applicable research paradigm. The research methods that were used to collect the qualitative data are also explained in detail. Furthermore, the ethical considerations applicable to this study as well as the measures and processes taken to ensure the quality of the study are discussed.

The primary aim of this study was to investigate the workplace security of FET Technology high school teachers in the North West province from an education law perspective. To do so, I investigated the participants' knowledge and understanding of legislation and policies on workplace security as well as the perceived level of security in their respective workplaces.

5.2 Research philosophy

Before selecting a suitable research methodology for this study, I adopted an appropriate philosophical stance that underpinned this study. Due to the presence of psychological elements in the workplaces of FET Technology teachers, the study was rooted in the theoretical–philosophical framework of the German concept of *geborgenheit.* Oosthuizen (2020:7) contends that the *geborgenheit* theory underpins the philosophical foundation of education law, making this theory the most appropriate foundation for this study.

There is no standard definition for *geborgenheit*, but this concept can be described as a combination of feeling at home, safe and warm (Kaufmann & Wichum, 2017:53). The concept of *geborgenheit* is also described as protection, security, safety, comfort (reassurance), and freedom of danger. The etymological root of *geborgenheit* is “bergen” which, in its infinitive form, is described as “to hide, to shelter, to conceal, to shield or to place in safety” (Betteridge as cited in Serame *et al.*, 2013:02). According to Heidegger (2005:235), mankind in totality is a threatened body in need of protection, unlike the rest of creation. In the educational context, the application of *geborgenheit* is seen as an essential requirement to ensure psychological and physical safety (Serame *et al.*, 2013:03). Naidu *et al*. (2008:185) state that schools must afford teachers a safe work environment where they can apply their trade with confidence.

Each step of the research process is influenced by the chosen philosophy (Mertens, 2015). In this study, the research problem was examined, and the phenomenological approach was identified as appropriate to better understand the phenomenon under study. Nieuwenhuis (2016:77) explains the difference between a narrative study (which focuses on a single individual), and a phenomenological study, which “describes the meaning for several individuals of their lived experiences of a concept or phenomenon”. Moustakas (1994:13) elaborates that general or universal meanings can originate from persons’ widespread description of an experience and the meaning they attach to it. A phenomenological study attempts to answer the “what” question by studying what something (i.e., a phenomenon) is like for people and how they experience it. In the context of this study, the phenomenon under investigation was workplace security of FET Technology teachers. I examined the experiences of each participant to determine if there was a connection between them and the phenomenon.

Interviews is the typical method used to determine and understand the everyday lived experiences of one's study participants (McMillan & Schumacher, 2014). According to Creswell (2007), interviews are usually long and extended and should range between one and two hours. A typical sample size varies from five to 25 individuals, and

participants must have directly experienced the identified phenomenon (Leedy & Ormrod, 2015:273).

The main research question in this study is linked to four types of theories, namely the theoretical aspects of three legal disciplines, and one psychological theory. The three legal disciplines included in the legal framework are fundamental human rights, labour law, and the common law.

5.3 Qualitative approach

Qualitative research comprises varying methodologies that are different in many respects. Leedy and Ormrod (2015) state that all qualitative approaches have two common denominators, namely studying people constructing some phenomenon in their natural, "real-world" environment and capturing and studying the complexity of the phenomenon. Nieuwenhuis (2016:53) states that qualitative research is mostly implemented to find answers to the "why" questions in research. The quality and depth of gathered information when conducting qualitative research are of more importance than scope or breadth. Creswell (2014a:6) states that our worldviews or paradigms "are influenced by our perceptions and assumptions. They are, in turn, affected by our philosophical outlooks, our principles, background, talent, personality, likes and dislikes". Moreover, they are likely to have an influence on how we approach our research (Oosthuizen *et al*., 2015:14).

Four worldviews are commonly deliberated in literature, namely post-positivism, constructivism, reformism, and pragmatism (Creswell & Creswell, 2018:6). Constructivism was selected as the research paradigm for the current study, since I aimed to make meaning of how participants understood and constructed the specific phenomenon in their everyday worlds (Creswell & Creswell, 2018:08).

The purpose of qualitative research, according to Babbie and Mouton (2006:53), is to try to understand human behaviour rather than forecasting it. The potential advantages associated with the qualitative approach for this study included gaining more insight

into workplace security as a phenomenon. The qualitative research within the constructivist paradigm entailed the undertaking of a phenomenological study (§ 5.3).

5.4 The researcher as research instrument

As discussed in § 5.3, a qualitative methodology with a constructivist-phenomenological paradigm was adopted for this research. McMillan and Schumacher (2001:396) suggest that, as the primary research instrument of data generation and analysis, one should become absorbed in the data related to the main research question, which, in this case, was workplace security of FET Technology high school teachers. According to Merriam (2002:5), as a human instrument, one (the researcher) could respond to the behaviour of participants during the interviews, evaluate and explain their responses, expand on unanticipated answers, and adapt questions to facilitate a deeper understanding of the phenomenon under investigation. Moreover, according to Patton (2002:48), the researcher should "acknowledge personal biases, interests and perspectives on the research phenomen[on]" and consciously strive to maintain objectivity.

As primary researcher, I obtained permission from the relative authorities to conduct the empirical study and adhered to all ethical research requirements. I conducted and transcribed the interviews myself and analysed the documented data. According to Leedy and Ormrod (2005:139), researchers must be mindful of their preconceived ideas and biases influencing the interpretations and thus the outcomes of the study. By ensuring my neutrality as primary researcher and being aware of any personal bias, I contributed towards the trustworthiness of the study. Moreover, in this study, I was committed to ensuring that any personal bias or preconceived convictions regarding workplace security did not overly affect data generation and analysis. Furthermore, I encouraged the participants to freely share their perceptions and beliefs to obtain an accurate reflection of their experiences. I ensured that the generated data and the analysis thereof truly reflected the perceptions, feelings and opinions of the participants by adhering to the prescribed ethical guidelines.

My research role as a potential insider researcher is discussed in § 1.9.2.2, and it is important to acknowledge the context of my professional involvement in this study. At the time of this study, I was employed with the NWU as a Civil Technology lecturer in the Faculty of Education. My responsibilities included, among others, training postgraduate students in FET Technology and managing the workshop in which practical training for degree purposes took place. Therefore, I faced some of the same workplace conditions as the potential participants in the current study. I was previously employed as an FET Technology teacher for 12 years in the North West province and therefore had intimate knowledge of the physical environment, working conditions and safety control in FET high schools. During work-integrated learning (WIL) in my capacity as NWU lecturer, I also visited some of the schools that were selected as the research sites for this study. Lastly, I consciously engaged in and monitored every step of the data analysis process and its interpretation to attain an accurate and uncompromised reflection of workplace security.

5.5 Research site selection

The selected research sites included all public high schools in all four districts of the North West province that offered FET Technology subjects (see Figure 5.1). These four districts were Bojanala Platinum, Dr Kenneth Kaunda, Dr Ruth Segomotsi Mompati, and Ngaka Modiri Molema. At the time of the study, 31 schools in the province offered at least two of the three FET Technology specialisation subjects, namely Civil, Mechanical or Electrical Technology. The selected public high schools for this study are spread across the North West province and are situated in both urban and rural areas.

Figure 5.1: Provincial and municipal districts of the North West province, South Africa.

(www.municipalities.co.za)

The North West DBE (2019) provided me with details (see Annexure B) on the number of schools in each provincial and municipal district as well as the subjects offered. The number of public FET Technology high schools and the number of participants in these schools according to provincial districts are tabulated below (Table 5.1).

Table 5.1: Number of schools and participants in site selection

	Provincial districts	Number of FET Technology schools	Number of participants
	Bojanala Platinum	9	5
	Dr Kenneth Kaunda	9	13
	Dr Ruth Segomotsi Mompati	6	3
	Ngaka Modiri Molema	7	3
	TOTAL	**31**	**24**

(North West DBE, 2019)

The number of participants was the largest in the Dr Kenneth Kaunda District, since this district had the largest number of FET Technology high schools at the time of the study. The Bojanala Platinum District had the second largest number of participants. Only two schools in the Ngaka Modiri Molema District indicated their willingness to participate in the study, despite several attempts to reach the remaining five schools telephonically. A concerted effort was made to include schools from all four districts to ensure representation of the North West province as a whole.

5.6 Participant selection

As discussed in § 1.9.2, the purposive sampling method was employed to select participants from the target population (FET Technology teachers). This type of sampling is used when participants are intentionally identified to participate due to specific knowledge they possess. Babbie and Mouton (2006:166) advocate "the application of purposive sampling in a qualitative study". It guarantees that the participants from the target population are not only knowledgeable about the chosen phenomenon under study but that their answers can add value to the study findings. Henning *et al.* (2004:71) concur and elaborate that purposive sampling is finding "people who fit the criteria of desirable participants" that would develop into the "spokespersons for the topic of inquiry". The sample drawn purposively from this population comprised of 24 teachers across all four districts of the North West province. The reasons behind the varying numbers per district were motivated in § 5.6. The ideal sample selection should consist of a carefully selected group of between five to 25 participants to gather rich, descriptive data (Creswell, 2007; Leedy & Ormrod, 2005:114). The aim is to reach a point of data saturation during the data generation and analysis stages. Guest *et al.* (2006:65) describe data saturation as the moment when the researcher has reached "thematic exhaustion" to the point that new data add little or no value to the established themes.

Furthermore, the inclusion criteria for this study were teachers who taught FET Technology subjects, specifically Mechanical, Electrical and/or Civil Technology, at public high schools in the North West province. Each school in the respective four districts employed between two and six FET Technology teachers, depending on the specific subjects they offered. Even though Engineering Graphics and Design (EGD) is considered an FET Technology subject, it was omitted in this study because these teachers do not use workshops for teaching and learning purposes and do not share the same degree of workplace insecurity as those offering the above-mentioned subjects. Lastly, in those schools where more than two FET Technology teachers were employed, preference was given to those with more teaching experience, who were

deemed to have a deeper and broader understanding of the phenomenon under investigation (i.e., workplace security of FET Technology teachers).

5.7 Participants for the individual interviews

After I obtained ethical clearance from the Research Ethics Committee of the NWU and the Head of DBE of the North West province, I contacted the principals and respective SGBs of the purposively selected schools (those offering the FET Technology programme) and asked permission to conduct research with their FET Technology teachers. After obtaining permission from both parties, I provided the contact details of the school principals to the independent recruiter. The independent recruiter then proceeded to contact the principals and started the process of inviting all the FET Technology teachers from each participating school to participate in the study. The independent recruiter e-mailed the principals an invitation consent letter, which included a detailed explanation of the study and what participation in the study entailed. The teachers who gave their informed consent to be interviewed to the independent recruiter then became participants in this study. After the independent recruiter provided me with the participant list, I contacted the participants individually to schedule interview appointments.

5.8 Method of data generation

To generate data, open-ended interview questions and sub-questions were crafted with the objective of exploring FET Technology teachers' perceptions of safety control and workplace security at their respective high schools. As stated earlier, I personally collected data from 24 participants through in-depth face-to-face interviews from schools in all four districts of the North West province. In one case, a scheduled interview was cancelled due to the temporary closure of a school which had reported cases of COVID-19. As a result, the interview was conducted telephonically at a later stage (see Figure 5.1).

As indicated in § 5.8, face-to-face interviews with a carefully selected sample of participants were employed as main data generation tool. Semi-structured open-ended questions were asked to allow participants to share their experiences and, in turn, reflected their informed views on workplace security. According to McMillan and Schumacher (2014:359), topics for discussion are selected beforehand, but the order and phrasing of the questions are determined by the researcher. Regarding the order of questions, I decided that using the funnelling approach (Spradley as cited in Palinkas, 2013:540) in combination with semi-structured questioning would be the most appropriate method of data generation for this study. The interview funnelling approach combines open, reflective and probing questions. The term "funnelling" is derived from the types of question being asked. The introductory questions started out very broad and open like at the top of a funnel and focused on general biographic and demographic information about the participants and their workplaces. The interview thus started off with general questions to help "ease" the participants into the interview and to establish a relaxed tone. The questions then increasingly tapered down to more detailed questions at the narrow bottom, which included questions on their knowledge and application of specific legal determinants in their workplaces. In this phase, the focus of the interview shifted to key questions in three sections that covered workplace security, legal determinants and risks associated with FET Technology workshops. These key questions required additional probing in some cases, depending on the participant's responses.

The location and time of the interviews were set in accordance with the availability and preference of the participants. According to preference, the interviews were conducted in staff offices, classrooms, or in some of the participants' workshops. The average duration of each interview was between 45 and 60 minutes. Interviews were digitally audio-recorded, as the recording of interviews preserved the original words that the participants used to describe their personal experiences and thoughts. Prior to the interviews, the participants granted permission to be recorded in the consent form. The audio-recordings were transcribed verbatim and used as raw data to be coded in the qualitative data analysis process.

5.9 Semi-structured interviews

Semi-structured qualitative interviews were chosen to gather data for this study to determine how the participants perceived their world and to explain how they made sense of the phenomenon under investigation (McMillan & Schumacher, 2014:381). Hijmans and Kuyper (2007:45) define a qualitative interview as “an exchange with an informal character, a conversation with a goal”. The interviews consisted of open-ended questions and sub-questions (see Addendum E). These questions covered topics that were derived from literature and previous research on workplace security. Jansen (2007) suggests that “questions in the interview schedule may be updated and improved in the beginning of the data generation process as interviewers become more knowledgeable about their field”. This was indeed the case in this study. I adjusted the interview schedule after the first three interviews by adding two questions that were not anticipated when the schedule was first formulated. As explained by Russell and Gregory (2003), an added advantage of using semi-structured interviews is that they are interactive and allow for unanticipated emerging topics to be incorporated in the study.

5.10 Process and methods of qualitative data analysis

The process of data analysis “is bringing order, structure and meaning to the mass of collected data” (Strydom & Delport, 2005:333). Qualitative data analysis, according to Creswell (2014:237), “aims to describe how participants experience a specific phenomenon by examining their understanding, perceptions, knowledge, attitudes, values, feelings and subjective experiences in order to estimate their grounding of the phenomenon”. It further aims to explain the shared circumstances of the participants, identify possible comparisons or differences, and possibly develop a theory of the phenomenon under study (Fick, 2018:419). As explained by Creswell (2014b:55), a specific examination process of data analysis needs to be followed after qualitative data. Table 5.2 summarises the six steps in data analysis that Creswell (2014b:55) proposed. These steps were implemented in this study.

Table 5.2: Six steps in data analysis

Steps	Description
1	Organise and prepare the data for analysis by arranging and sorting the information.
2	Read through all the data to get a general sense of the information, and write down general ideas about the data.
3	Code the data by organising the data into chunks of information, and write down categories.
4	Provide meaningful descriptions of the categories or themes for analysis.
5	Present the results of the analysis narratively to convey the findings, including a detailed discussion of several themes, or a discussion of interconnecting themes.
6	Interpret the results of the analysis to answer the research question.

(Adapted from Creswell, 2014b:55)

5.10.1 Transcription and data management

After completion of the interviews, I transcribed each interview by using Quirkos® data analysis software. The audio files from the interviews were transcribed in narrative form. The transcribed and member-checked (§ 5.11) interview of each participant was imported into an electronic folder to organise and store the data files. The software allowed me to systematically analyse text, code and categorise information, sort and locate important data segments, build descriptions and themes, and create a visual display in the form of tables and figures. The analysis took place continuously during

the management process. Transcribing the interviews served as a primary examination process, which assisted me to obtain a general sense of the data. I proceeded by using the inductive approach, moving from the transcriptions to the codes.

5.10.2 Coding and developing themes

Each interview was coded separately, starting with *a priori* codes (pre-designed based on the interview questions) and identifying emerging codes from the raw data. After coding the entire text of all the interviews, I prepared a list of *a priori* codes and emerging codes and grouped them into a more manageable number of sub-categories. In the next step, the sub-categories were collated into categories which were then developed into themes. The final themes address the research questions and form the pillars of the phenomenon, namely workplace security. The codes-to-theory model for qualitative inquiry developed by Saldaña (2016:14) was adapted and is presented in Figure 5.2 to illustrate the steps of the coding process employed in this study.

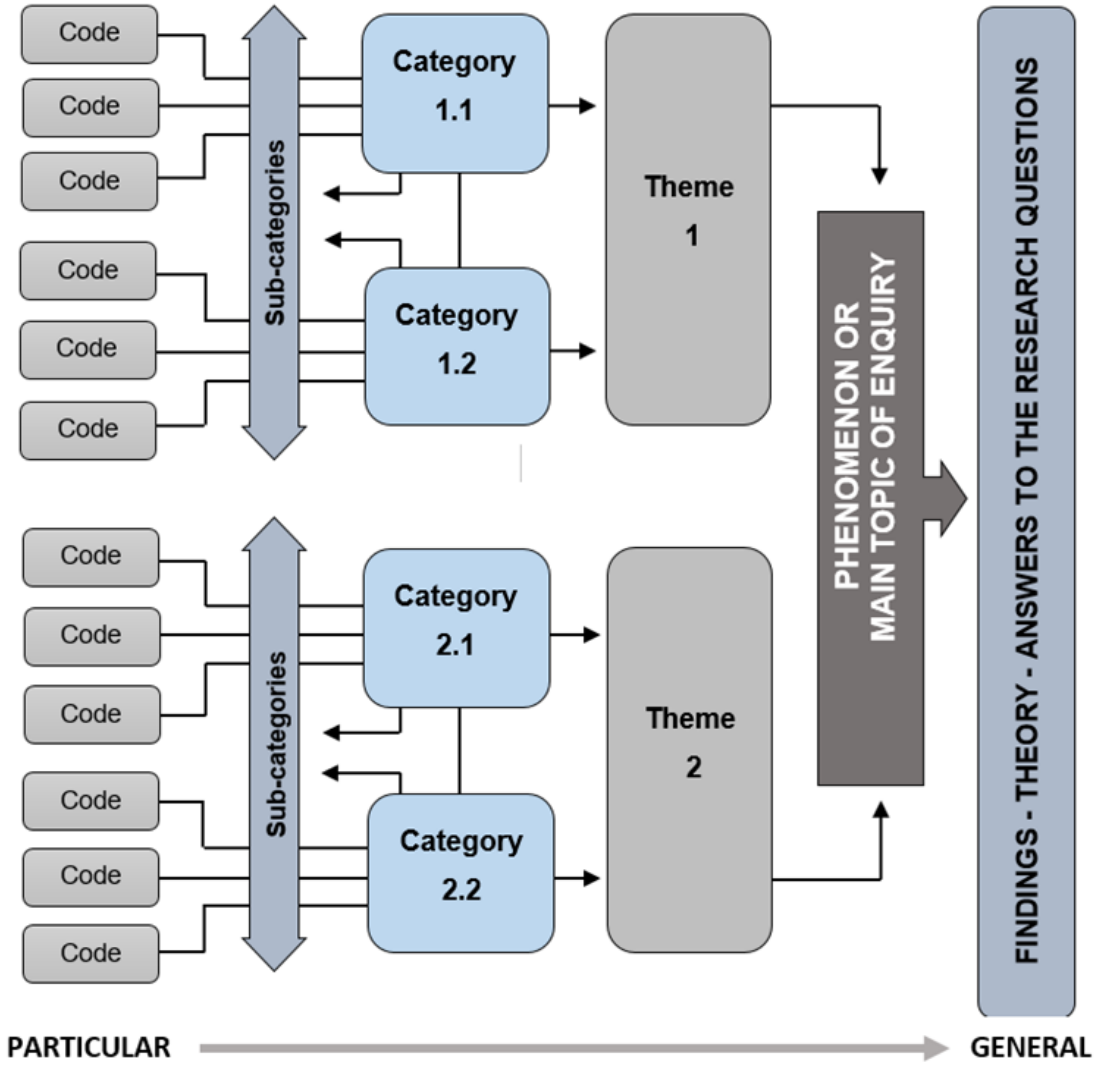

Figure 5.2: Coding-to-theory model

(Adapted from Saldaña, 2016:14)

Miles *et al.* (2014) define a code as "a label that assign symbolic meaning to the descriptive or inferential information compiled during a study". The labelling or naming of data also includes selected quotes with a descriptive word or phrase (Henning *et al.*, 2004:104; Newby, 2010:463). Miles *et al*. (2014) elaborate that "descriptive coding assigns names or labels to data in order to provide an inventory of topics for indexing and categorising". This is especially helpful when interview transcripts are used as data sources.

Creswell (2015:156) describes coding as "the process of analysing qualitative text data by taking them apart to see what they yield before putting the data back together in a meaningful way". Busetto *et al*. (2020:4) claim that coding in a practical sense "makes raw data more sortable". The process of coding therefore guides the researcher from the collected data text to the assigned code, from the code to categories, and from categories to themes pertaining to the main phenomenon or topic of theoretical enquiry (Saldaña, 2016:10). Henning (2004:105) is of the opinion that assigned codes should relate to one of the main research topics. In this study, the two main research objectives were workplace security and education law, as indicated by the primary and secondary research objectives on what the nature of workplace security of FET Technology teachers is, and what the nature of the legal framework that supports workplace security of FET Technology teachers is. The discussion of the findings related to the five themes is presented in § 6.4 to 6.8.

5.11 Trustworthiness

As discussed (§ 1.9.2.6), Lincoln and Guba (1985:314) developed a model (see Table 1.2) with four applicable criteria regarding trustworthiness of research: truth value, applicability, consistency, and neutrality. They then added common definitions to the four criteria as they apply in qualitative research, namely credibility, transferability, dependability and confirmability.

The researcher has to ensure the trustworthiness and credibility of a study. The aim of trustworthiness in qualitative research is to show that the reported findings are "worth paying attention to" (Lincoln & Guba, 1985:314). Member-checking was also used to ensure credibility. Lincoln and Guba (1985:315) deem this technique "the most critical technique for establishing credibility". I sent each participant a transcript of their personal interview. This gave them an opportunity to verify (check) the content and to suggest amendments if deemed necessary.

Transferability concerns the possibility that the research findings may have applicability in other contexts, but does not involve generalised claims (Lincoln &

Guba, 1983:18). Readers of this study are put in a position to consider the findings in relation to their own experiences with regards to workplace security of FET Technology teachers, in their own contexts. I therefore provided a rich and thick description of the phenomenon, and also well motivated sampling process amongst all FET Technology teachers in the North West province to enable readers to "determine if the research is transferable to their context" (Nieuwenhuis, 2016:124).

Towards meeting the third criterion, dependability, I documented the procedures and described the participants and data thoroughly to compile a rich, thick description of the study. To increase dependability, verbatim quotes of the participants were included in the analysis to authenticate the findings. Shenton (2004:69) points at the fact that including rich text promotes credibility (truth value), "as it helps to convey the actual situations that have been investigated and, to an extent, the contexts that surround them". To ensure adequate engagement in data generation and ultimately credibility and dependability of the research findings, sufficient time was allowed to gather data. The process went on till the data became "saturated", leading to a dependable set of emerging findings.

Confirmability as fourth criterion is described by Lincoln and Guba (1983:125) as "a degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not researcher bias, motivation, or interest". As discussed in § 5.4, I ensured that as research instrument I did not allow personal bias to jeopardise confirmability in the study.

5.12 Ethical considerations

As discussed in § 1.10, the empirical study was conducted according to ethical guidelines. The first consideration was to obtain ethical clearance from the Research Ethics Committee of the NWU (ethics number: NWU-01903-20-A2). Thereafter, permission was obtained from the Head of DBE of the North West province (see Addendum C) to conduct research in public high schools offering subjects in the FET

Technology programme. After the research sites were identified, a goodwill permission letter was sent to seek permission from each principal and the SGB of the purposively selected schools to conduct research with their FET Technology teachers. In alignment with the ethical protocols, an independent recruiter was appointed as a gatekeeper to invite all the FET Technology teachers at each participating school. The independent recruiter sent a personal invitation letter via e-mail to all the teachers at the schools whose principals granted goodwill permission. The letter included the following: the purpose of the study; my identity and those of my promoters; the criteria used in selecting participants to voluntarily participate in the research; the purpose for which the data would be used; confirmation that the data would be stored safely; and an assurance of confidentiality.

All the applicable ethical standards on the possible risks and benefits of the study were clearly explained to the participants who accepted the invitation prior to the start of the interviews. This was done to ensure that each participant had several opportunities to consider their willingness to participate in the study and withdraw if they wished to do so. Prior to the interviews, I confirmed with the participants whether they received and signed the personal consent form. I also sent each participant an interview schedule (Addendum E) to ensure that all concerned parties were aware of the nature and purpose of the interview questions.

In cases where the interviews could potentially interfere with the teaching duties of the participants during normal school hours, the interviews were scheduled for after school hours. Potential participants could contact me with any questions prior to their engagement in the study. My contact details were provided in both the invitation and consent letter. To protect the participants from possible risks, the following ethical guidelines (Table 5.3), proposed by Creswell (2003:64-67), were followed.

Table 5.3: Ethical guidelines for research

Ethical guidelines for data generation
Permission to conduct research at the selected sites was procured from the Research Ethics Committee of the NWU, the Head of DBE of the North West province, the school principals and the SGBs of the purposively selected schools.
Participants gave informed consent to participate in the study and were guaranteed that the personal and professional risk of participating in the study was minimal.
Participants were made aware that participation in the study was voluntary, responses would be kept confidential and that they could withdraw from the study during any stage of the process.
The purpose and aims of the research, procedures, time frames, interview questions and topics were clarified to the participants in writing via e-mail to express the expectations of the researcher. These were also repeated verbally before commencement of each interview.
The data provided by the study participants were treated as confidential but not as anonymous. The four participating districts in the study were identified to determine if demographics had an influence on workplace security in these districts. The identity and schools of the participants were treated anonymously, however. I assured the participants that their right to privacy would be respected, that they could ask questions and that access to the research results would be made available to them.
I was committed to minimise disruption to the normal school activities of the participants by scheduling the interviews after school hours for those who preferred that. Some participants indicated times the interviews suited them better during normal school hours, and others

were accommodated after school to suit their preference. The participants also determined the place for the interviews. In total, the interviews took four weeks to complete.

Ethical guidelines for data analysis and interpretation
I transcribed the English and Afrikaans audio-recorded interviews and analysed and interpreted the data.
I ensured that the anonymity of the schools and participants were protected during the interview transcriptions, data analysis, coding and interpretation of the results.
I accurately reflected on the opinions and beliefs of the participants throughout the analysis and interpretation of data. Strategies and methods implemented to ensure trustworthiness included member-checking and inclusion of rich text.
The analysed data will be safeguarded and kept for a period of five years after completion of the study. After the period has lapsed, the data will be destroyed.
Ethical guidelines for writing and disseminating the research
I was mindful not to use language that was biased in terms of race, age, gender, etc., and to be sensitive to stereotypical groupings and labels.
I in no way invented, falsified, suppressed or manipulated the outcomes of the empirical study to fit my predisposed narrative.

The teachers who participated in the interviews were respected by addressing them as "participants" and not "subjects" or "numbers".

5.13 Conclusion

This chapter provided a detailed description of the qualitative research design selected for the current study. To ensure an ethical research process, I explained the provisions and motivated the selection of the research sites. The selection procedures and inclusion criteria as well as the chosen data generation methods were discussed and motivated. The use of personal face-to-face interviews for data generation to come to a better understanding of the personal experiences of the participants regarding the phenomenon under study was discussed. Finally, in the latter part of the chapter, the data analysis method and process were carefully outlined. From authoritative literature I came to the conclusion that a well-constructed research design, an ethical approach to research and ensuring trustworthiness are essential components for a successful study.

Chapter 6 reports on the data analysis and the findings that emerged from the data.

CHAPTER 6: EMPIRICAL DATA ANALYSIS

6.1 Introduction

The research design, methodology and rationale for the data generation strategies were discussed in the previous chapter. The primary research question as basis of the study and the related secondary research questions were highlighted, and the research philosophy that supports the entire study was clarified.

This chapter offers an interpretive and analytical account of the data collected on the experiences of FET Technology high school teachers of workplace security in their workshops. The large amount of gathered data was scrutinised and clustered to present a thorough understanding of the phenomenon of workplace security. As the data were coded and categorised, a clear set of findings emerged from the participants' responses.

Through the rigorous process of analysis and interpretation, five important themes associated with workplace security and legal determinants were ultimately identified. Four of the themes are linked to workplace security, and the remaining one relates to legal determinants (Figure 6.2). Although legal matters under theme 5 is discussed separately, references to legal determinants applicable to themes 1 to 4 are indicated throughout the discussions.

The five themes related to workplace security are discussed in § 6.4 to 6.8. The same process of discussion is followed for the theme related to legal determinants in § 6.8.

Figure 6.1 below presents a step-by-step overview of the data analysis process, from initial data coding to sub-categories. The sub-categories were combined into categories (see Figure 6.2), which lead to five themes that supported the overarching theme of workplace security.

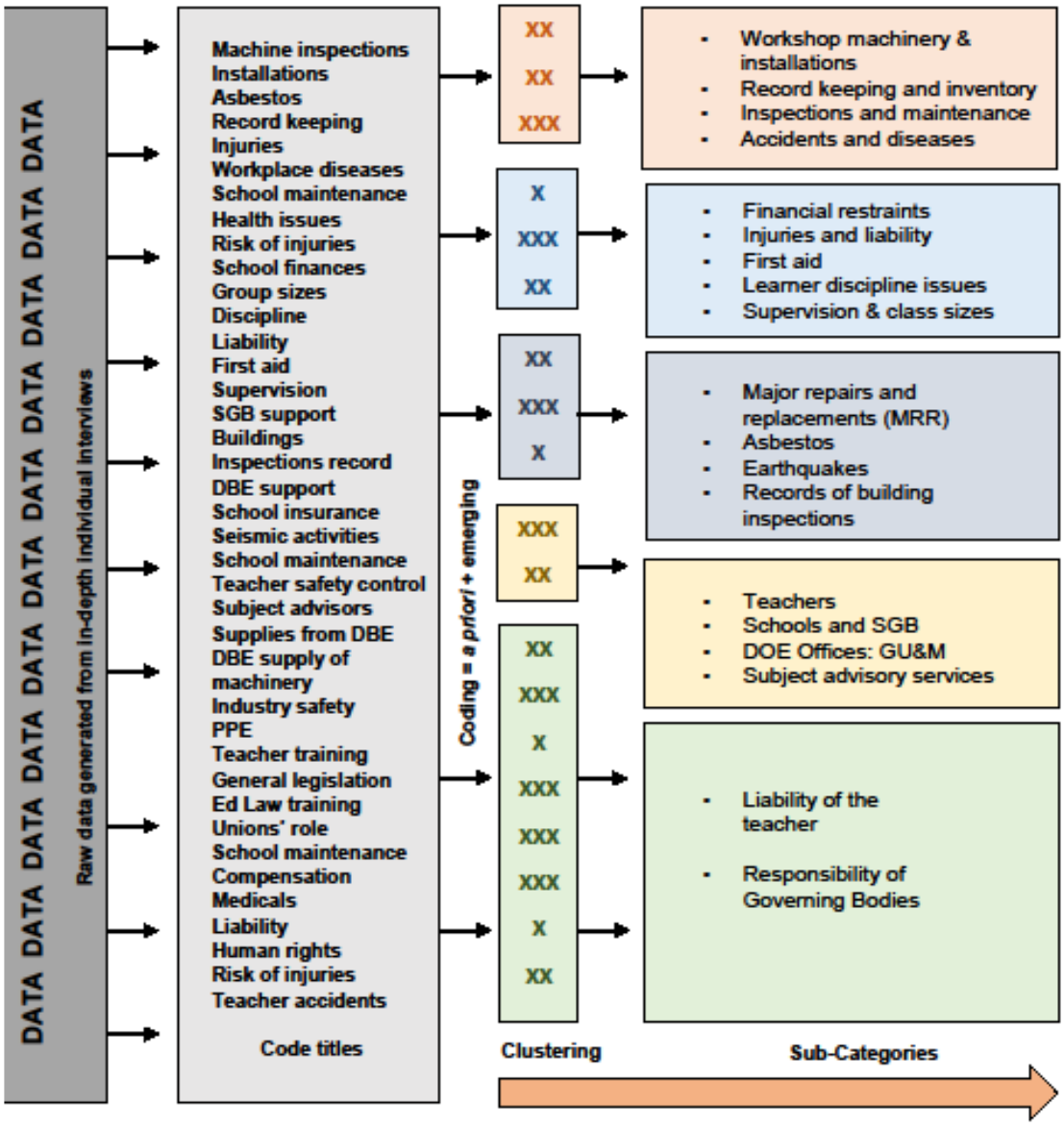

Figure 6.1: Coding of raw data and development of sub-categories

After completing the coding process, the final code list contained 53 codes, which were then grouped into 19 sub-categories (represented in five cluster boxes in figure 6.1). These sub-categories formed 14 categories to inform five themes related to workplace security, as illustrated in figure 6.2. As a result, the five themes that emerged all fall under the overarching theme of workplace security.

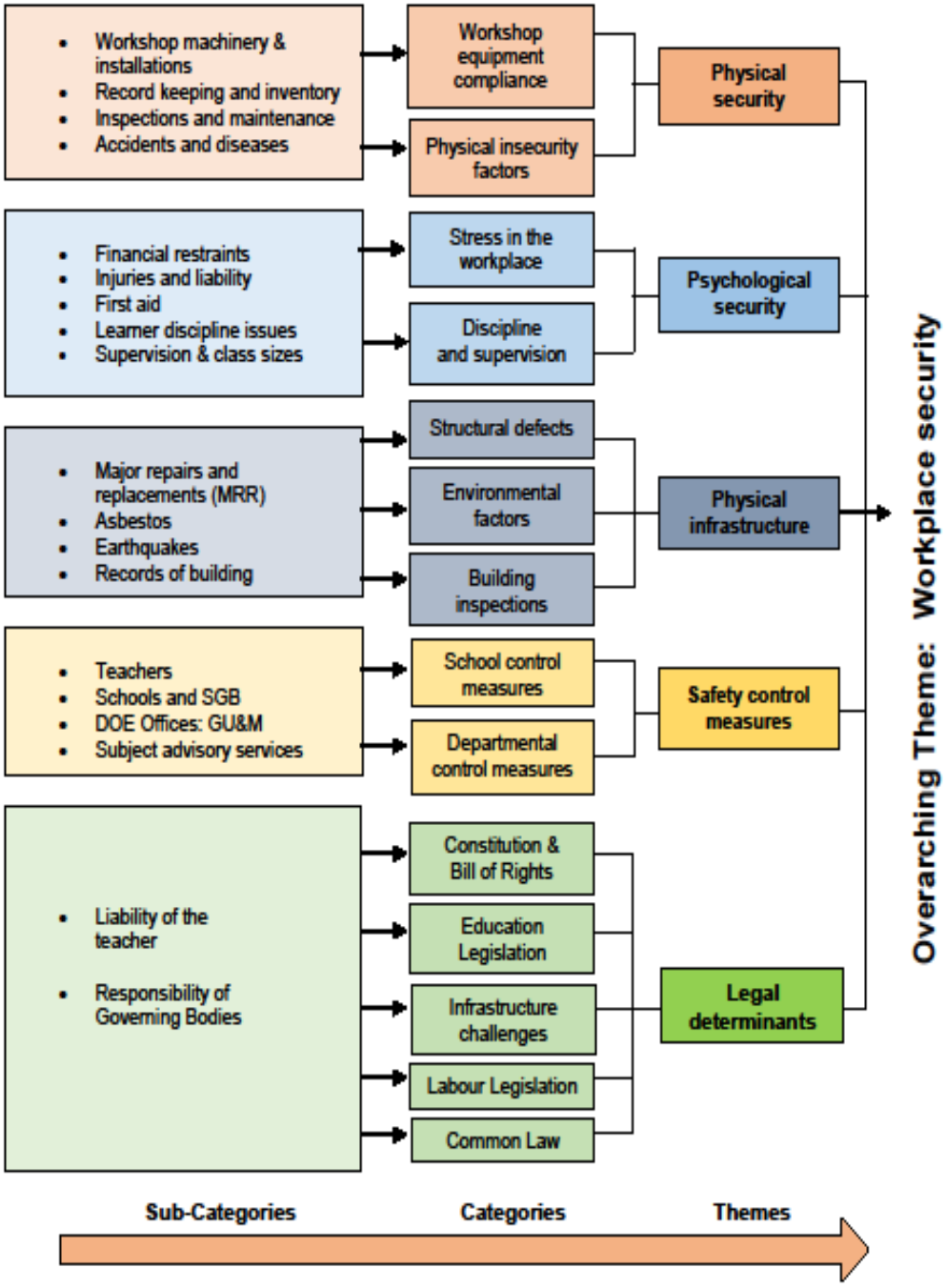

Figure 6.2: Overview of coding through sub-categories to overarching theme

6.2 Biographic profile of participants

Biographic information gathered from the participants during the personal interviews was used to compile a collective profile of the participant sample. FET Technology teachers in all three subject areas, from all four districts of the North West province were included in the study. This inclusion of the different subject areas was meant to ensure depth and variation of the data generated, depending on the participants' qualifications, teaching, or industry-related work experiences.

Table 6.1: Participant profile

Participant profile sample	
Teaching position	
Head of Department (H)	4
Teacher (T)	20
Total	**24**
FET Subject	
Civil Technology (C)	9
Mechanical Technology (M)	10
Electrical Technology (E)	5
Total	**24**
Highest qualification	
B.Ed. - FET Technology	10
B.Ed. Hons - Technology	1
HED Technical	6
PGCE	3
Diploma - Engineering	1
NATED- N6	1
Industry related qualifications	2
Total	**24**
Years of teaching experience	
1-5 years	9
5-15 years	6
15-25 years	3
25+ years	6
Total	**24**

The sample profile in Table 6.1 highlights the differences between the 24 participants with regard to the type of qualifications they held, their level of specialisation in the three Technology fields, and years of teaching experience. The table clearly reflects the wide

variety of contributing factors and influences that grounded the participants' understanding of their individual experiences of workplace security. Confidential identifiers are used in the discussion of the data by combining the teaching position (H or T), Technology specialisation (C, M or E) and participant number. For example, "HC6" would identify participant number 6 as an HOD who taught Civil Technology.

6.3 Overarching theme: Workplace security

The nature of workplace security in the context of this study is divided into five themes. The themes are physical security (theme 1), psychological security (theme 2), physical infrastructure (theme 3), safety control measures (theme 4) and legal determinants (theme 5). The analysis and interpretation of the data and the findings that emerged under each of the five themes are discussed next.

6.4 Theme 1: Physical security

The physical workplace and subsequent security of FET Technology teachers are statutorily regulated by several forms of legislation. These statutes comprise original and subordinate legislation (see Figure 1.1). Some of the most prominent statutes applicable to workplace security include the South African Constitution (1996), the OHSA 85 of 1993 (1993), COIDA 130 of 1993 (1993), Driven Machinery Regulations, 2015 (2015), and the GU&M Guidelines (2018). The two categories that formed theme 1, namely workshop equipment compliance and factors that contribute to the physical insecurity of FET Technology teachers, are discussed next. Figure 6.3 illustrates the layout of the categories and sub-categories under theme 1.

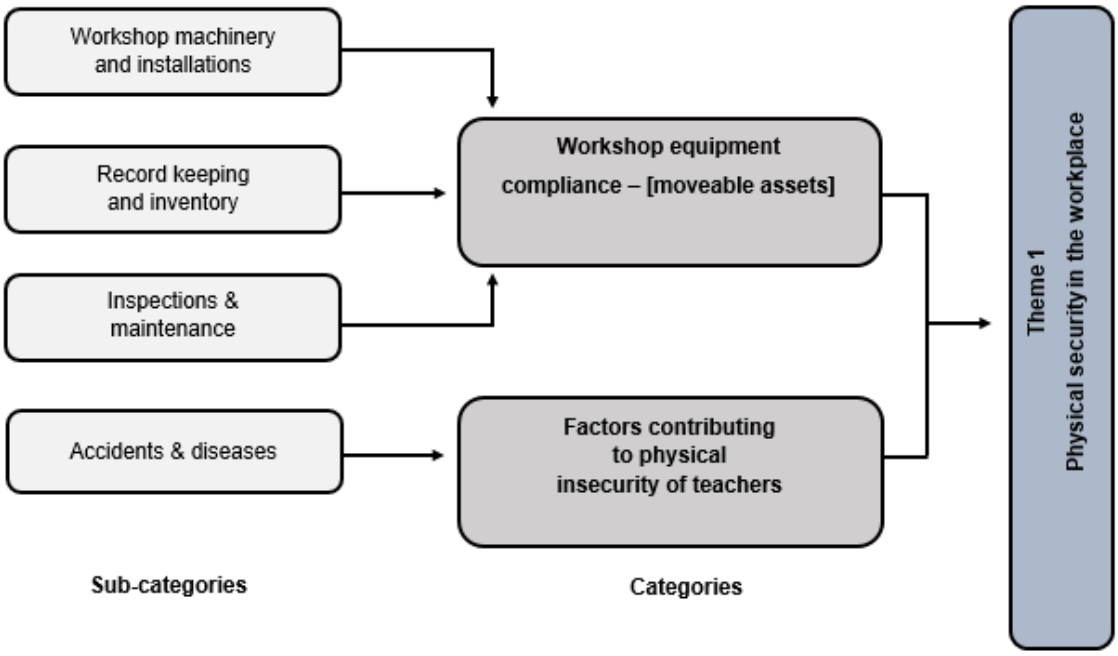

Figure 6.3: Theme 1 – Physical security in the workplace

6.4.1 Category 1.1: Workshop equipment compliance (movable assets)

Workshop equipment compliance in all FET Technology workshops is stipulated by numerous regulations and guidelines. The CAPS for FET Technology (DBE) states that all workshops must be well-equipped and that OHSA requirements must always be complied with (regulation 2.4.3 & 2.3). Section 8(1)(a) of the OHSA stipulates that "employers shall provide and maintain a work environment that is safe and without risk to health, eliminate and mitigate hazards and also maintain plants and machinery as far as reasonably practicable". In the context of workplace security, employers are not only responsible to fully equip Technology workshops with machinery and equipment but must also ensure that machinery and equipment are inspected, maintained and compliant with the OHSA.

6.4.1.1 Sub-category 1.1.1: Workshop machinery and installations

To determine how workshop equipment influences workplace security, it is important to indicate what safety regulations it should comply with as well as what additional factors may contribute to its safety. These factors are discussed below.

6.4.1.1.1 Machinery

- Old machinery

The first sub-category that emerged as a threat to the physical security of FET Technology teachers was that of machinery. Five participants (TM1, TM7, HC6, TM16, TM18) commented that old machinery was a contributing factor due to several reasons. Participant TM1 stated that “the older machines are not inferior in quality, and some do have their guards on, but they do not have the latest safety gadgets on them. It gives you peace of mind if you work with newer, safer machinery”. The design of new machines adds to its safe operation. This is illustrated by the following statement by TM18: “The latest lathes and milling machines are very safely designed where you stand nearly two meters away from them when you work compared to the old machines”. Some of the older machineries do not have modern safety features, while some of them do not have any safety features as prescribed by legislation. This problem was confirmed by TM7, who remarked “if you take the old hydraulic press…it doesn't have a safety guard at all. The old one didn’t come out with a guard, and you can’t fit one on it either”. Maintenance and repair of these old machinery seems to be problematic due to the availability of parts, and TM16 remarked that, “I have a lot of broken ones (machines) that came from the ‘80s that I cannot find parts for anymore. So, I can’t fix it even if I wanted to”. In contrast to the participants above, TC19 mentioned that he did not see older machines as a threat to his workplace security. He elaborated by saying that “I have very old industrial bench grinders in the back of my class that was made in Italy and is very good quality and still works perfectly compared to the brand-new ones I have now”.

- New machinery

Some schools have taken the decision to replace all their old machinery with new, modern ones to make them safer to use, while other schools received some new machines from the Department. A few participants felt that the new machines were not necessarily better or safer. Participant TM1 said the following regarding his new metal cut-off machines: “It is DIY machines meant for use by one person, working in your home garage. It is not supposed to be used constantly by learners making PATS, and because it is a cheaper

DIY tool and not the expensive professional type… they do not last". He elaborated by saying that "it is a concern but we can't really say no thank you for machinery that we get for free so we take what we can get". Another comment on the quality of a new lathe that was supplied by the Department was made by TC10, who noted that "a poor-quality lathe is a physical safety risk because it simply cannot take the pressure. It bends, it breaks, and it injures. Poor quality equals a safety risk". The lack of safety features on a metal lathe were of particular concern to TM18. He elaborated by saying "that machine cannot be in a school workshop. There is no dead stop safety brake on the bottom of that machine at all". He further added that this machine was supplied by the DBE but that it did not meet safety standards. In a follow-up question, I asked if he had any input in the type of machines the Department ordered or supplied, to which he replied, "not at all, they did not consult me".

- Substandard consumables

The condition and safety of the machinery that Technology teachers use daily are not only determined by the standard of their maintenance but also the quality of the replacement parts used in the machinery. It is common knowledge that maintenance of and parts for machinery are expensive and that SMTs and the DBE must take financial constraints into account when purchasing consumables and replacement parts. This may lead to dangerous workplace conditions where machinery becomes unsafe due to cheaper, inferior parts. One participant (TM1) stated "I am worried that those discs might break and fly into my face". Another HOD (HC6) stated that the circular saw blades he received were the cheapest one could buy and that they became dull very quickly. Dull blades cause kickback of work pieces and are the leading reason for injuries on circular saws (Oosthuizen, 2009). Workplace security is thus directly influenced by the quality of consumables used in machinery.

- Lifting machines

The regulations pertaining to lifting machines and lifting tackles are discussed extensively in the Driven Machinery Regulations 2015 (§ 4.4.2). Section 18(2)(a) of the mentioned regulations states that no user shall use or permit the use of a power-driven lifting

machine unless it is fitted with "a brake or other device capable of holding the maximum mass load should the power supply fail or shall automatically prevent the uncontrolled downward movement of the load when the raising or lowering effort is interrupted". This is of particular concern considering the unpredictable situation of load shedding in South Africa and the possible risk of loads collapsing on teachers. Section 18(5)(a) emphasises that "the whole installation must be thoroughly examined and subjected to a performance test, by a registered Lifting Machinery Inspector appointed by a registered Lifting Machinery Entity at intervals not exceeding 12 months". The importance of conducting regular lift inspections was underscored by an HOD (HM17), who said the following: "my school received a four-post lift from the department about eight years ago, and since it was installed, it has never been inspected or serviced. It is starting to act up, and I am afraid that one day someone will get pinned underneath it". Another participant (TM8) added that his lift was manufactured in 1971 and was unserviceable due to unavailable parts. He continued by saying that no specialist service provider was prepared to service it and that he would have no defence in case of an accident. Not only is the regular inspection of lifting machines mandated, but section 18(7) further emphasises that "every user of a lifting machine shall at all times keep on his premises a register for a period of ten years in which he shall record the full particulars of any performance test and examination prescribed by sub regulations". Judging from the participants' responses, it is clear that inspections and record-keeping of hydraulic lifts were lacking, consequently posing a serious risk to their workplace security.

An HOD (HM17) added his voice regarding safety concerns by stating that the motor vehicle engines they received from the Department had no safety covers over the engines' flywheels and that "[they] can easily grab an overall and pull you in there". It is thus apparent that workshop machinery plays an integral part in the physical security of FET technology teachers. Factors such as the age, quality and safety features of machinery should therefore be regarded as contributing factors. One matter of serious concern is that it appears as if unqualified DBE officials are responsible for selecting and purchasing machinery without consulting well-qualified persons such as experienced Technology teachers. It seems as if the price of lower-quality equipment is more

important for them than the safety features and durability associated with high-quality machines.

6.4.1.1.2 Electricity and electrical installations

The availability of three-phase, four-wire supply electricity in Technology workshops is considered crucial, according to CAPS (2014). All fixed and portable machinery in workshops should conform to the specifications set out in the OHSA, particularly the Electrical Installation Regulations of 2009. Regulation 6(1) states that the responsibility for electrical installations falls on "the user or lessor of an electrical installation, as the case may be, shall be responsible for ensuring the safety, safe use and maintenance of the electrical installations he uses or leases, and shall not tamper or allow any tampering on any installation where a certificate of compliance have been issued".

- Electrical systems

The risk of defective electrical systems to workplace security is evident from the response of TM4, who remarked "the earth leakage in the distribution board is noisy, and not connected properly… the school's electricity is not safe". A similar problem was reported by TM12, who apprehensively stated that when he started working in his workshop, he found three loose "neutral wires" in the distribution box. He added that the workshop had not been inspected in 30 years and that he did not know if a COC (certificate of compliance) was issued. He continued by saying, "I had to get an electrician to look at my welding machines. They were all connected on the same line with only one connector and one overload switch". The non-compliance of this workshop is affirmed by regulation 10(2–3) of the Electrical Installation Regulations (2009), which states that "every user shall have a valid COC in respect of every such installation, and as the case may be shall on request produce the certificate of compliance for that installation to an inspector or inspection authority".

- Portable electric tools

Although portable electric tools are not classified under electrical installations, they pose similar risks to the physical security of their users. Portable electric tools are used

regularly in all Technology workshops. Section 9(3)(4) of the Electrical Machinery Regulations 1988 states:

> no person shall use or permit the use of a portable electric tool which is not fitted with a switch to allow for easy and safe starting and stopping of the tool, and that every portable electric tool and its flexible cord and plug shall maintain in a serviceable condition.

Therefore, regular inspections should be conducted on both large stationary machinery as well as portable tools. Two participants (TC11, TM4) felt that the portable tools they used were unsafe and that there was a risk of being electrocuted by machines that were not earthed correctly, had no emergency cut-off switches, and tools that needed repairs.

Furthermore, the lack of a safeguard for electrical training boards was reported by TE21, who stated "I must do practical wiring of three phased motors with my grade 12s, but the panel doesn't have an overload on it, and I feel the overload is crucial for safety". It is important to underscore that safeguards are not limited to big electrical machinery but include smaller equipment like electrical training boards and all portable electric tools used in Technology workshops. Employers should take note of this risk to workplace security and must ensure that regular electrical inspections are conducted while also adhering to manufacturer's specifications. This is especially important when replacing the common round 3-point plugs (SANS 164-1) found on most machinery or using prescribed adaptors. South Africa adopted a new safer compulsory plug and socket system (SANS 164-2) on all new electrical installations in 2018.

6.4.1.1.3 Installation of new machinery

A big concern and frustration that many participants shared was the non-compliance with the Electrical Installation Regulations (2009) in cases where new machines were delivered by the Department. As per regulation 10(2) of the Electrical Installations Regulations (§ 4.4.3), a COC must be issued by a qualified electrician when a new machine is installed in a workshop. Regulation 12.2.2 of the GU&M Guidelines (§ 4.3.1)

should be read in conjunction with the regulation above and states the requirements for contractors and service providers when installing or replacing electrical machinery.

All participants agreed that the contractor who delivered the machines did not correctly install it and therefore did not comply with regulations. TM16 remarked that “the Department is responsible to connect the machines in order for the warranty to be valid*”.* An irate TM5 added that “they delivered a three-phase guillotine a couple of years ago, and it is still wrapped in plastic. I can’t use it, and I am not allowed to connect it myself to start work”. In a follow-up question, I asked if anyone of the Department came to inspect the machinery after it was delivered. TC19 answered that “a Department official came around to check, but they don't care if the installation is done correctly, or even done at all as long as there is a signature and the contractor gets his money, it is where it stops”. Section 16.4.2(a) of the GU&M Guidelines clearly states that goods supplied by service providers must be “fully functional at all times after they have been commissioned, and that a guarantee/warranty must be supplied that the deliverable will serve the intended purpose with no defects over the stated guarantee period”. It further states that no final payment should be made to any supplier without a signed guarantee. Moreover, Table 11 in the GU&M Guidelines specifies that it is the responsibility of works inspectors to “assess the work carried out by service providers on repairs and replacements, sign them off, and recommend payments towards such services”.

It is evident that the DBE's lack of inspections and their failure to enforce the relevant guidelines not only contributes to unsafe working conditions but also negates the process of supplying new machinery to schools, since it cannot be fully utilised for the intended purposes.

An interesting perspective on electrical installations was shared by TM18 whose workshop was upgraded by a private company. The school and the company were in a partnership regarding the training of apprentices in the school workshops after hours. The institution upgraded the workshop according to its own industry standards. The participant summarised his observations as follows: “The safety features on the machines were amazing when they were finished. Every inch of wire was replaced, and the lock out

switches upgraded. The standard of overall safety in the workshop afterwards was unbelievable".

It is noteworthy that the same OHSA regulations govern both the private industry and school workshops and that, in principle, the standard of safety is the same. The main difference in this case seems to be the application of the regulations by the private company compared to the DBE to ensure a safe work environment. Possible reasons for this inconsistency may be that safety in the private sector is strictly self-regulated and heavy fines are imposed on institutions and individuals in cases of non-compliance. This was supported by TM8, who worked in the private sector, who (referring to the workshop) said that "if this school was inspected by mine inspectors, it would have been red-tagged and shut down". As learners also use workshop machinery, it is ironic that the Department does not uphold its legal duty in ensuring that learner safety is held to the same standard as the private sector does for its workers. This is in direct violation of section 28(2) of the Bill of Rights, which states that "a child's best interests are of paramount importance in every matter concerning the child". This also includes other legal provisions regarding the safety of learners in public schools.

It is evident that compliance with the Electrical Installation Regulations (2009) by the Department and some schools is seriously lacking. The main responsibility for ensuring that workshops are compliant ultimately rests on schools, since they are classified in regulation 6(1) as the "user". They must ensure that the COC certificates of every workshop is available on request and that all electrical installations are safe. The implications for teachers are, if machinery and equipment do not comply, they can be held liable for harm to learners because they have a legal duty to ensure that all workplaces are safe and free of hazards. They should foresee that harm may be caused to themselves or learners when using unsafe machinery, and they have a legal right to refuse to work on such machinery until they are repaired or compliant with regulations. Failure to comply with these regulations directly influences the physical security of their teachers and also affects school insurance matters, like fire, accidents and injuries.

6.4.1.2 Sub-category 1.1.2: Inspection and maintenance

The responsibility of inspections and maintenance is shared by several stakeholders, and sustainable support from the SMT is emphasised in the Civil Technology CAPS (2019a). Section 2.4.4 of CAPS states that the SMT must budget and make funds available to not only "allow for the teacher to replenish tools and equipment" but also do "preventative maintenance and have a plan to regularly replace obsolete equipment and tools". According to Section 36 of SASA, governing bodies of public schools should take "all reasonable measures within its means to supplement resources supplied by the State in order to improve the quality of education". However, Squelch (2001:146) is of the opinion that the ultimate responsibility for providing basic education and the necessary resources and facilities still lies with the State, since public schools are organs of state.

- Support from the SMT

Teachers are dependent on the support from their schools (SMTs) and the DBE to maintain or replace machinery. To that end, several participants remarked that the lack of finances was a contributing factor to maintenance being neglected. One participant (TC11) commented that "the school offers absolutely no financial support at all. There is always something else that needs to be fixed or needs more attention". Several teachers felt that this directly affected their physical safety, as machines were unsafe to work on as a result. As part of the follow-up questions, I asked teachers how they could finish practical work when machines were out of order. Participant TM4 remarked that "I will report it to the school, but they will ten to one not try fix it or replace it because there is no money. We have to make do without it". One participant (TM18) believed the socio-economic circumstances of the school itself also played a role in the availability of funds. He elaborated by saying that "the problem is that 50 percent of the parents do not pay school fees, and if the school does not receive those fees, you cannot buy materials or do maintenance". The issue of funding from the Department was raised by several participants. They mentioned that the DBE had provided funding to their schools in the past. The funds were meant to be used for maintenance and supplies, but every school managed the funds according to their own discretion. Participant TC10 remarked that "maintenance is expensive unfortunately, and sometimes the school just looks the other

way when something breaks". He further said that the problem was compounded by the fact that some of the SMT members were not Technology teachers and did not have the technical knowledge or background to understand the severity or complexity of the problem. According to Darlow and Louw (2011:23), health and safety representatives act as a "watchdog" for the employer when it comes to occupational health and safety matters and must have a certain level of knowledge about the environment in which they work. He supported his statement by adding that he was the only Technology teacher in the school and that his HOD was a Science teacher. A smaller number of participants commented that their schools had not received funding in the last three to five years. One HOD (HM17) remarked that the funding his school received the previous year "was barely enough to supply all the workshops with safety goggles".

Teachers are legally responsible to report all unsafe equipment and unsafe conditions in their workshops, as directed by section 14(d) of the OHSA. If they are not able to perform maintenance on machinery, they should request help from the school or the Department to procure help from private service providers. Numerous participants emphasised that they had sufficient funds to do maintenance, like TC22, who noted that "the principal is very supportive as far as funding is concerned, because he knows how important safety and maintenance is". Participant TM5 echoed the same sentiment by saying "[o]ur school budgets are pretty good. So, I budget for maintenance and supplies, and if I can't fix something, I can get someone to come and do it."

One of the interview questions was designed to investigate if teachers were aware of any inspections done on their machinery by anyone except them or their school. Most of the participants answered no and that they were not aware of such instances. One participant (TC15) even said "I have been here for 36 years, and I have never seen an inspector, ever". Another participant (TM16) shared his sentiments in this regard: "Not from my first day as a teacher. Apart from the subject advisor to assess my PAT, no inspectors, no installers, nobody."

- Inspections

Section 29(f) of the OHSA states that the duty of inspectors is to "inspect the plant or machinery on the premises, any work performed on those premises or any condition prevalent in those premises". Section 17 of the GU&M Guidelines mentions that works inspectors are housed at provincial district offices and that their responsibilities set out in Table 11 also include assisting the school facility maintenance coordinator (FMC) with the "assessment of maintenance needs, assess the work carried out by Service Providers on repairs and replacements and sign them off, and recommending payments towards such services". Therefore, it is the legal duty of (works) inspectors to inspect services or machinery rendered by service providers to schools.

Three participants (HC6, TM8, TC9) in the same school remarked that inspections only took place after the services of a private safety company were procured by the school. This action was taken because of the absence of works inspectors assigned to the DBE. One of the three participants (TM8) remarked:

> the (private) company issued inspection reports that the machines passed inspections every term, but I know they were not in a working order. After a while, we realised they were only out to make money off the school, and it stopped.

Despite the services of the private safety company being cancelled by the school, they still made an effort to comply with inspection regulations by using their own funds, even though it is the legal duty of the works inspector assigned to the DBE. One HOD (HC6) neatly summarised it by saying "we should not be expected to be the only ones to follow all the rules and regulations and the Department doesn't fulfil their responsibility to do inspections. It comes down to a shared responsibility". It is clear that the majority of schools supported their teachers with regard to maintenance and procured outside help if needed.

- Assistants

The Civil Technology CAPS (2014a) states that "a workshop assistant is required to service the workshop". This service entails "preventative maintenance, maintenance,

upgrading, and the service and repair of devices". However, the Mechanical Technology (2014c) and Electrical Technology (2014b) CAPS make no mention of workshop assistants. All participants remarked that they did not have or had never had a workshop assistant. One participant (TM1) lightly remarked: "No never had such a thing. The lab assistants fell away, and you are lucky if you get a cleaner, never mind an assistant." Although all the participants testified to the absence of assistants, many shared the opinion that an assistant would greatly assist in enhancing workplace security in their workshops. One participant (TC15) remarked that "an assistant would be of great help if he could take over the maintenance from me. I do not have time to do it".

Although the management of funds to do maintenance varies from school to school, the practical implications of using outside service providers creates additional challenges. Often, identifying service providers with the necessary skills and expertise to work on specialised machines (especially the dated ones) is very challenging. Apart from the expense, machines are often removed from schools to conduct serious repairs. Teachers must therefore budget and plan accordingly to ensure that funding is available and that minimal disruption to teaching and learning occurs. If possible, schools should utilise the expertise and experience of their own Technology teachers to assist with maintenance and should also consider compensating them for their work in this regard. It is more cost-effective and less disruptive to teaching and learning. Although the common-law principle of liability is comprehensively discussed under Theme 5, it is important to highlight the direct connection between inspection and maintenance in relation to workplace security and the common-law principle of liability.

6.4.1.3 Sub-category 1.1.3: Record-keeping and inventory

As discussed in the previous sub-section, the Civil Technology CAPS (2014a) suggests that assistants "keep register of all equipment and perform regular inventory stock taking". Since all the participants noted that they did not have workshop assistants, the duties fell on them to keep record of tools and machinery as well as an inventory. Most participants remarked that they had no record of previous inspections done in their workshop. One participant (TM7) disclosed that "when I took over from the previous teacher six years ago there was no record of any inspections done on any machines". Three participants

(HM20, TM5, TM1) acknowledged that they had started keeping record of maintenance done on air compressors and other machines done by service providers but had no other previous records to show. A regulation pertaining to record-keeping is also stated in the Driven Machinery Regulations 2015.

Works inspectors are responsible to "assess materials earmarked to be declared as condemned and obsolete by signing them off as decommissioned" (section 17 of the GU&M Guidelines). The issue of obsolete materials was raised by TM16, who commented that "there is no way that you can write off old, broken or unusable stock. No official form or document exist to complete any more like we use to do in the past*".* He elaborated that the departmental stock-taking system, where particulars of machinery were recorded and verified by the Department, also seized to exist. This situation may hamper the Department's efforts to determine and address the specific needs and shortcomings of schools regarding machinery and tools, since no record is being kept. The importance of Technology departments in schools keeping record and an inventory is further emphasised by section 29(c) of the OHSA which states that inspectors "may require schools to produce a record, may examine it, and require explanations of entries in the record". More importantly, section 29(g) states that "any such record may serve as evidence at the trial of any person charged with an offence under this Act or the common law". Thus, this record of service and inventory serves as a legal document and can lead to one being held delictually liable.

6.4.2 Category 1.2: Accidents and diseases affecting workplace security

Factors related to the participants' physical safety while using machinery are identified and discussed. This sub-section focuses on the influence that accidents and diseases which may emanate from conditions in the workplace may have on Technology teachers' physical safety.

6.4.2.1 Personal protective equipment (PPE)

Section 8(2)(b) of the OHSA states that employers must "take steps to eliminate or mitigate any potential hazard to the safety or health of employees before resorting to

personal protective equipment (PPE)". It is not always practically or financially possible to mitigate all risks associated with practical training in workshops, and teachers are required to use PPE frequently. Four participants reported suffering from varying degrees of hearing loss due to prolonged exposure to high noise levels. One participant (TM1) reported "I do wear earmuffs, but it is not always practical when you still have to communicate and then sometimes the noise still gets through". This statement is supported by research conducted by Lankford and West (2003) in high school woodworking classes, which attributes hearing loss amongst teachers and learners to inadequate use of hearing protection devices. Participant (TM1) further explained that expensive noise-cancelling hearing aids would be ideal for his working conditions but not likely due to the cost involved. He further voiced the opinion that the DBE should provide such specialised PPE, since his school was reluctant to pay for it. Half of the participants echoed the same sentiment and added that specialised PPE to eliminate respiratory problems associated with fine wood dust, cement dust and carbon dioxide fumes should be provided by the DBE, not the SMT. Two participants (TC9, TC19) felt that their health was directly at risk due the absence of extraction fans, which should also be considered as PPE. Another participant (TC10) expressed the concern of regularly being exposed to airborne cement dust and contemplated the long-term effects of this on his health.

6.4.2.2 COVID-19

Four participants were anxious of contracting COVID-19 during contact sessions with learners and expressed the view that not enough precautions were taken to protect them from possible infection. Three participants (TM8, TE13, TC15) were considered high risk due to pre-existing conditions. Two of the above-mentioned participants reported that due to the practical nature of Technology tuition, it was not possible for them to teach online from home and that they were reluctantly forced to return to school. One participant (TE13) elaborated that he tried to avoid contact with learners but that this was difficult during practical sessions where he unavoidably had to be in close proximity to learners.

The COVID-19 pandemic also had an indirect influence on the workplace security of teachers. Two participants (TM23, TM5) who were appointed to SGB positions explained that a lot of parents had lost their jobs during the epidemic and that this influenced the

financial position of the school. The work security of the participants was ultimately affected by the COVID-19 pandemic.

6.4.2.3 Ventilation

Ventilation is considered of extreme importance for Civil and Mechanical workshops in the CAPS document (DBE, 2014). Ventilation systems are particularly necessary to extract wood dust and carbon dioxide fumes from workshops (§ 4.4.5). Both can contribute to respiratory diseases specified in Schedule 3 of COIDA 130 of 1993. Three participants who taught Civil Technology (TC15, TC19, TC24) commented that their workshops had never had wood dust extractions systems and that they considered dust as a big risk to their health. Two of these participants (TC15, TC19) had been teaching in their workshops for over two decades. TC15 complained of health issues and mentioned that he used an asthma pump occasionally when his chest tightened. T19 commented that “I feel it is the duty of the department to install a ventilation system here. The school doesn’t have R80 000 to do it, so I just have to work in the dust”. Another participant (HC6) stated that his school had installed a new system a few years before and that it made a big difference in eliminating most dust from the workshop but that the risk of fine dust was always present. It must be noted that dust does not only pose a respiratory risk but also a fire risk due to its flammability.

Two participants who taught Mechanical Technology (TM7, HM17) commented on the risk of inhaling carbon dioxide fumes when working on running engines and added that the normal ventilation process of opening doors and windows was not sufficient, as they did not have fume extraction systems. One participant who taught Electrical Technology (TE13) mentioned that soldering fumes were a concern for him but not concerning enough to justify the need for an extraction system.

A risk assessment of the air quality in Civil and Mechanical workshops must be performed by the facility manager and the SGB to determine the magnitude of risk to teachers. Section 5(1) of the Environmental Regulations for Workplaces (1987) clearly states the permissible volume and concentration percentages of dust, fumes and vapours. The risk assessment should not only serve as guidance on what preventative measures should

be implemented to ensure sufficient ventilation but also as supporting motivation when a request for major repairs and major replacements (MRR) is submitted to the provincial maintenance director (PMD).

6.4.2.4 Injuries

One participant (TM16) was apprehensive about the lifting of heavy objects during the course of his work and possibly sustaining a back injury in the process. He emphasised that it was not always possible or feasible to use learners to help with heavy lifting. Technology teachers are often asked to help with specialised repairs or minor maintenance on the school premises, which poses an additional risk to their physical security outside of their workshops. The risk of falling from elevated heights like scaffolding or ladders were also recognised as a serious risk, and two participants (HE14, TM7) acknowledged that they had had falling accidents. One of the participants (HE14) was seriously injured after a very high fall and was hospitalised for head and spinal injuries. He recovered fully and returned to work.

Most of the participants reported that they had sustained minor injuries during practical training or witnessed such injuries happening. The incidents included injuring a finger on a circular saw, cutting of hands with spinning or rotating sharp metal edges, suffering burns from hot surfaces, eye injuries, and accidental electric shock.

It is evident that workshop machinery and all the regulations that govern them is not the only factor that influences the workplace security of FET Technology teachers. External working conditions that are conducive to contracting diseases as well as possible injuries resulting from the lack or proper use of PPE also influence workplace security.

6.5 Theme 2: Psychological security in the workplace

One initial focus of this study was to determine how the workplace security of Technology teachers was affected by physical factors in their workplaces. As the study progressed, I realised that physical and psychological factors in this regard could not be separated. The psychological factors that were identified by the participants were categorised into

two categories, namely stress in the workplace and discipline and supervision The layout of the categories and sub-categories under theme 2 is illustrated in Figure 6.4 below.

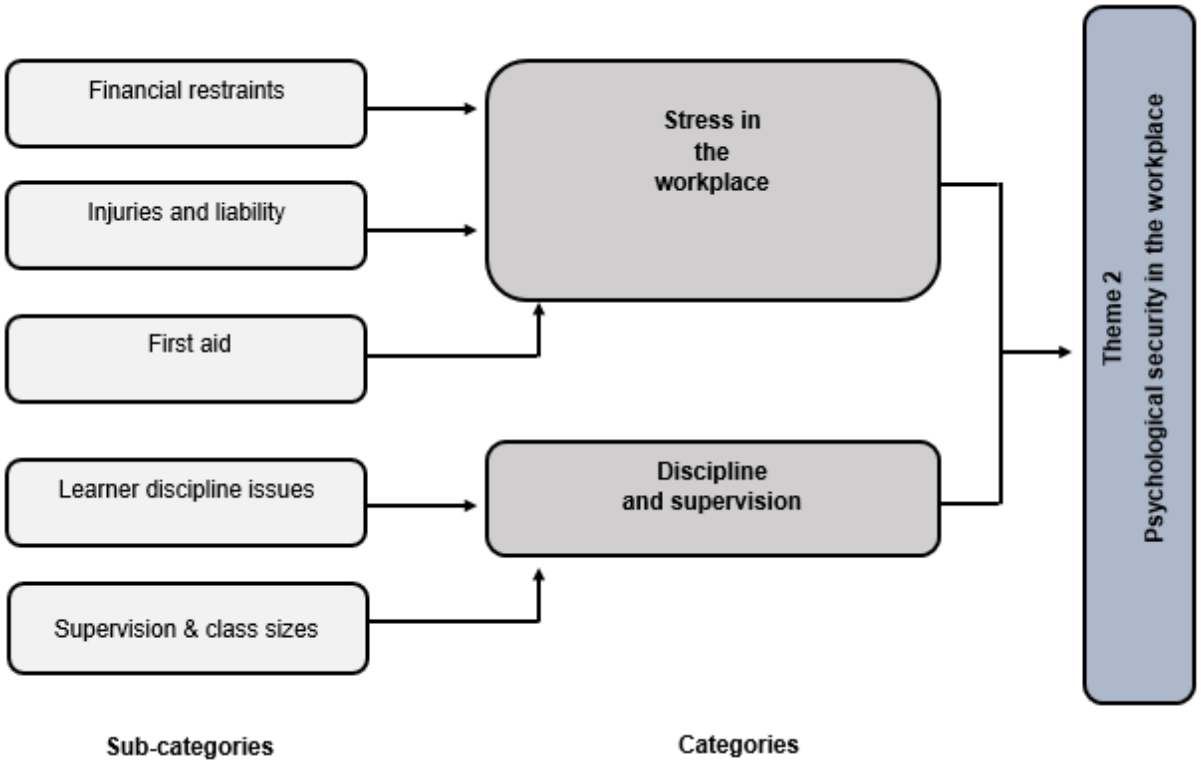

Figure 6.4: Theme 2 – Psychological security in the workplace

6.5.1 Category 2.1: Stress in the workplace

The influence of teacher stress in the general workplace and the effect it has on the psychological security of FET Technology teachers have been discussed in detail in § 3.3.1.2(b). Psychological conditions that develop from stress that affect FET Technology teachers include depression, high anxiety and emotional exhaustion, which, in turn, could lead to diminished teaching performances and teachers becoming demotivated. A small number of participants in the study expressed that stress effected

their professional and personal relationships beyond their normal workplace. It is important to indicate that psychological afflictions are not included in Schedule 3 (see Addendum J) of diseases in COIDA 130 of 1993 but are specified under PTSD in Circular Instruction No 172 of 2002 (DOL, 2002).

The level of stress that Technology teachers experience in workshops is significantly higher than the norm due to the presence of life-threatening machinery and the legal ramifications it presents. Adding additional factors like large classes and, to a lesser extent and limited to some schools, intoxicated learners in workshops, these teachers are even more at risk of developing stress-related illnesses. These illnesses can take on various forms, including coronary disease, insomnia, headaches, alcoholism, depression, and a range of other problems (Pithers & Fogarty, 1995). However, the aim of this study was not to determine all the above-mentioned illnesses; only those that are listed as diseases in Schedule 3 of COIDA 130 of 1993.

One participant (TM4) explained the direct influence stress had on her health by stating that “I have an eye affliction that is triggered by stress. It severely affects my sight, and I have to seek medical attention every time it occurs”. Another participant (TM18) emphasised that work-related stress had a detrimental effect on both his professional and personal relationships. Although factors influencing the physical security of teachers are well-regulated by the OHSA, little attention is given to the psychological security of Technology teachers. Circular instruction No 172 of 2002 (DOL, 2002) does not focus on the prevention of stress in the workplace but only on guidelines to be followed in handling and processing PTSD claims. Moreover, it does not address the issues of identifying or coping with stress in the workplace, particularly in the high-risk work environment of workshops. It is clear that more support should be given to teachers and schools in the form of occupational psychologists and that psychological and physical factors affect the workplace security of teachers equally.

6.5.1.1 Sub-category 2.1.1: Financial restraints

One psychological factor resulting from stress is high anxiety, and some participants commented that they were anxious because of lack of financial support. Lack of funds for

maintenance of tools created a situation where, according to participant TC11, “I cannot do my job without functioning tools, and the school doesn’t provide them or even help with fixing the broken ones”. He added that he even brought his own personal tools from home to help finish the Grade 12 PAT but seized to do so after these tools also broke. The probability of not completing the work also reflected negatively on him professionally, and he commented dejectedly that his subject advisor “probably thinks that I am incompetent because I couldn’t finish in time”. His discouragement was summarised by saying that he was tired of working under those conditions and of constant conflict with the SMT regarding funding and was seriously contemplating leaving the school. Another participant (TC10) who taught Civil Technology remarked that he was always anxious when learners handled expensive or sensitive equipment like dumpy levels. He expressed his concern that such equipment would not be replaced if it broke, and this put additional pressure on him.

6.5.1.2 Sub-category 2.1.2: Injuries and liability

A large number of participants were anxious about personal liability due to unsafe workplaces and possible injuries to learners resulting from these workplaces. Participant TM16 summarised his frustration regarding the assignment of blame as follows:

> These days, everything works on a blame-shift system. When a learner gets injured, he blames the teacher. The parents file a case against the Department, and the Department holds the school principal responsible. The principal says it's not his fault, it was the teacher’s fault. The teacher replies by saying that the machines have never been inspected or certified by anyone and that he doesn’t receive [financial] support from the school and so on. It then comes down to the person that was present who takes the blame, regardless [of] if he was the only guilty party or not.

One participant (HC6) who taught Woodworking explained that he got really stressed when learners worked on dangerous machinery like the bandsaw. He mentioned that “you just wait for that moment when he doesn’t hold the work piece properly and it gets kicked out, or when he pushes it too hard into the blade…you are constantly stressed

out". Four participants (HE14, HM17, TM18, TM23) remarked that the age and skill level of the learners also contributed to their stress levels. HM17 voiced his concern by stating that "there are certain classes you just cannot leave to their own devices. They will cut off their fingers when you don't stand next to them the whole time…it's mentally exhausting". It was evident from the analysis that inexperienced learners from the lower grades generated more stress for the participants during practical supervision than more experienced learners from the higher grades.

6.5.1.3 Sub-category 2.1.3: First aid

Section 3(2) of the General Safety Regulations 1986 states:

> where more than five employees are employed at a workplace, the employer shall provide a first aid box or boxes at or near the workplace which shall be available and accessible for the treatment of injured persons at that workplace.

The significance of first aid was highlighted by participant TE13 who taught Electrical Technology. He remarked that he was anxious about rendering first aid to learners in the case of emergencies. His class was far from the office, and if someone got electrocuted, he would not have been able to get help quickly. He also did not have a phone in his class. He completed a departmental first-aid course a couple of years before, but it had expired. He was not aware if or when they would get a refresher course. Participant TM1 remarked that he had never received first-aid training and that he did not have a first-aid kit in his class either, which is a contravention of section 3(2). He alluded to the possibility of being held liable by saying that "if a learner gets injured, I will probably try to help him, but what if I do more harm than good and gets sued because of it?" The Department should take cognisance of the practical implications when teachers are not certified to administer first aid and should strictly adhere to section 3(2) to avoid possible liability.

6.5.2 Category 2.2: Discipline and supervision

The large number of responses of participants regarding the influence of learner ill-discipline on workplace security was expected. The responses varied from school to

school, depending on their respective codes of conduct, socio-economic standings and internal security measures. The influence of learner ill-discipline on workplace security and the level of supervision during practical training are discussed below.

6.5.2.1 Sub-category 2.2.1: Learner discipline issues

Most participants agreed that undisciplined behaviour and actions by learners posed a great threat to teachers' workplace security. Participant TM16 voiced his concern about serious learner misconduct:

> … something all the teachers will tell you is that your hands are tied when it comes to discipline. If a learner messes around in the workshop, there's not much you can do about it. If you chase him out of the class, you have you get in trouble because they cause trouble somewhere else instead of being under supervision in your class. If you leave him inside your class, you also have trouble because then he may cause an accident. So, what is your options then?

A large number of participants reiterated the above sentiment by adding that it was difficult to get a learner that was guilty of repeated offences expelled from school. An HOD (HC6) was displeased and added that "his (a learner) actions have a direct influence on every teacher's safety and on all the other learners in the class as well".

The code of conduct was brought up several times, and four participants (TM5, TC9, TC11, TC24) felt that the code of conduct of their schools did not judge the severity of misconduct in workshops strictly enough. One participant (TM16) compared his private sector experience regarding misconduct in a workshop and added "if you break the safety rules for a third time in the private sector, you are charged, or can even lose your job. There are no such consequences here".

Section 2A(1) of the General Safety Regulations 1986 stipulates that "an employer or user, as the case may be, shall not permit any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a workplace". The socio-economic problems that exist in certain parts of towns surrounding schools contributed

significantly to the disciplinary problems some participants experienced in their workshops. One example was the problem of drug abuse amongst learners. Learners would acquire drugs at the school perimeter during break and would then enter the workshop intoxicated. Participants HC6 and TM8 reported that these learners became aggressive and violent and physically assaulted them or other teachers. He continued by saying that "I had two incidents in the last year where a learner who was intoxicated dragged his hands over a jointer machine. Luckily it only grazed the skin, but he could have lost his hand". He further explained that the learner was in a daze and non-responsive to his instructions and that it created a serious threat to both the learners' safety and his workplace security. In one school, regular drug tests were administered, but participant TM5 felt that regular bag and body searches would better help curb the problem. He stated that he was under the impression that searches were not permissible, which highlights an unawareness of the applicable legal provisions in this regard. According to section 8A of SASA, principals may conduct random searches for illegal drugs on the property or body of learners if a fair or reasonable suspicion has been established and under other specific provisions regarding gender and following the correct procedures.

The significance of teachers' personal safety was further highlighted by participant HE14, who stated that his school provided panic buttons from a private security company to all the Technology personnel. This measure was implemented due to the workshops being far away from the main building and close to the school perimeter, which made the school more vulnerable to burglaries. He added that the panic button was also for possible personal attacks by learners or persons from outside the school.

The effectiveness of disciplinary systems varied from school to school, and it took very long in some instances to remove repeat offenders from their classes. Nearly half of the participants felt that the disciplinary system did not support them in maintaining a safe workplace and that measures like detention were ineffective. Since entering or remaining in a workshop while being intoxicated is prohibited under section 2A(1) of the General Safety Regulations, SMTs should take notice that failing to comply with these regulations is an offence and liable to a fine or imprisonment.

Two schools appointed dedicated disciplinary officials with legal backgrounds to administrate learner misconduct. One HOD (HC6) remarked that it made an enormous difference in helping to remove repeat offending learners from workshops by assisting them to change subjects or in extreme cases expel them. One participant (TM5) suggested that parents should sign an additional type of school indemnity form regarding misconduct in the workshop. He compared it to the indemnity forms parents sign when learners partake in school sports.

Although a large number of participants previously expressed their concerns regarding accountability, it was surprising to find that only a few schools had camera systems inside their workshops. One participant (TM1), who had cameras in his workshop, mentioned that they improved the discipline of learners, as there was now video evidence of potential misconduct. He elaborated that the camera system also helped to prevent theft and that "I now have a foot to stand on in case something goes wrong…it is not his word against mine anymore". Another participant (TC9) mentioned that he felt cameras could assist him in identifying dangerous situations to prevent future accidents.

6.5.2.2 Sub-category 2.2.2: Supervision and class sizes

Numerous participants believed supervising large classes in workshops contributed to a great deal of their anxiety. The Civil Technology CAPS (2014a) prescribes a "learner to teacher ratio for all practical work of one teacher per 15 learners or part thereof". The Environmental Regulations for Workplaces 1987 also provides provisions regarding housekeeping and states in section 6(2)(a) that "at least 2,25 m² of effective open floor plan area must be available for every employee working in an indoor space". Many participants also reported class sizes larger than 15, with some classes as large as 75. One participant (HM17) who taught Mechanical Technology summarised his experience with large classes as follows:

> I always have this stressed knot in my gut when I work with large groups, because it's difficult to manage 15 learners at a time. For example, four would work at this one lathe, and then three others on the milling machine over there, and three standing at the drill, so you can't keep your eyes on

> everyone all the time because of the layout of the workshop. You also have to do maintenance in-between the one-on-one teaching when things break, while making sure everybody works safely.

He elaborated by saying that he managed to cope because of years of experience but that an inexperienced teacher would not be able to handle it alone. He supported the idea of an assistant because he felt that he could keep his eyes on the learners while the assistant handled the maintenance. He concluded by saying “that another pair of eyes wouldn’t hurt”.

The age of the groups was also considered to be a factor by participant TM18, who remarked that it was easier to supervise groups as they got older because they became more experienced. He did, however, add that every group had a joker that pushed the horseplay boundaries and that one could never relax during supervision.

It is evident that the factors contributing to the psychological security of FET Technology teachers were all manageable. Factors like finances, limiting injuries and liability, contributing disciplinary issues and class sizes are all responsibilities of the SMT, and intervention to limit the psychological insecurity of FET Technology teachers is not only plausible but should be a priority.

6.6 Theme 3: Influence of physical infrastructure on workplace security

One objective of this study was to determine the influence that physical infrastructure (immovable assets) had on workplace security. Immovable assets for the purpose of this study were classified as the physical structure, premises or building where a Technology teacher performed their work in the course of their employment. Theme 3 comprises three categories: structural defects of buildings, environmental factors (i.e., earthquakes), and inspections and maintenance. The layout of the categories and sub-categories under theme 3 is illustrated in Figure 6.5 below.

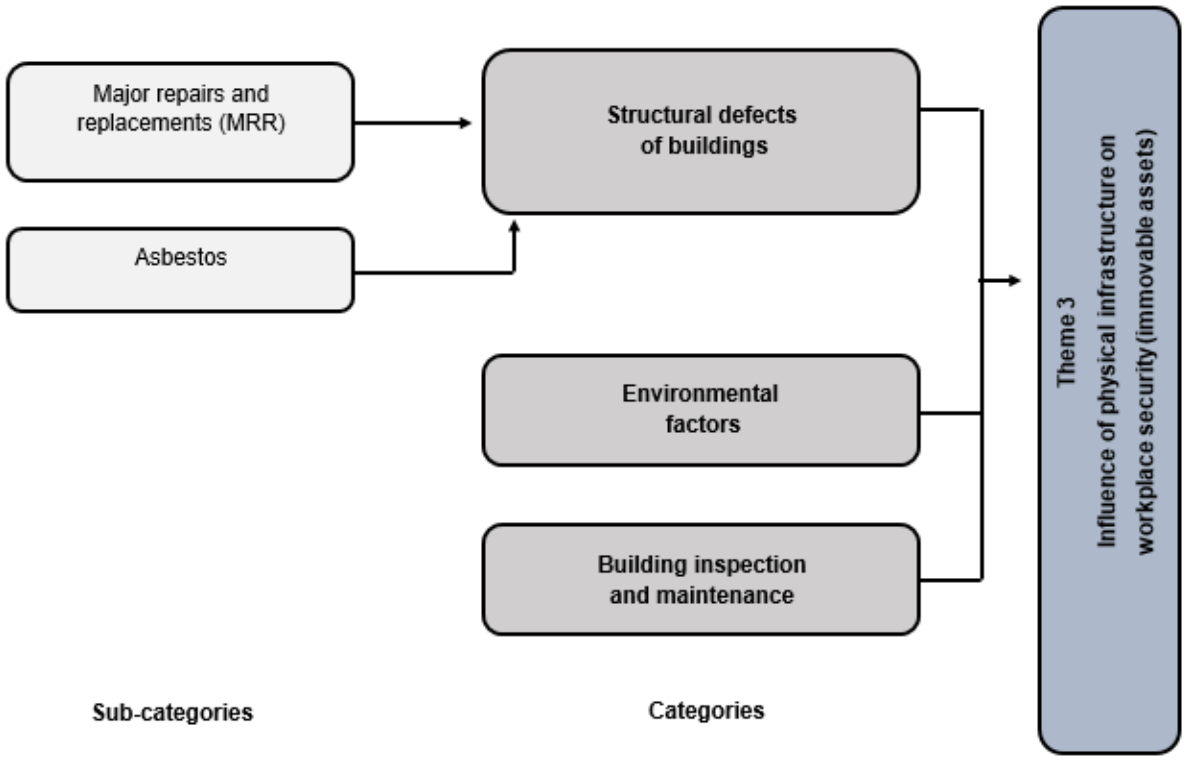

Figure 6.5: Theme 3 – Influence of physical infrastructure on workplace security

6.6.1 Category 3.1: Structural defects of buildings

To get a better understanding of what influence physical infrastructure has on workplace security, it was important to determine the extent of structural defects that needed repair or maintenance in Technology workshops. Nearly all the schools participating in this study had infrastructure problems, which varied from minor general upkeep (like leaking gutters and cracked walls) to major repairs and replacement defects (like structural damage to staircases and sinking foundations). All the defects identified in the schools where participants in this study were located are listed in Tables 4 and 5 of the GU&M Guidelines. Major repairs and replacements applicable to FET Technology workshops as listed in Table 4 include roofs (including asbestos sheeting), floors, walls, faulty foundations, specialised equipment for technical workshops, and upgrading any of electricity, safety or HVAC building systems. Table 5 of the GU&M Guidelines lists all

preventative maintenance in FET Technology workshops and includes safety and security systems, electrical, lift equipment and ventilation systems.

6.6.1.1 Sub-category 3.1.1: Major repairs

Damaged foundations can seriously influence the structural integrity of a building and can ultimately lead to collapse. Participant TM4 reported that the foundation of her workshop was damaged by a long-neglected water leak and that she considered the ensuing unstable floor as a serious threat to her safety. Other participants (TM8, HE14) mentioned structural problems like cracked slab foundations from asbestos classrooms to cracked and crumbling walls with separating corners. Flooring was a big safety issue for two participants, with TC11 expressing concern of serious injury due to collapsing wooden floorboards. He complained that the floor was over 50 years old and that no maintenance had been done on it over the years. Another participant (TM23) mentioned that the deteriorating concrete floor in his workshop posed a risk of tripping and falling, while problems with leaking roofs over machinery heightened the risk of electrocution. Participant TM16 mentioned that the total collapse of a ceiling in his workshop led to the shop being closed indefinitely, since it had been repaired by the Department before. At one school, participant TM1 mentioned that the gas cylinder installation was inside his workshop and not outside as per regulation. This not only posed a fire risk to the workshop but also a health risk to the teacher and learners of possibly inhaling gas fumes.

6.6.1.2 Sub-category 3.1.2: Asbestos

Three schools had workshops entirely or partially constructed of asbestos or asbestos-containing materials (ACM). Section 13.1(d) of the GU&M Guidelines, regulation 4(3) of the Regulations relating to Minimum Uniform Norms, and section 5A of SASA highlight the dangers associated with asbestos as well as procedures regarding its replacement and/or repair.

Section 5A of SASA states:

> the Norms and Standards for Education Facilities (NSEF) identifies asbestos as one of the building materials that are considered as being

inappropriate, where structures built of such materials need to be eradicated, with facilities built entirely of such materials to be prioritized.

Participant HC6 of one of these schools remarked that learners regularly damaged asbestos side panels of classrooms, and then the holes were repaired by covering them with steel plates. Cases like these influence the workplace security of teachers most, since asbestos panels pose the greatest health risk when they are broken and fibres are released into the air (§ 4.4.4). After being questioned if he felt that the asbestos was a risk to his health, he replied, "I certainly do. There is always a risk involved, and it will continue to be a problem until it is removed. Unfortunately, it will not happen soon, because the school doesn't have the funds for it, nor the department for that matter". Another participant (TM8) remarked that departmental officials visited his school three years before to inspect the asbestos buildings and instructed service providers to start with the process of removing some panels and replacing them with bricks. The process was never completed (§ 4.4.4).

6.6.2 Category 3.2: Environmental factors

Workplace security is not only influenced by physical and psychological factors inside the workshop that can be controlled and regulated but also by environmental factors like *force majeure* events. Earthquakes was the biggest environmental factor that influenced the physical infrastructure of schools in this study. The Matlosana District has experienced a growing number of seismic activities in the past decade, with the biggest reported tremor of 5.5 on the Richter scale in 2014. Damage to school infrastructure in the surrounding areas were reported. This is classified as MRR in the GU&M 2018 Guidelines. These major repairs to infrastructure are described in section 12.2.1(e) as a necessary step in cases of "major damage or sudden failure of a large component of a facility caused either by system malfunction, natural or man-made disaster". To determine the extent of damage to school infrastructure and the subsequent risk it poses to the workplace security of Technology teachers in the study population, all schools in the Matlosana District were asked an additional question during the interviews: Do you feel that possible earthquakes in your region pose a risk to your current or future workplace security?

The extent of the earthquake damage to schools in the Matlosana District varied from school to school. The first determining factor was the height of the building. Participant TC15 explained that his workshop was situated on the ground floor and had very little damage. In contrast, a school block consisting of three floors and stairways on the same premises had extensive damage to the floors and stairways. Cement floor ceilings of the first level cracked and fell onto the ground floor hallway. He continued by saying that he did not feel safe in the school with all the damaged infrastructure. The second determining factor identified by the participants were the construction of the building. Two participants (HC6, TM8) in another school felt that their school was fairly safe due to the construction method used in its foundations. The school is situated in an area with relatively unstable soil, and that may have contributed to the damage being less. They reported minimal damage to infrastructure and only noticed a single wall crack. The damage caused at the above-mentioned schools would be considered as typical items to be considered in Table 4 under MRR in the GU&M Guidelines (2018).

6.6.3 Category 3.3: Building inspections and maintenance

The term "maintenance" in the education sector comprises two categories in the GU&M Guidelines (2018), namely corrective maintenance and preventative maintenance, which are listed in Table 4 and 5 respectively (§ 4.6.1). Most of the corrective maintenance needed in Technology workshops is listed in Table 4 and is "considered specialized work that needs to be carried out by qualified Service Providers appointed and managed by the Provincial Infrastructure Unit or its appointed representative such as an Implementing Agent". Section 12.2.2(e) further states that "work carried out by the appointed contractors must be approved and/or certified by a professional in the built environment, and these include the Works Inspectors".

Although numerous participants commented that they had no knowledge of any building inspections ever done by the DBE in their workplaces (§ 4.3.1.2 (e)), a few noted the contrary. It was noticeable that all the participants who did have building inspections were in schools in the Matlosana District shortly after the earthquake in 2014. One participant (TM16) recalled the visit and summarised it by saying:

> … two teams inspected the school and completed a report. The school got quotations for all the repairs, and it was approved. The payments never made it to the school. It is still in the same damaged state seven years later.

Participant TM12 mentioned that shortly after the tragedy at Driehoek High School in 2019 (§ 4.1.2.2), where four learners died when a walkway collapsed on them, his school procured the services of an independent building inspector to compile a report of all the infrastructure that needed major repairs or replacements as well as the dangers it presented. The school reported serious infrastructure problems a couple of years before the tragedy but received no feedback from or inspection by the DBE. The school sent the new report to the DBE again and commented that they could no longer wait for a works inspector. The participant added that the school took these steps to prevent being held liable in case of any resulting injuries or death.

As already discussed under theme 1, electrical installations and machinery are not the only movable infrastructure that influence workplace security. Under theme 2 it was found that immovable physical building infrastructure also contributes to workplace insecurity by means of structural defects or damage caused by earthquakes, hazardous building materials like asbestos, and insufficient maintenance and inspections creating an unsafe work environment. Building infrastructure may also lead to occupational diseases like asbestosis if risks are not assessed and addressed properly. To ensure that workplaces are safe (in terms of both physical and psychological security), it is imperative that safety control measures are implemented to ensure compliance with all applicable legal determinants, as is discussed under the next theme.

6.7 Theme 4: Safety control measures

As mentioned in the GU&M Guidelines, several role players in school and departmental entities tasked with upkeep and maintenance are responsible for ensuring that immovable infrastructure and the workplaces of Technology teachers are safe. The implementation of safety control measures is vital in ensuring that the correct procedures and financial management guidelines are followed. The duties and responsibilities of

each role player should be clearly defined and instances of accountability as a result of non-fulfilment should be established. Theme 4 comprises of two categories, namely school control measures, and departmental control measures to ensure workplace security. The layout of the categories and sub-categories under theme 4 is illustrated in Figure 6.6 below.

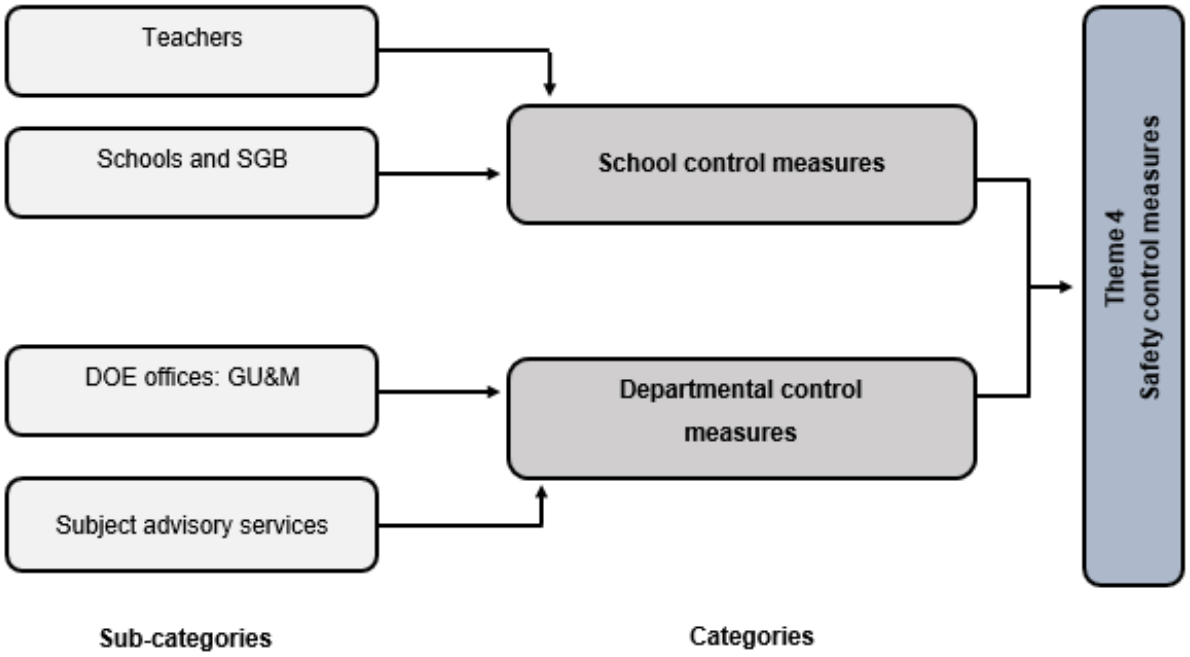

Figure 6.6: Theme 4 – Safety control measures to ensure workplace security

6.7.1 Category 4.1: School safety control measures

To adequately address the requirements of safety control in schools, personnel need to be identified or appointed to undertake the responsibilities of safety management in Technology workplaces. These personnel include the Technology teacher and their assistant (if such a person has been appointed), the Technology HOD, the school maintenance coordinator (SMC) and deputies (depending on the size of the school), the health and safety representative, the facility manager (FM), and the SGB member tasked with infrastructure and/or maintenance.

6.7.1.1 Sub-category 4.1.1: Teachers

The first and foremost role players responsible for ensuring workplace security are Technology teachers. They act at operational level and are legally obligated to ensure that workplaces are safe and should therefore report all safety concerns. Since they are constantly present in their workshops, they are the first to become aware of possible safety or maintenance issues during routine inspections. This responsibility was confirmed by participant TM7, who said that "we have to report if we have issues with broken machines, and our HOD takes it up with the school. He also keeps a record". As the issue of inferior consumables from the DBE have been raised previously, one participant (TM1) remarked that he took proactive steps to purchase good-quality consumables from a trusted retailer in town from his school budget to ensure safe working conditions. He added that he had sent the invoices to the DBE to reimburse the school and that they "were not happy about it, but I am not risking getting injured". In cases where machinery is out of order or needs servicing, teachers should refrain from using them during practical training to limit risk of injury. One HOD (HM17) echoed this sentiment by adding that "it is tough to plan if a machine is broken, but I have to take it out of circulation until its fixed and safe to use again".

Four Technology departments collaborated to address safety issues themselves by assisting each other with maintenance work that otherwise would have been sourced out to private service providers. Participant TC9 commented that "we are all experts in our fields, so we know what is required. It also saves a lot of time, and we don't have to deal with the red tape to get it fixed". He elaborated by saying that if electrical problems occurred on workshop machinery, the Electrical Technology teacher helped with repairs, since he was familiar with the specific safety regulations, standards and manufacturer's specifications. Although he assisted with repairs, inspections were still required to be conducted by an AIA. The same principle applied to the Mechanical Technology teacher. Some machine replacement parts could be manufactured on lathes and milling machines or welded and brazed if needed. He concluded that teachers became so familiar with the workshop machinery that they could quickly identify problems and rectify them. Sometimes, they approached school parents in the industry to assist with specialised

work on machinery that was not available in the school. The advantage of this safety control measure seems to be that the teachers took collective ownership of their department and used their local knowledge and networks to keep their machines and workplaces safe.

The majority of the participants remarked that although they did not have assistants, the appointment of such persons would greatly enhance safety in the workshop, since they could then fully focus on the supervision of learners and not be distracted by maintenance issues. Therefore, the DBE should consider appointing workshop assistants as safety measure to support teachers in keeping workplaces safe and enhancing the teaching and learning process.

6.7.1.2 Sub-category 4.1.2: School governing body

The second role players sharing the co-responsibility for ensuring workplace security is the SGB. Section 36(1) of SASA states the following in this regard:

> …a governing body of a public school must take all reasonable measures within its means to supplement the resources supplied by the State in order to improve the quality of education provided by the school to all learners at the school.

The maintaining of a safe work environment is thus directly dependent on support from the SGB. A few participants highlighted the non-existence of financial support from the SGB to maintain and/or replace tools. Section 37(6)(a) states that the SGB must also establish and administer a school fund and that the fund must be used for educational purposes. The problem was highlighted by the remarks of participant TC11, who said "something else is always more important to fix than my machines". This is a failure to comply with section 36(1). It seems as if the problem was not necessarily the unavailability of adequate funds but rather that priority was given to other aspects of the educational process rather than maintenance.

Apart from providing teachers with the necessary funding to maintain or replace machinery, schools also have the legal responsibility to ensure that physical workplaces

are safe. This implies that reasonable steps must be taken by schools and SGBs to address unsafe working conditions by monitoring, overseeing and ensuring that maintenance and inspection activities are carried out. It is especially important that the health and safety representative of the school plays a leading role in this process and strictly follows OHS regulations (§ 4.4.1) relating to quarterly health and safety meetings. Most participants reported that safety meetings were held regularly and that they could report and discuss safety matters on record. One participant (TM5), who had extensive previous knowledge of the private sector, commented that although he was the only Technology teacher in his school, he was not included in safety committee meetings and he had never been invited to attend a safety meeting in five years. He continued to say that he reported his concerns to his HOD but had no record or proof that his concerns were addressed at a safety meeting and therefore had nothing to present to inspectors if required. According to Darlow and Louw (2011:26), section 17(2) of the OHSA makes "provision for consultation in good faith between employees and the health and safety representative and regard it as the most critical". The finding is that the committee must in good faith include the teacher in safety committee meetings as health and safety is its primary function.

The FMC is responsible for the day-to-day management of these activities, which also include managing the tools and equipment register. In cases where maintenance cannot be supplemented by the school budget – like in the case of TC15, who reported "the school doesn't have R80 000 to install a dust extraction system" – the FMC is responsible to make an intervention request to the Provincial Education Department (PED).

The majority of participants reported lack of regular inspections and acknowledged that the SGB is co-responsible for ensuring that lifting equipment, workshop machinery and tools, electrical installations and ventilation are regularly inspected. They are also obliged to suggest system improvements to the FMC of the school. Apart from inspections, schools also have a responsibility to ensure that teachers are supplied with appropriate PPE and that specialised equipment is justified in specific cases where other measures are not feasible.

Furthermore, schools can assist teachers to limit the risks in their workplaces through administrative means. Participants reported class sizes as a significant contributing factor to their psychological security. Principals should take this into consideration when conducting task allocations, setting timetables and determining class sizes for workshops. By dividing large groups into smaller manageable groups and creating additional periods on the timetable, the risks in workshops can be minimised.

6.7.2 Category 4.2: Departmental control measures

The DBE, through a number of delegated departmental officials, is responsible for managing and enforcing several safety control measures to ensure workplace security. These measures include a network of guidelines and legal determinants outlining the responsibilities and duties of every stakeholder, from the National DBE to circuit office level.

6.7.2.1 Sub-category 4.2.1: DBE offices

The third role player sharing the responsibility for ensuring workplace security is the respective provincial, district and circuit offices of the DBE. Their collective role is not only acting in their capacity as employer, adhering to all accompanying legal duties associated with an employer but also overseeing all GU&M Guidelines, housing works inspectors and approving and supervising all MRRs of immovable infrastructure that directly influences workplace safety. Some cases where the DBE failed to address infrastructure issues timeously were reported by participants (TM16, TM4, TM8). These included faulty roofs, sinking foundations, collapsing ceilings, broken asbestos structures, and one school that suffered major structural damages during seismic activity (§ 4.6.1.1). Not only was addressing the above-mentioned problems neglected but the upgrading of building systems like electricity and extraction systems also did not receive proper attention.

One concern all participants shared was the absence of works inspectors from the DBE. Regulation 16.1.3(vi) of the GU&M (2018) considers the minima ratio for works inspectors to be 1 x works inspector per 100 education facilities. This high ratio may be the reason why inspections are not being done regularly, as the workload is not realistic for a single

inspector. If one takes the 31 FET Technology high schools with approximately 90 workshops in the study population into consideration, it is clear that the ratio of inspectors per education facility must be increased to a more realistic number. It is also important to note that specialised knowledge of workshop machinery, electrical and building infrastructure and all related regulations is required and that different levels of expertise in each field may be necessary.

The lack of finances is often presented as an excuse by the DBE to not conduct crucial MRRs, despite infrastructure funding of the North West DBE that was underspent by R225 million in the 2019/2020 financial years (Cilliers, 2020). During the School Infrastructure 2019/20 mid-year report by the Minister of Education (PMG, 2020), it was reported that the challenge of human resources was especially difficult in rural provinces like North West, where it is difficult to attract and keep specialists like engineers, building managers and works inspectors. Currently, there is a 25% vacancy rate. It seems that factors besides the high ratio allocation of works inspectors may contribute to the reported inspection problems experienced in FET Technology high schools.

In cases of schools where serious damage to infrastructure is reported, the DBE must be cognisant of the fact that any injuries or diseases resulting from their omission to act would lead to the Department being held accountable. Participants stated that major infrastructure issues, like collapsing roofs, sinking foundations, earthquake damage and asbestos structures, had still not been attended to by the Department years after reporting these (§ 4.6.1.1). The DBE's failure to do so directly influences the workplace security of teachers in these schools.

6.7.2.2 Sub-category 4.2.2: Subject advisory services

The fourth and last role player sharing the responsibility for ensuring workplace security is subject advisory services (SAS). The main purpose of subject advisors is to "provide professional guidance and curriculum support to educators on the teaching of Technology subjects in the National Senior Certificate". One of their main duties is to ensure that educator development takes place through workshops, school visits, advice and communications.

The support that the participants received from their subject advisors varied from one subject specialisation to another. Participant TE2 reported “I feel they can do much more regarding materials and machinery. They do not support all schools equally, and I think the department should compile a needs list so that they can provide better support”. Four participants (TM18, TM23, TM12, TM8) said the support they received from their subject advisor was excellent. Participant TM16 went further to explain that “our subject advisor visits on a regular basis and he tries to offer his support where he can, but his hands are tied when he reports our problems to top management. It’s like hitting a wall”. It was notable that most of the participants believed that subject advisors were in some way responsible for safety inspections in their workplaces, despite it not being part of their duties. Section 20(1)(a) of the OHSA states that health and safety committees should make recommendations to the employer regarding matters that affect health and safety in the workplace, and if still unresolved, they should report it to works inspectors (§ 4.4.1.2). Although the main duty of subject advisory services (SAS) is only to provide curriculum support to teachers, they can make recommendations to the SMT and their own superiors regarding safety and repairs. One participant (TM12) supported this sentiment by saying that his subject advisor “has been fighting for years to get someone to inspect and fix our machines”. He elaborated it had been put out to tender, but nothing had materialised since.

Several participants commented that SAS facilitated some workshops in the past and that they focused mainly on first aid and skills training but not on safety. Participant TM16 described his experience as follows:

> The departmental courses don’t make sense. For two years we had to attend courses over a period of several months where everybody had to be retrained in practical skills. We were told that we would get an equivalent qualification as artisans, but it just died a silent death, and we still have to finish one year of training.

The implication of SAS courses is that they are not sustainable and therefore lead to teachers being uncertified in crucial areas like first aid and safety skills, which, in turn, has legal implications. A number of participants (TM12, TE13, TM5, HM17) further voiced

their concern about training courses by saying that although they had received training, all those certificates had expired since. Participant TM16 highlighted the issue of safety training and stated that he was required to have a NOSA Workshop Supervisor safety certificate when he started teaching. His certificate was only valid for one year and had also expired. He believed that the Department should organise annual refresher courses to keep up to date with safety standards. All the participants commented that they did not know when or if any follow-up courses were planned in their respective schools.

A specialised inspection and maintenance unit concentrating on FET Technology workshops would be beneficial in assisting teachers. Not only would the current standard of workplace security improve, but safety regulations would constantly be upheld through regular inspections, which would, in turn, lead to safer workplaces.

6.8 Theme 5: Legal determinants

Due to the nature of risks associated with Technology workshops, the legal determinants that regulate workplaces are of the utmost importance to guarantee a safe and healthy work environment. As mentioned previously (theme 4), workplace security is not only influenced by the conduct of various role players but also by the implementation of a broad scope of legal determinants. These determinants include the Bill of Rights, education legislation, labour legislation, common law, and statutes related to occupational health and safety, all of which are subsequently discussed. The layout of the four categories and two sub-categories under theme 5 is illustrated in Figure 6.7 below.

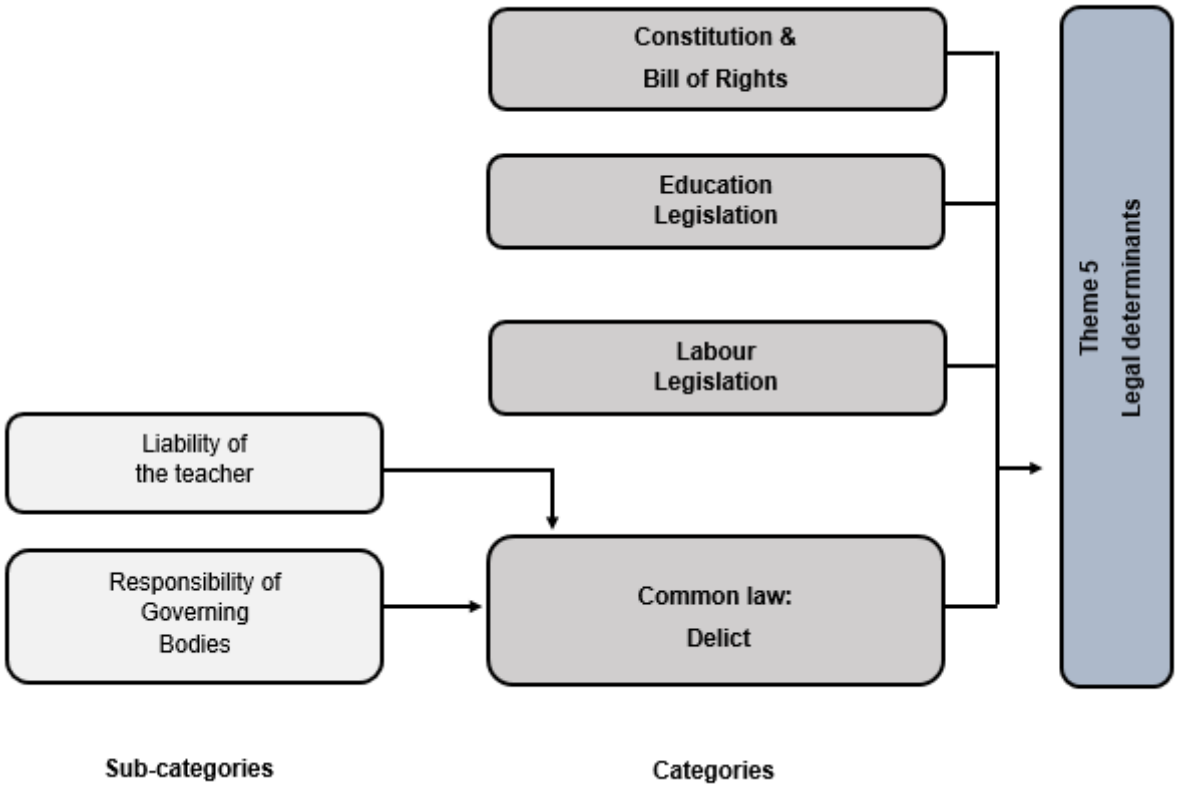

Figure 6.7: Theme 5 – Legal determinants

6.8.1 Category 5.1: Constitution

The rights and duties of citizens are enshrined in and protected by the Bill of Rights. In the context of this study, the participants' reflections on their right to fair labour practices, the right to a safe and healthy work environment, and the right to just administrative action are reported.

The majority of participants were aware of their constitutional right to a safe and healthy work environment (§ 2.2.2.1(b)), even though references to the specific Bill was vague. Participant TM16 commented "according to the law, you have the right to a safe working environment which must be provided by your employer". Five participants (TM5, TC22, HE14, TM8, TC9) expressed the view that the Department should provide support by supplying materials and assistance. One participant (TC9) referred to section 24 of the Bill of Rights (§ 2.2.2.1) by saying that "they must also ensure my health at the end of the

day, and that includes my job satisfaction". Four participants were unsure about or did not know their rights in the workplace. One participant (HM20) summed up the right to fair labour practices by stating "it's their property, machines and workshop that I work in so they must provide funding from somewhere to repair my broken infrastructure". The duty of the Department to provide for and ensure these rights were clear from the participants' responses.

6.8.2 Category 5.2: Education legislation

Sections 34(1) and 36(1) of SASA stipulate the responsibilities of the State to fund public schools and the SGB to supplement the resources supplied by the State. The majority of participants were aware that the State and the SGB are responsible to provide funding for educational purposes. However, they reported that the management and application of those funds were not always effective in ensuring safe workplaces. Most participants were also aware of section 20(1) which holds the SGB accountable to support them in the performance of their professional functions (§ 2.4.2.1(c)); a few participants stated that this lapse negatively influenced their workplace security.

6.8.3 Category 5.3: Labour legislation

Occupational injuries and diseases are prevalent in hazardous environments like Technology workshops. The implementation of labour legislation like COIDA 130 of 1993 and the circular on PTSD (DOL, 2002) are crucial in ensuring that workers' right to be compensated is protected when working in these conditions. It is important to note that labour legislation, and especially the OHSA, does not specifically mention teachers or schools but rather employers and employees in the workplace. The DBE is therefore regarded as the employer of state-appointed teachers (i.e., employees). The distinction should also be made in cases where FET Technology teachers are appointed to SGB positions, which makes the school the employer.

Apart from four participants who had previous knowledge and experience in the private sector regarding labour legislation, the majority of participants were unaware of any labour legislation pertaining to their psychological or physical health. One participant

(TM16), who had industry-related experience, said “I know enough to know that all our workshops are unsafe and not up to industry standard”. Five participants mentioned that they were entitled to compensation should they get injured, but none could specify any conditions or resulting benefits. Most participants could also not identify any occupational diseases contained in COIDA 130 of 1993 for which they would be compensated if contracted.

Participant HM17 drew a distinction between the private sector and the DBE by stating that “in the mining industry you are subjected to medical tests before and during your employment, but in education there is no such thing”. As mentioned already, there is a clear discrepancy between the application of safety and labour legislation in the private sector as compared to the DBE. Replying to the question whether they felt they would be sufficiently compensated under COIDA if they contracted an occupational disease or injury, most participants replied “no”. Eight participants explained that they took out additional private cover for disability, loss of income or disease. In this regard, participant TM16 said:

> If you get injured in the mines, they pay out your compensation. But if you get injured here, you must be paid out by a policy that you had to finance yourself just to get something out. I think the DBE should grant everybody working in a workshop additional cover that doesn’t go off your salary, just because you work in a dangerous environment.

Two participants (TC9, HM20) mentioned that they specifically insured their hands in the case of a serious accident, while HC6 questioned how comprehensive cover should be. He added that the amount of cover was dictated by what percentage one loses of a specific function and decided it was not worthwhile to insure for every single possibility that could go wrong. He further questioned what exactly one covers and what does one leave to ensure that one is 100% covered. He said he would not be able to pay that premium on a teacher’s salary and that he was supposed to be sufficiently covered by his employer in the first place. Another participant (TM16) was sceptical as to whether the Department would really be helpful if he got sick when claiming compensation for an occupational disease. He explained:

> …now you have to submit a claim for compensation against the Department and prove that you got sick at work from something they neglected to do in the first place. It's not easy to take on the State, because they have lots of lawyers and funds to drag it out in court for a very long time, which is very expensive. So, you lose all the way.

When asked if trade unions should play a part in their workplace security, the majority of participants felt that they should. Participant TM23 believed unions should provide free legal support and help protect his rights in the workplace, even against the DBE if need be. He elaborated by saying that "trade union should be a vehicle to dedicate our safety concerns to higher powers when the normal chain of communication to the Department breaks down". One participant (TM5) added that unions should assist teachers with lower rates on disability and professional liability insurance, since they could negotiate better premiums due to their large number of members. Two participants (TM7, TC11) suggested that SACE (§ 2.4.2.3) should do more to oversee labour and safety issues that affect workplace security, since they are the professional body that regulates the teaching profession. A few participants commented that their unions had been helpful with advice and support during the COVID-19 pandemic, while a large number did not see the advantages of paying union member fees every month.

6.8.4 Category 5.4: Common law – Delict

According to Loubser *et al.* (2018:05), one function of the law of delict is to compensate for harm that has been suffered or an interest that has been infringed. In the context of this study, the relation between the delictual principles of compensation, accountability and responsibility for workplace security are discussed.

6.8.4.1 Sub-category 5.4.1: Liability of the teacher

Most participants expressed their concern and uncertainty about the principle of liability in their workshops. Four participants (TC3, TM4, HE14, TC22) stated they were well aware that they would be the first to be held liable in the case of an accident, even though section 60 of SASA clearly indicates the legal principle of state liability. It seemed as if

participants misunderstood or were ignorant about how liability was assigned in their workplaces. TC3 explained that he reported problems in his workshop countless times but that he had received no support from his SMT or the DBE to address the problems and that they should also share liability if something happened. The issue of state liability, as provided for in section 60 of SASA, was wrongly understood by TM16, who commented that "nobody takes responsibility. It comes down to the person that was present who takes the blame, regardless [of] if he was guilty or not". The responses confirmed a general lack of acquaintance with legal principles regarding delictual liability, as also found in the studies by Doubell (2012), Jurgens (2019) and Oosthuizen (2011). Participant TM12 linked liability directly to lack of maintenance and explained that the inadvertence of the school to assist with maintenance increased his risk to be held liable. A few participants believed the lack of safety inspections increased the risk of liability due to the absence of official records. One participant (TC19) mentioned that he tried to limit the risk of liability by controlling obvious dangerous situations that may lead to injuries in his workshop, even if it was to the detriment of learners' rights. He elaborated by saying that he would rather prepare parts of their practical projects himself on certain dangerous machinery than risking an injury to them. This approach to do some of the work on behalf of the learners may relate to the foreseeability element in the law of delict. However, it deprives the learner from a learning opportunity, which can be deemed an infringement of the right of learners to a basic education by teachers who are apprehensive of being held liable for unsafe workplaces or conditions. Despite showing an awareness of safety and observing their duty of care, this is an unfortunate result of teachers not being aware of the state-liability principle.

6.8.4.2 Sub-category 5.4.2: Responsibility of governing bodies

As already discussed, section 36(1) of SASA states:

> a governing body of a public school must take all reasonable measures within its means to supplement the resources supplied by the State in order to improve the quality of education provided by the school to all learners at the school.

Squelch (2001:138) is of the opinion that many SGBs are not equipped to fulfil their duties and do not have sufficient knowledge of legal determinants like liability. Consequently, some SGBs do not function as the law requires. Failure to ensure safe workplaces and maintain school buildings and facilities could lead to liability for loss or damage that may occur as a result of their failure to carry out their duties. The SGB can appoint additional personnel or assistants to alleviate the workload of Technology teachers, especially where the teacher–learner ratio exceeds the standard of 15:1 set out in the Technology CAPS (2014). Eight participants reported larger classes than 15, and in five other instances, over 30 learners per workshop were reported. The SGB also has the responsibility to raise funds and implement plans to address safety concerns, inadequate classrooms and workshops. One SGB addressed this issue by financing and building three new Technology classrooms to ensure that class sizes were more manageable for teachers. One specific subject experienced an exponential rise in learner numbers, which necessitated additional classrooms and teachers. According to HM20, who was part of this process, this step was taken after years of unsuccessful deliberation with the DBE regarding infrastructure challenges. Unfortunately, not all schools have the necessary financial capacity to address these challenges due to their socio-economic standing. Participant TM18 explained that his SGB experienced financial difficulties due to 50% of parents not paying school fees, which resulted in several SGB teaching posts being declared redundant. This brought about class sizes of 40 plus learners for Technology, which is significantly more than the teacher–learner ratio of 1:15 set out in the Technology CAPS (2014). In a few instances, participants reported that the SGB did not provide them with financial support for educational purposes, especially for tools and consumable materials.

6.9 Conclusion

The experiences of the participants regarding their workplace security reflected that not only physical and psychological factors played a role but also the legal determinants that govern both. Participants reported several problems regarding the supply and installation of machinery by the DBE as well as mandated inspections by inspection authorities like works inspectors. Maintenance of machinery was hampered by factors like finances, and

record-keeping of inspections was identified as problematic. Participants also reported unsafe working conditions that could lead to contracting occupational diseases and sustaining possible injuries.

Several factors were identified that contributed to psychological insecurity among the participants (with reference to PTSD). These factors also included lack of finances to do maintenance, contributing to disciplinary issues and large class sizes. The role of the SGB in managing these factors was highlighted. Physical building infrastructure – risks of structural defects or damage caused by earthquakes, hazardous building materials like asbestos, and insufficient maintenance and inspections – creating an unsafe work environment also contributed to workplace insecurity. The conditions prevailing in infrastructure were shown to potentially lead to occupational diseases like asbestosis, hearing impairments and asthma. The findings also indicated that although participants were generally aware of all applicable safety regulations that governed their workplaces, they were less knowledgeable about the legal provisions regulating state and personal liability. This resulted in participants not being knowledgeable about their legal rights to avoid being held liable or protect themselves against contracting occupational diseases in the workplace. The most important finding was how the failure of the DBE to fulfil its legal duty to ensure safe work environments directly influenced the workplace security of FET Technology teachers.

CHAPTER 7: FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

In this chapter, a general overview of the study is presented by providing a summary of each chapter in line with the research questions (§ 1.9). The research questions were critically addressed in the theoretical framework to provide a rationale for the investigation of the phenomenon under study (§ 1.3). To reach the research objectives, a qualitative study was undertaken to investigate the participants' views on workplace security, the prevalence of safety control measures, legal determinants affecting their workplaces, and the influence of physical infrastructure on workplace security. To reach the primary objective of this research – namely, to determine the nature of workplace security of FET Technology teachers – recommendations were made to inform the relevant role players in all management structures of the DBE as well as SGBs and SMTs to improve the workplace security of FET Technology high school teachers.

The study findings, recommendations and conclusions were informed by an education law perspective. In conclusion, the contribution of this study to the field of education law is discussed, and a number of suggestions for future research are made. A brief overview of the study is subsequently provided.

7.2 The summary of the research

In chapter 1, the background to and orientation of the study were presented, which included the research problem, the theoretical framework, the research questions and objectives, as well as the research methodology. The primary objective was to determine the nature of workplace security of FET Technology teachers. The research problem emphasised the hazardous working conditions of FET Technology high school teachers as well as the elevated risks to their health due to occupational injuries or diseases associated with their workplaces. The research problem highlighted the importance of safety control measures to ensure compliance with specific health and safety legislation and other applicable legal determinants. The responsibilities and duties of role players in

all management structures concerned with health and safety in Technology workshops were identified and discussed. The knowledge gap on the workplace security (both physical and psychological) of FET Technology high school teachers was underscored, and references to previous studies and their shortcomings were made.

Chapter 2 presented a critical analysis and review of relevant statutory sources that influence workplace security. First, the influence of the South African Constitution (§ 2.4.1) on the workplace security of FET Technology high school teachers was discussed. Provisions in the Bill of Rights highlighting the State's duty under section 7(2) to respect all teachers' fundamental rights and its obligation to promote and fulfil those rights were outlined. In the context of this study, the fundamental rights of FET Technology teachers included the right to a safe and healthy environment (section 24), the right to fair labour practices (section 23), and the right to just administrative action (section 33). Workplace security is the shared legal obligation of all state institutions tasked with education. The state institutions identified and discussed in this study were the DBE and all applicable management structures down to the Departments of Labour and Public Works.

The influence of education legislation on workplace security was included to indicate the legal requirements that determine the rights and obligations of all stakeholders involved in education. Important provisions in education legislation applicable to this study included the duty of the State to provide norms and standards for school funding (section 12(3)) under SASA (§ 2.2.3.1) as well as the duty of SGBs to support principals and teachers in the performance of their professional functions (section 20(1)). The role of education district offices to provide targeted support to FET Technology schools in line with education law and policy was analysed and discussed. The purpose of the SACE Act (§ 2.4.2.3), namely to maintain and develop the professional standards of teachers, was also investigated against the background of workplace security in this context.

In chapter 3, common-law principles (§ 3.1) relating to delictual liability affecting the workplace security of FET Technology teachers were examined, with the focus on the five fundamental elements of delict. These elements also informed the discussion on the accountability of teachers and the responsibility of SGBs as regards workplace security.

Chapter 4 was dedicated to the review and analysis of general legislation pertaining to health and safety (§ 4.2) and labour legislation (§ 4.3) affecting workplace security. Included in the review of OHS-specific legislation was the OHSA (§ 4.4.1) as well as subordinate legislation and regulations such as the GU&M Guidelines (§ 4.3.1). The discussion of the GU&M Guidelines specifically underlined the duties of works inspectors and affirmed the crucial function they fulfil in ensuring workplace security. The duties and responsibilities of SMTs and SGBs were also highlighted. Additional subordinate legislation that support workplace security includes the Driven Machinery Regulations (§ 4.4.2), the Electrical Installations Regulations (§ 4.4.3), the Asbestos Abatement Regulations (§ 4.4.4), Environmental Regulations for Workplaces (§ 4.4.5), General Safety Regulations (§ 4.4.6), and the National Building Regulations and Building Standards (§ 4.4.7). COIDA (§ 4.4.8) was included in the review of labour legislation affecting workplace security. Occupational diseases that affected FET Technology teachers were identified and discussed, and reference was made to the circular instruction on PTSD (§ 4.4.9). Moreover, the influence of the Labour Relations Act and the role that labour unions play in workplace security were also brought to the fore. From the analysis of the relevant legislation in chapters 2, 3 and 4, it was concluded that a comprehensive legal framework exists to regulate and enforce the workplace security of FET Technology teachers.

Chapter 5 explained the chosen research design and qualitative methodology that were employed in this study. The methodology chosen for this study was constructivist in nature, since the objective was to make meaning of how participants understood and constructed the specific phenomenon (workplace security) in their everyday lives (Creswell & Creswell, 2018:8). The philosophical assumption of the main research design and the applicable research paradigm were discussed. Moreover, the sampling strategies and data generation methods were explained and motivated in detail. Furthermore, the ethical considerations applicable to this study were explained, and the measures used to ensure quality and trustworthiness were described.

Chapter 6 reported on the qualitative data. Five themes emerged from the data: physical security in the workplace; psychological security in the workplace; influence of physical

infrastructure on workplace security; the implementation of safety control measures; and legal determinants. The use of the constructivist-phenomenological approach allowed me to explore 24 participants' experiences through personal semi-structured interviews. The interviews were transcribed, and the data were analysed.

Next, the main findings and conclusions drawn from the literature review and the empirical study are discussed. In conclusion, recommendations for future research are made.

7.3 Findings and conclusions

The primary research objective of the study was to explore the nature of workplace security of FET Technology teachers by determining the influence of safety control measures on their workplace security, whether the physical infrastructure of their schools contributed to workplace insecurity, and how they interpreted applicable legal indicators and regulations.

The secondary research objectives of the study were as follows:

- What is the nature of the legal framework that supports workplace security of FET Technology teachers?
- In which ways do movable and immovable school infrastructure influence workplace security of FET Technology teachers?
- How does the implementation of safety control measures influence workplace security of FET Technology teachers at their schools?
- How do FET Technology teachers interpret legal determinants and health and safety regulations in terms of their workplace security?

Against the background of the primary and secondary objectives, the findings of the study are discussed.

7.3.1 Nature of workplace security of FET Technology teachers

In this sub-section, the findings on the nature of workplace security of FET Technology teachers are discussed as part of reaching the primary research objective of the study. A

distinction was made between the physical and psychological factors that contribute to workplace security. Physical factors (theme 1) included workshop equipment (i.e., movable assets) as well as accidents and diseases affecting workplace security. The findings under this theme are presented next.

7.3.1.1 Workshop machinery and installations

To facilitate a work environment that contributes to physical security, all machinery must comply with safety regulations set out in the OHSA 85 of 1996 as well as subsequent regulations (§ 4.4.1 to 4.4.7).

The first threat to physical security identified by the participants was old and non-conforming workshop machinery. Most participants were not able to repair these machines due to the scarcity of parts and lack of expertise. Some schools did procure expert service providers for this purpose, but it resulted in machinery being out of commission for long periods of time, it was expensive and affected teaching negatively. Despite the disruption and financial implications, most participants preferred the older machinery over newly acquired machinery. New machinery supplied by either the DBE or schools were found to be of inferior quality and broke more frequently due to extensive use. Furthermore, some of the new machines supplied by the DBE did not comply with safety regulations as required for training purposes in high schools. Considering the high financial costs of machinery, it is understandable that the DBE and schools are not always able to procure expensive industrial quality machinery. It was found that when budget constraints took priority over quality, workplace security relating to machinery was negatively affected.

The quality of consumable parts supplied by the DBE was also reported to be of inferior quality and unsafe. Some participants preferred buying replacement parts from trusted suppliers themselves and did not use the parts supplied by the DBE for fear of malfunction and injuries. Other teachers, however, reported that the DBE had problems with financing these purchases if their SGBs had failed to do so. Hydraulic lifting machinery are mandated under section 18(5)(a) of the Driven Machinery Regulations and must be inspected by a certified inspector every 12 months. Lifting machines or hoists used in

Mechanical Technology workshops were not regularly inspected as per regulations and had problems with braking systems that could become life-threatening during unpredictable power cuts due to load shedding. This was particularly concerning, since lifting machines are subjected to stricter regulations than other workshop machinery, with shorter timeframes between inspections.

It was found that compliance with the Electrical Installation Regulations 2009 was lacking in some schools, since very few had COC certificates for machinery or workshops on record. Problems with faulty distribution boards and overloaded electrical lines with no safeguards were reported by some teachers. This highlighted the risk of electrical fires. Compliance with the Electrical Machinery Regulations 1988 on portable electrical machinery was found to be mostly satisfactory, although newly promulgated regulations on plugs and sockets were not known or implemented by all schools. Besides machine inspections, electric portable tools are also regulated under section 9(3)(4) of the Electrical Machinery Regulations. Several teachers reported the risk of being electrocuted by machines that were not compliant due to lack of inspections and maintenance. The above-mentioned omissions make the DBE liable for any resulting injuries and also directly affects workplace security.

7.3.1.2 Installation of new machinery

Regular inspections and maintenance of machinery are mandated under the OHSA 85 of 1996 and were found to be some of the biggest factors affecting workplace security. Section 29(f) of the OHSA and section 17 of the GU&M Guidelines clearly state the legal duties and responsibilities of works inspectors, who were found to be non-existent in this study. Additional inspections by independent AIAs were also not conducted on school-commissioned work from PSP. In addition to ensuring that inspections in workshops took place, it was found that PSP contracted by the DBE to deliver and install new machinery were non-compliant with the Electrical Installation Regulations of 2009. The GU&M Guidelines on the provision of goods from service providers were found to be neglected, since payments were made without assessment and signing off by works inspectors. This omission indicated lack of compliance with the legal duties set out for works inspectors in the above-mentioned legislation. Regular inspections by the DBE were not done, and

several schools procured the services of private inspectors in an effort to comply with legislation. This was done to limit or minimise their accountability in the case of safety inspections.

It was found that the majority of schools complied with the OHSA by having regular safety meetings, although some participants questioned their effectiveness, as reported safety hazards were not dealt with by SMTs. Participants were aware of their legal duty under the OHSA to report unsafe conditions. Regular inspections were conducted on machinery. Lack of financial and managerial support were underscored as some of the reasons why maintenance in some schools was neglected. SGBs, where financial support for maintenance was lacking, failed to comply with section 20(1)(e) of SASA to ensure safe workplaces. Record-keeping of workshop inspections and inventory lists are mandated by section 29(c)–(g) of the OHSA and the Driven Machinery Regulations and also serve as legal documents in the case of delictual liability claims. It was found that no records of DBE inspections existed, which supports the findings on works inspectors in § 6.4.1.2. However, participants did keep record of machine inspections done by private inspectors, or maintenance reports from service providers procured by their school. Additionally, participants reported the absence of a system where condemned or obsolete materials could be decommissioned.

7.3.1.3 Accidents and diseases

The use of PPE in workshops is prescribed under section 8(2)(b) of the OHSA, and employers are legally obligated to supply such equipment. All participants reported that basic PPE was made available by their schools or the DBE, but they had varying opinions on the effectiveness of PPE under certain teaching conditions. Participants reported suffering from hearing loss and respiratory problems due to prolonged exposure to high noise levels and dust regardless of PPE use. Although specialised PPE could effectively prevent illnesses mentioned earlier, some teachers reported that it was very expensive and that their schools were apprehensive about funding it. A case of preventative expenditure on PPE compared to the cost of corrective medical care should be considered in cases where teachers work in extreme hazardous conditions. Moreover, the risk of contracting COVID-19 in the workplace was considered a threat by some older

participants with pre-existing conditions. Although the majority regarded the implemented precautionary measures at schools as sufficient, limited social distancing during PAT affected workplace security negatively. The economic impact of COVID-19 was also evident, especially amongst SGB-appointed teachers. They remarked that their work security was negatively affected by the pandemic, since many parents had lost their jobs and could not afford to pay school fees.

It was found that participants did not adhere to the provisions in section 5(1)(a) of the Environmental Regulations for Workplaces 1997, where the guidelines for the ventilation of workplaces is stated. Excessive dust and carbon monoxide fumes were reported in some Civil and Mechanical Technology workshops, and the absence of ventilation systems were found to be a contributory factor to the physical insecurity of teachers. No evidence of completed risk assessments was available regarding the workshops, even though the environment was reported to be hazardous through the prescribed channels. Serious to minor injuries sustained in workplaces were reported by participants, which included serious head and spinal injuries from falling accidents, back injuries, eye injuries, cuts and burns to hands, and electric shock. Two participants required hospitalisation as result and received compensation for medical expenses.

7.3.2 Psychological security in the workplaces of FET Technology teachers

One of the main findings of the study was the direct and equal correlation between the physical and psychological factors that affected workplace security. The factors that affected the psychological security of FET Technology teachers (theme 2) are discussed next under two sub-categories, namely stress in the workplace, and discipline and supervision.

7.3.2.1 Stress in the workplace

Stress was identified as the biggest factor affecting the psychological security of FET Technology teachers. This finding confirmed international studies on occupational stress in vocational teachers. Legislation pertaining to PTSD (DOL, 2002) as included in COIDA 130 of 1993 does not focus on the prevention or management of stress in the workplace

but only on PTSD claims. Psychological factors reported by participants included feelings of high anxiety, physical afflictions, emotional exhaustion, as well as instances where participants' professional and personal relationships were negatively affected by stress. Although research shows that many teachers experience high levels of work-related stress, Technology teachers work in hazardous environments with potentially life-threatening machinery. This elevated risk to personal injury contributes to a highly stressful work environment, which is compounded by the heightened duty of care during practical training sessions.

Lack of financial support from a few schools for maintenance contributed to high anxiety levels in participating teachers. The restraints not only contributed to a dangerous work environment but negatively affected the quality of education the teachers could provide. In addition, a large number of participants reported good financial support from their schools (within reason and budget) and described it as a positive contribution to their workplace security. The possibility of personal liability due to unsafe machinery and workplaces was reported as a significant contributor to the anxiety levels of many participants. It was found that participants were ill-informed about the legal consequences in the case of injury to a learner. Many felt that workplace conditions beyond their control influenced their level of personal liability, and this affected their psychological security negatively. It was further evident that some teachers were not aware how liability on the part of their employers affected their workplace security. The administering of first aid was considered a liability by some participants, since they did not have up-to-date first-aid training and certification. The majority were also unsure whether they would be accountable for afflicting additional harm in the process, should such a case transpire. They remarked that the legal responsibility associated with administering first aid contributed to their anxiety levels and workplace insecurity.

7.3.2.2 Discipline and supervision

The majority of participants confirmed that learner ill-discipline in workshops negatively affected their psychological security, which correlated with international research studies (§ 6.5.1). It was found that socio-economic problems in neighbourhoods surrounding the school, internal security measures and codes of conduct affected discipline the most. It

was reported that repeat offending learners posed the greatest risk to workplace security, since teachers could not remove them from workshops. The role of the DBE denying schools the right to suspend such learners can also be regarded as a contributory factor to teachers' higher stress levels. Teachers thought their school's code of conduct did not adequately address the seriousness of misconduct in workshops, and they felt that learners should be expelled if their actions had a direct influence on their safety and that of their fellow learners.

Moreover, learner misconduct with regard to drug abuse led to verbal and physical assaults on teachers and was in violation of section 2A(1) of the General Safety Regulations as well as section 8A(1) of SASA. The significance of crime or the possibility of attacks necessitated one school to issue panic buttons from a security company to its teachers. Very few schools had security camera systems in place as a control measure. Teachers whose schools did use cameras remarked that the cameras assisted with overall discipline in their classes and positively affected workplace security. They also added that the cameras lessened the burden of liability, since video evidence was available as proof of conduct in their workshops.

The supervision of large classes was found to be exceptionally stressful to most teachers. Although CAPS (2014a) specifies a ratio of one teacher to 15 learners for practical work, most of the class sizes were larger than prescribed. All the teachers commented that they did not have assistants as suggested in CAPS (2014a) to help with the supervision of large classes. All teachers felt that assistants would greatly help to alleviate their anxiety and stress. In addition to the disciplinary problems, this was regarded as the biggest threat to the teachers' psychological security. Younger, less experienced learners were considered a greater contributory factor to stress than older, more experienced learners. The physical layout and different sizes of workshops also added to the difficulty of teachers supervising large groups alone.

7.3.3 Safety control measures

The implementation of safety control measures is vital to ensuring workplace security in FET Technology workshops. Therefore, the duties and responsibilities of each role player

implementing or enforcing these safety measures should be clearly defined and instances of accountability as result of non-fulfilment should be established (§ 6.7.1). The reported control measures are discussed below under two sub-categories, namely school safety control measures (teachers and the SGB) and departmental (DBE & SAS) safety control measures.

7.3.3.1 FET Technology teachers and the SGB

FET Technology teachers are legally obligated to ensure that their workplaces are safe and should therefore ensure that safety control measures, which also include all legal determinants, are implemented in their school. Most teachers indicated reporting broken or unsafe machinery through the proper channels and taking pro-active steps to remove unsafe machinery out of circulation. One significant finding was the collaboration of four different Technology departments to address safety issues themselves by assisting each other with maintenance work that otherwise would have been sourced out to private service providers (§ 6.7.1.1). Parents working in the industry were as also involved in the process, which lead to communities sharing ownership of their schools. The collective implementation of these safety measures by teachers and parents contributed to workplace security in these schools.

Maintaining a safe work environment is directly dependent on support from SGBs, according to section 36(1) of SASA. This includes providing sufficient funding for maintenance and replacement of machinery and hand tools. It was found that the governing bodies of some schools did not provide financial support for this purpose, even though funding was available. It seems that implementing measures to ensure that machinery stay in safe working order was not a financial priority of the SGBs and thus in violation of section 36(1).

Furthermore, the SGB, and specifically the appointed member concerned with health and safety, must ensure that regular safety meetings take place as per regulation. It was found that the majority of schools had functioning safety committees that held regular meetings. Some teachers did, however, express doubts as to whether the committees were effective in addressing their safety concerns. The SGB is also responsible to submit

intervention requests to the DBE in cases where maintenance cannot be supplemented by the school budget. This was neglected in some cases where teachers had complaints about excessive dust and noise in their workshops which were not addressed by the SGB. The responsibility to ensure that regular inspections took place was also neglected by a few schools, especially concerning lifting machines. It was found that most teachers were supplied with appropriate PPE, although some teachers felt that specialised PPE under the specific conditions were justified but not granted by the SGB. Many teachers commented that the SGB could improve their workplace security by adapting the school timetable to ensure smaller classes or appointing assistants or extra teachers to assist with large classes. Only one school employed additional assistants in SGB positions as suggested in CAPS (2014a).

7.3.3.2 DBE offices and subject advisory services

The DBE shares the responsibility for ensuring workplace security by implementing safety control measures to oversee all GU&M, inspections, and approving and supervising all major repairs and replacements. It was found that the DBE failed to address physical infrastructure issues affecting workplace security in several schools. The upgrading of building systems, like electricity and extraction systems, were also neglected. The biggest concern regarding the absence of safety measures by the DBE was the absence of works inspectors. All participants remarked that this directly affected their workplace security pertaining to machinery they used every day as well as their work environments. It became apparent from the literature review that financial mismanagement at provincial level contributed to this problem. It has also been well-documented in various studies that this is a longstanding problem in FET Technology workshops. The appointment and management of service providers are the responsibility of the provincial maintenance director in the provincial infrastructure unit. It was found that guidelines on the payment of service providers as set out in the GU&M Guidelines concerning the provision and installation of machinery were not being enforced. These regulations act as safety control measures to ensure that provided services adhere to all legal requirements and thus ensure their compliance with thorough inspection. By disregarding these regulations, the DBE contributed to unsafe work environments, which also led to fruitless expenditure of

limited funds on machinery. Also, the lack of risk assessments and inspections on infrastructure constructed of ACM was reported, with only one teacher mentioning that removal and replacement of asbestos buildings took place at their school.

It was found that support from subject advisors varied greatly with regard to the implementation of safety control measures. Teachers reported that some subject advisors were very supportive in allocating specialist service providers to assist with machine maintenance, helped with machine repairs, and lobbied for additional support from the DBE regarding inspections. Other teachers felt that they received no support and were left to their own devices. It was found that teachers mistakenly assumed that SAS was responsible for coordinating inspections or had authoritative powers over the inspectorate service. Most teachers remarked that their complaints were not attended to by the management above the subject advisors. It was found that SAS started with professional development courses on first aid and practical skills, but these were never completed. This left many teachers uncertified in first aid.

7.3.4 Influence of physical infrastructure on workplace security

One of the objectives of this study was to determine the influence that physical infrastructure (immovable assets) had on workplace security. It was found that infrastructure problems in schools were widespread, with problems varying from leaking gutters and cracked walls to major defects like structural damage to staircases and sinking foundations. Repairs and maintenance to infrastructure according to the GU&M Guidelines were also found to be non-compliant in certain cases.

7.3.4.1 Structural defects of buildings

Infrastructure damage that necessitates MRR was reported in some schools. Schools in the Matlosana District reported the most serious incidents of structural damage which could be attributed to past seismic activities in the region. It was found that although damage assessment was conducted by the DBE after the seismic event in 2014, no repairs had since been done (seven years later). Some teachers reported cracked or sinking foundations, which could lead to collapse, while others mentioned unstable

wooden floors and falling ceilings. One teacher reported a case where gas cylinders were installed inside his workshop with obvious risks. Several teachers reported repair and maintenance work conducted in their workshops by DBE-appointed service providers. The quality of work was generally found to be substandard, and some cases necessitated work to be redone. In two schools, this directly affected teaching and learning, since the classrooms were locked out. The failure of the DBE to attend to some of the more serious reported structural defect is worrisome, since the risk of collapse and serious injury speak for itself.

Three schools in the study population (§ 6.6.1.2) had workshops entirely or partially constructed of asbestos or ACM. It was found that none of the teachers in these classes reported any of the precautionary measures as set out in the Asbestos Abatement Regulations 2020, which included risk assessments, information and training sessions, or procedures in case of possible contamination. As already mentioned, dismantling of asbestos buildings and replacing them with bricks had commenced at one school but, at the time of the study, the work had not yet been completed. Strict rules apply to specialist service providers working with asbestos, and mandatory inspections should have taken place before and after construction. One teacher commented that he was not aware of any such inspections in his class. Most of the teachers commented that they considered working in asbestos buildings as a health risk but were unaware of the particulars of occupational diseases linked to asbestos exposure.

7.3.4.2 Environmental factors

Earthquakes were found to be the biggest environmental factor that influenced the workplace security of teachers (§ 6.6.2). Schools in the Matlosana District reported damages caused by seismic activities in 2014. Some teachers in these schools reported major damage to infrastructure and commented that they felt unsafe. They feared getting seriously injured in case of future seismic events. Other teachers in the district reported minimal damage and felt that their schools did not pose a danger to their workplace security, which they attributed to the schools' construction method. Some teachers felt that the risk of earthquakes was minimal, as their workshops were on ground level and not near any tall buildings that may collapse on top of them. One school included

earthquake preventative measures and evacuation plans in its school safety policy, while the other schools had not. It was found that no inspections from local authorities (i.e., municipality) had been conducted, and the teachers were not aware of any precautionary plans for future events.

7.3.4.3 Building inspections and maintenance

It was found that the majority of teachers had no knowledge of any building inspections conducted by the DBE in their workplaces (§ 6.6.3). Some teachers who were aware of building inspections undertaken at the schools in the Matlosana District (those schools affected by the earthquake in 2014). Two of these inspections were conducted by insurance companies and not the DBE. Only one teacher was aware of departmental inspections on asbestos buildings and maintenance conducted by reparation or removal of asbestos panelling. The lack of building inspections on damaged or hazardous infrastructure emulates the absence of inspections on movable infrastructure.

7.3.5 Nature of legal framework supporting workplace security

The legal framework that supports workplace security comprises various legal determinants: the Bill of Rights, education specific legislation, labour legislation, the common law, and statutes related to occupational health and safety. It was imperative to investigate FET Technology teachers' knowledge of the legal determinants that govern the risks associated with their workshops.

7.3.5.1 The Constitution and the Bill of Rights

The majority of participants were aware of their constitutional right to a safe and healthy work environment (§ 2.4.1.2). However, references to any specific section were vague. A few teachers were unsure or did not know the extent of their rights in the workplace. No participants were aware of any detail on their right to fair labour practices or just administrative action.

7.3.5.2 Education specific legislation

Most of the participants were aware of sections 34(1) and 36(1) of SASA which stipulate the responsibilities of the State to fund public schools and the SGB to supplement the resources supplied by the State. The majority of participants were also aware of section 20(1) which holds the SGB accountable to support them in the performance of their professional functions (§ 2.4.2.1). Although most teachers were aware that the SGB are responsible for providing funding for educational purposes, some raised concerns that funds were not always made available, which negatively affected their workplace security.

7.3.5.3 Labour legislation

Most of the teachers were aware of education legislation pertaining to their workshops, but the majority were uniformed about most labour relation matters. Labour legislation pertaining to occupational injuries and diseases like COIDA 130 of 1993 are crucial to ensuring teachers' rights to compensation in cases of injury or illness. There was a clear distinction between teachers who had previous knowledge of and experience from the private sector regarding labour legislation and those who had never worked in the industry. Teachers who had worked in the industry were better informed about labour legislation and the function of labour unions in protecting workers' rights. Some of these teachers worked in the mining, construction and services sectors. Most participants were unaware of any labour legislation relating to their psychological or physical health and had no knowledge of the occupational diseases contained in Schedule 3 of COIDA (SA, 1993). Only a few teachers who had worked in the industry could specify diseases or conditions that resulted in compensation, but they could not give specific references.

7.3.5.4 Common law: Delict

Most participants expressed their concern about personal liability in their workshops. Section 60 of SASA clearly states the legal principle of state liability. It was found that teachers were unaware or misinformed about how liability was assigned in their workplaces. Some teachers attempted to minimise their risk of being held liable in their personal capacity by preventing learners from working on obvious dangerous machinery,

but in the process of ensuring higher levels of safety, they denied learners part of their right to a basic education. It was found that the majority of the teachers were unaware that COIDA 130 of 1993 abolished the right of employees to submit delictual common law claims against their employers and that only patrimonial damages would be compensated from the compensation fund (i.e., medical expenses). Their responses confirmed a general lack of acquaintance with legal principles regarding delictual liability, confirming the findings in education law studies conducted by Doubell (2012), Els (1994), Jurgens (2019), Kruger (2003), Schouwstra (2008) and Oosthuizen (2011).

Section 36(1) of SASA clearly states the legal duties of SGBs regarding supplementing funds received from the State to improve the quality of education provided by schools. It was found that most of the teachers were aware of section 36(1) of SASA and the legal duty of SGBs to provide funds for maintenance and replacements of machinery. A few teachers reported that their SGB did not provide funds for maintenance, which, in turn, contributed to workplaces insecurity. SGBs also have the legal duty to ensure safe workplaces and maintain school buildings and facilities. It was found that some teachers reported hazardous work environments with unsafe machinery, excessive noise and dust, as well as large class sizes in workshops with no success. Non-compliance of SGBs could, in turn, lead to liability for loss or damage that may occur as a result of their failure to carry out their duties.

Although SGBs have a legal duty to ensure safe workplaces and maintain school buildings and facilities, public schools are regarded as organs of state and must provide resources to conduct major repairs and maintenance. It was found that schools in the Matlosana District that had sustained damages due to seismic activities in 2014 had not been repaired and that teachers felt unsafe working in them. Teachers working in asbestos buildings also reported that the State neglected its duty to remove these hazardous building materials timeously and therefore contributed to an unsafe work environment.

7.4 Recommendations to improve the workplace security of FET Technology teachers

Recommendations are made to the DBE, SGBs, SMTs and teachers on aspects relating to the workplace security of FET Technology teachers. These recommendations may contribute to improved implementation of legal determinants that influence workplace security and ultimately improve working conditions by regulating unsafe work environments leading to injuries and occupational diseases in FET Technology high schools.

7.4.1 Recommendation 1: Accountability and duty of the State

This study underscored that sufficient legal determinants exist to ensure the workplace security of FET Technology teachers. However, the effective implementation of these legal determinants is lacking. The single biggest factor contributing to workplace insecurity in this study was undoubtedly the absence of relevant works inspectors and record-keeping as per regulations. The ripple effects of relevant absent works inspectors, departmental officials not adhering to the GU&M Guidelines, non-compliant service providers and some SGBs not fulfilling their legal duties can be felt in every sphere of workplace security. It is thus recommended that all key role players fulfil their professional responsibilities and adhere to all applicable legislation, since the well-being of teachers and learners is at stake. Role players who do not comply with legislation should be held accountable through all available legal remedies.

It is also recommended that the DBE establishes a system specifically for Technology teachers to be medically surveyed annually for possible diseases associated with their work environments as listed in COIDA 130 of 1993. Such health assessments or medical surveillance processes would assist with the early detection of occupational diseases like hearing loss or lung diseases that may be caused by hazardous work environments in FET Technology workshops. Employers would then be able to identify and address hazardous working conditions that contribute to these diseases and act preventatively. Such assessments would also determine if employees have pre-existing medical conditions that may be aggravated by exposure to certain work environments (e.g., asthma sufferers working in badly ventilated motor vehicle workshop with excessive

carbon monoxide fumes). The system would also ensure that medical records of employees are recorded for possible claims for compensation under COIDA 130 of 1993. Employers are required to safeguard these record for 30 years, and it would greatly assist teachers to lessen the burden of proof in certain cases of compensation as well as common law claims. Lastly, this system could contribute to the psychological security of teachers, as conditions related to occupational stress like PTSD can also be diagnosed and sufficiently addressed in the workplace. This proposed system would enhance the holistic well-being and ultimately the workplace security of FET Technology teachers.

7.4.2 Recommendation 2: Dedicated inspectorate for Technology workshops

As already mentioned, lack of inspections by works inspectors were identified as problematic. The DBE should consider establishing a dedicated inspectorate team for FET Technology workshops which should focus solely on the inspection of machinery and tools, working conditions that may contribute to occupational diseases, certifying installations of new machines and issuing inspection reports. Many schools and teachers expressed the need for guidance on inspections and would welcome detailed reports to help identify possible non-compliance with regulations as set out in OHSA. The dedicated inspection team need specialised knowledge and rare skills in maintenance and repair of all types of workshop machinery as well as an understanding of all applicable health and safety legislation.

7.4.3 Recommendation 3: Responsibility of the governing body

For workplaces to be safe and free of hazards, it is imperative that continuous risk assessments are conducted in order to implement effective solutions. In the light of lacking inspections by works inspectors, SGBs must play a leading role in ensuring that workplace security is a priority in their schools. SGBs must further ensure that sufficient funding is available for maintenance on machinery, the purchase of specialised PPE and that workplaces are safe through proper financial management of school funds. SGBs should also acquire the services of PSPs and AIAs to ensure that records of inspections are kept up to date and that all OHSA regulations are adhered to. This is especially

important in cases where common-law claims are made and proof of adherence to OHSA regulations is required before assigning negligence.

7.4.4 Recommendation 4: Addressing the psychological security of teachers

Apart from ensuring that moveable and immovable infrastructure is safe, it is also imperative that SGBs address elements that influence the psychological security of teachers. This includes ensuring that class sizes in Technology workshops do not exceed CAPS guidelines for practical work, that classes are big enough according to prescribed norms and standards, and putting systems in place to deal with learners who are guilty of serious misconduct in school workshops. In cases where practical classes exceed the teacher–learner ratio of 25, additional assistants should be appointed to assist teachers with supervision and administer continuous maintenance. The legislation on PTSD does not address the issues of identifying or coping with stress in the workplace, particularly in the high-risk work environment of workshops. I recommend that more should be done by SGBs to limit situations that contribute to excessive stress and provide teachers with tools to better manage conditions or circumstances that create stress in their workplaces. It is in the best interest of schools to consider psychological support services for their teachers, since no such formal system currently exists in the DBE.

7.4.5 Recommendation 5: Disciplinary measures

To enhance the workplace security of FET Technology teachers, schools must take applicable safety legislation into account in cases of learner misconduct. School codes of conduct should be adapted, and the seriousness of offences in workshops should be addressed accordingly. Schools should appoint dedicated personnel with legal qualifications to manage disciplinary issues in schools or should employ SGB members with legal qualifications, as society has become more litigious. Moreover, schools should consider making use of indemnities or waivers in cases where a learner’s conduct endangers the teacher and their own or peers’ health or physical security while working in workshops. Grade 10 to 12 learners are old enough to be legally accountable and liable for their wrongful conduct and can therefore enter into a contract to be removed from or refused access to a workshop if their conduct is in violation of OHS regulations. The same

principle already applies in some codes of school sports. An intervention process should also be considered as part of the terms of indemnity before such a learner is allowed back into the workshop. However, it should be noted that this indemnity does not include any waiver of negligence on the part of the teacher or the school. If the learner continues to transgress, this legal indemnity as well as proof of intervention should be considered as a mitigating factor in disciplinary hearings and recommendations to the DBE for expulsion.

7.4.6 Recommendation 6: Alignment of departmental policy documents

The National Curriculum Statement Grades R–12 (NCS) stipulates policy on curriculum and assessment in the schooling sector. The Grade 10–12 CAPS for FET Technology subjects serves as policy for teachers and schools that present Civil, Mechanical and Electrical Technology as subjects. It is imperative that the policy documents for the three specialisation fields are aligned to ensure compliance with departmental guidelines, which is not currently the case. The discrepancies in the policy documents create confusion amongst SMTs and Technology teachers and should not only be aligned with each other but also with regulations relating to the norms and standards for school infrastructure as prescribed for Technology workshops. It would also be beneficial to include specific updated legislation and its applications in each of the three specialisation areas instead of only referring to the OHSA 85 of 1993 in general. Not all teachers are familiar with legislation relating to each workshop, and even those who had education law modules in their initial teacher training may be unaware of newly promulgated legislation or amendments.

7.4.7 Recommendation 7: Teacher union support

Several FET Technology teachers who had industry-related qualifications and work experience outside of the education sector commented on the role that labour unions in the industry played in protecting their rights as workers. It was clear that most teachers were uniformed about labour legislation and the regulations pertaining to compensation in case of injuries or occupational diseases. Although teachers qualify for compensation under conditions as stated in COIDA 130 of 1993, the objective is not enrichment but only

compensation for incurred losses (medical expenses). It would be advisable for FET Technology teachers to obtain additional cover for possible loss of income or disability.

Teacher unions usually consist of thousands of members and have considerable bargaining power to negotiate with life insurance companies to create group cover policies that benefit their members. Teacher unions should recognise and acknowledge the unique and hazardous work environments of FET Technology teachers compared to other teachers. Furthermore, they should also provide more support and information by means of workshops or conferences to help prepare members for instances where compensation from COIDA 130 of 1993 would be insufficient.

7.4.8 Recommendation 8: FET Technology teacher training

It is recommended that higher education institutions involved in the training of FET Technology teachers consider including Education Law as compulsory module as part of the qualification requirements for FET Technology teachers. Some universities already have Education Law as part of their teacher training curriculums but may need to consider re-evaluating the specific focus of some legislation pertaining to FET Technology students and workshops. It was clear from the current study that even newly qualified teachers who recently studied Education Law as part of their qualification did not have sufficient knowledge of COIDA 130 of 1993. It is imperative that FET Technology students are aware of all unsafe work environments in school workshops and the occupational injuries and diseases listed in Schedule 2 and 3 of COIDA 130 of 1993 that may emanate from them. Moreover, it is also important that students are familiar with the requirements for and manner in which compensation is calculated in Schedule 4, as it may assist them in acquiring additional insurance cover when they enter the teaching profession.

7.4.9 Recommendation 9: Principals and SGBs

To enable SGBs and principals to comply with the required policies and regulations relating to safe workplaces and contribute to the workplace security of FET Technology teachers, the following recommendations are made:

- SGBs must ensure that they fulfil their legal duty to ensure that all relevant policies

affecting workplace security are in place and that they are implemented by SMTs and teachers.

- A manual should be developed with guidelines to assist principals and SGBs with the latest legal determinants that regulate FET Technology workplaces and school infrastructure (i.e., asbestos buildings). Examples of current and new case law should also be provided.
- Principals and SGBs should be made aware of the legal risks involved when FET Technology teachers are expected to complete tasks that are not part of their normal day-to-day teaching duties. This is especially important when teachers are tasked with conducting maintenance and/or repairs on school infrastructure, often with the help of learners.

7.5 Recommendations for further research

The following research is recommended as follow-up to the concluded study:

- A more comprehensive study on workplace security in all FET Technology high schools in South Africa (thus not limited to the narrow selection of one province), with the possible inclusion of schools that present Agricultural Technology, or LSEN schools focusing on practical skills training.
- An investigation into occupational stress of FET Technology teachers in the South African context and developing guidelines or models to identify and manage the specific factors that contribute to the psychological insecurity of FET Technology teachers.
- Research to find comparisons between industrial labour unions and education labour unions with regard to regulating, protecting and enhancing their members' right to safe work environments, with specific focus on differentiated application of current labour legislation.
- As regards infrastructure, an international comparative study on earthquake policies and regulations for schools in countries with high seismic activity as well as countries with similar challenges regarding the use of asbestos or ACM in education facilities. An inquiry into occupational diseases such as asbestosis

amongst teachers in the South African context may also support research on school infrastructure containing ACM.

7.6 Contributions of the research

The research findings may contribute to both education practice and the body of knowledge in education law.

7.6.1 Contribution to education practice

This research indicated that several factors influence the workplace security of FET Technology teachers, while two additional lacunae emerged that were not anticipated. The first finding indicated limited knowledge regarding common-law principles amongst FET Technology teachers and particularly the liability of the State. Limited knowledge about legal determinants amongst FET Technology teachers has been identified in scholarly literature. In this study, teachers' limited knowledge in this regard contributed to high levels of occupational stress and PTSD, which have not been identified or previously researched in the South African context. Secondly, most of the FET Technology teachers were uninformed or lacked knowledge about labour regulations, particularly in respect to occupational injuries, diseases and the allocation of compensation under COIDA 130 of 1993. Furthermore, the study contributed to the body of knowledge on labour relations, safety control and workplace security in general and FET Technology teachers in particular and gave a better understanding of the legal responsibilities of all role players concerned. The study also highlighted problems that teachers, principals and governing bodies face to implement safety control measures and legislation to ensure safer workplaces for FET Technology high school teachers

Another objective of this study was to contribute to knowledge regarding the workplace security of FET Technology teachers, with a particular focus on psychological and physical security. This study also determined how physical infrastructure impacted workplace security and what precautions or measures could be implemented to reduce injuries and occupational diseases. By identifying these factors and problems, I could make recommendations to the DBE, SGBs and FET Technology teachers. The findings

and recommendations should be of significance to all the above-mentioned role players, considering their duties and responsibilities to ensure workplace security.

7.6.2 Contribution to education law

This research falls within the research focus and field of education law. This study was conducted in the Faculty of Education, Potchefstroom campus, NWU. The primary contribution to the field of education law was the development of an extensive legal framework, which included legislation, the common law and the set of regulatory determinants related to FET Technology teaching. Through such a legal framework and an empirical study that included most of the secondary schools in the North West province where FET Technology was part of the curriculum, the study endeavoured to contribute towards the existing body of knowledge on educator security and, more specifically, the workplace security of FET Technology high school teachers. The basic points of departure were occupational health and safety concerns in the workplace and infrastructural challenges to workplace security.

7.7 Limitations to the study

The COVID-19 pandemic created certain challenges during the data generation phase. Due to schools being affected by the sudden and unforeseen outbreak of infections, I was forced to reschedule several appointments with schools, which caused some disruption in my program. In addition, I could have considered adding an international or interprovincial component to the empirical research, but travel restrictions prevented any such possibility. The volume of data generated in the specific province in SA was, however, more than adequate to gain a deeper understanding of the phenomenon.

7.8 Concluding remarks

It became clear from the research findings that several factors contributed to workplace insecurity amongst FET Technology teachers, with several key role players not fulfilling their professional responsibilities. The study indicated that the implementation of health and safety regulations by tasked DBE officials to ensure safe workplaces was seriously lacking. Not only were inspections on existing and newly installed machinery neglected

but school infrastructure that suffered earthquake damage and buildings constructed of asbestos contributed to the increased risk these teachers had to face. Infrastructural challenges like sinking foundations and collapsing roofs also had a negative impact on declining workplace security of some teachers. Some challenges regarding the supply of funding from SGBs for maintenance on machinery and safeguarding of workplaces were identified as well as a lack of professional support from the DBE with regard to in-service training.

The connection between teachers being uninformed about common-law principles relating to liability and the psychological security of teachers being negatively affected as a result also came to the fore. Lack of workplace security due to hazardous workplace conditions and infrastructure, lack of support from SGBs, absent works inspectors, uncommunicative SAS, supervision of large classes during practical sessions, and disciplinary problems had a detrimental effect on the educational practices and morale of the participating teachers and the quality of education. There is an urgent need for key role players responsible for workplace security to be held accountable for non-compliance of school policies with legislation, regulations and subordinate legislation.

I trust that these recommendations would improve the overall physical and psychological security of FET Technology teachers in their workplaces and would ultimately contribute to a state of enhanced *geborgenheit*.

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Government of the Republic of South Africa and Others v Grootboom and Others (CCT11/00) [2000] ZACC 19; 2001 (1) SA 46; 2000 (11) BCLR 1169 (4 October 2000)

Jooste v Score Supermarket Trading (Pty) Ltd (Minister of Labour intervening) (CCT15/98) [1998] ZACC 18; 1999 (2) SA 1; 1999 (2) BCLR 139 (27 November 1998)

Van der Merwe v Tom Naudé, 1995 (Case Number: 6801/94)

ADDENDUM A: CORRESPONDENCE E-MAIL FROM THE NORTH WEST EDUCATION DEPARTMENT

>>> "Thapelo Marera" <tmarera@nwpg.gov.za> 2018/09/25 09:20 AM >>>

Hi there Joop!

Please receive the attached list of Technical schools as you have requested for your PhD.

Kind regards

T. Marera

ADDENDUM B: LIST OF FET TECHNOLOGY SCHOOLS FROM THE NORTH WEST EDUCATION DEPARTMENT

education
Lefapha la Thuto la Bokone Bophirima
Noordwes Departement van Onderwys
North West Department of Education
NORTH WEST PROVINCE

Old Mmabatho High Hostels,
Dr Albert Luthuli Drive,
Mmabatho
Private Bag X2044,
Mmabatho 2735
Tel.: (018) 389-8149 / 389-8094
Fax: (018) 389-8244
e-mail: gopanek@nwpg.gov.za

GENERAL AND FURTHER EDUCATION TRAINING SERVICES
CURRICULUM DEVELOPMENT SERVICES
FET (SCHOOLS)

NB :- Pe. means PENDING which means the human resource and structure are not available in school establishment therefore the pending subject will only be offered by the school should the PPM status change. The school has to liaise or inform the provincial office for curriculum extension of pending subject(s).

TECHNICAL HIGH SCHOOL DATA

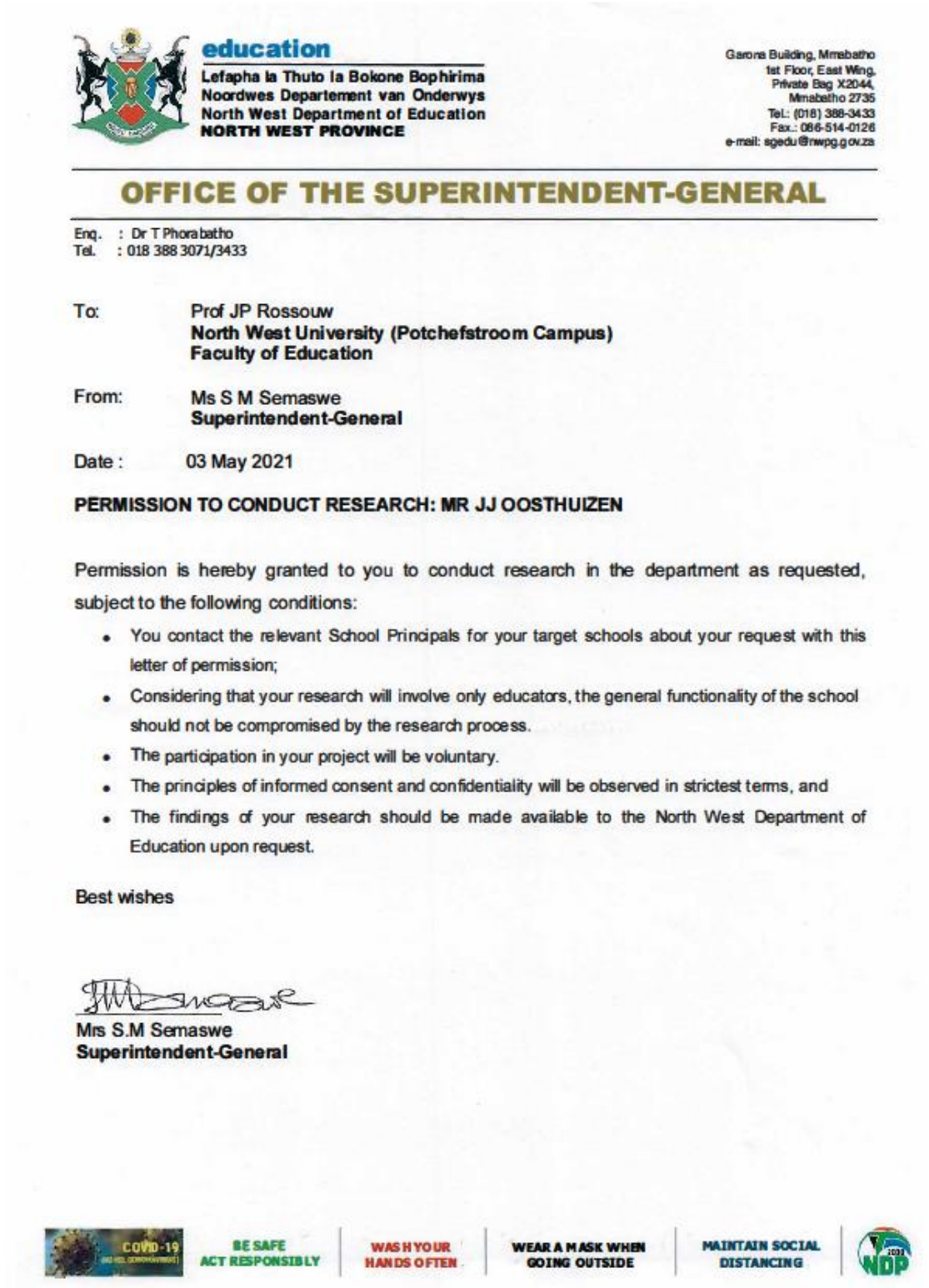
No.	SCHOOL NAME	ENGINEERING GRAPHICS & DESIGN	ELECTRICAL TECHNOLOGY		MECHANICAL TECHNOLOGY		CIVIL TECHNOLOGY	
			Dr KENNETH KAUNDA					
1	ALABAMA SEC	√						
2	BOTOKA THS	√	Power System	√	Automotive	Pe	Construction	√
			Electronics	√	Fitting and Machining	√	Woodworking	√
			Digital Systems		Welding	√	Civil Services	Pe
3	COCEKANI THS	√	Power System	√	Automotive	Pe	Construction	√
			Electronics		Fitting and Machining	√	Woodworking	Pe
			Digital Systems		Welding	√	Civil Services	
4	FERDINAND POSTMA HS	√						
5	GIMNASIUM HS	√						
6	HTS POTCHEFSTROOM	√	Power System	√	Automotive	√	Construction	√
			Electronics	√	Fitting and Machining	√	Woodworking	√
			Digital Systems	Pe	Welding	√	Civil Services	Pe
7	HTS KLERKSDORP	√	Power System	√	Automotive	√	Construction	
			Electronics	Pe	Fitting and Machining	√	Woodworking	√

			Digital Systems	Pe	Welding	pe	Civil Services	
8	**KLERKSDORP HS**	√						
9	**VOLKSKOOL POTCHEFSTROOM**	√	Power System		Automotive		Construction	
			Electronics	**pe**	Fitting and Machining	√	Woodworking	√
			Digital Systems		Welding	pe	Civil Services	
10	**ORKNEY HS**	√			Automotive		Construction	
					Fitting and Machining		Woodworking	√
					Welding & Metal Wor	√	Civil Services	
11	**STILFONTEIN HS**	√						
12	**VAAL REEFS THS**	√	Power System	√	Automotive	√	Construction	√
			Electronics	pe	Fitting and Machining	√	Woodworking	**pe**
			Digital Systems		Welding	pe	Civil Services	
13	**WESVALIA HS**	√						
14	**SCHOONSPRUIT HS**	√	Power System	√	Automotive	pe	Construction	
			Electronics		Fitting and Machining	√	Woodworking	√
			Digital Systems		Welding		Civil Services	
15	**SANNIESHOF HS**	√						
16	**WOLMARANSSTAD HS**	√	Power System	√	Automotive	pe	Construction	**pe**
			Electronics		Fitting and Machining	√	Woodworking	√
			Digital Systems		Welding		Civil Services	
Dr RUTH SEGOMOTSI MOMPATI								
17	**BLOEMHOF HS**	√						
18	**SCHWEIZER RENEKE HS**	√						
19	**MANGKUROANE THS**	√	Power System	√	Automotive	√	Construction	
			Electronics	pe	Fitting and Machining		Woodworking	√
			Digital Systems		Welding		Civil Services	

20	PULE LEEUW THS	√	Power System	√	Automotive	pe		
			Electronics		Fitting and Machining	√		
			Digital Systems		Welding			
21	VRYBURG HS	√	Power System	√	Automotive	pe	Construction	pe
			Electronics		Fitting and Machining	√	Woodworking	√
			Digital Systems		Welding		Civil Services	
22	TONG COMPH	√	Power System	√	Automotive	pe	Construction	√
			Electronics		Fitting and Machining		Woodworking	√
			Digital Systems	√	Welding	√	Civil Services	
NGAKA MODIRI MOLEMA								
23	BOITSEANAPE THS	√	Power System	√	Automotive	√	Construction	√
			Electronics	√	Fitting and Machining	Pe	Woodworking	√
			Digital Systems	Pe	Welding	√	Civil Services	Pe
24	SOL PLAATJE HS	√						
25	ONGOPOTSE TIRO HS	√	Power System	√	Automotive	√	Construction	√
			Electronics		Fitting and Machining	√	Woodworking	
			Digital Systems		Welding	pe	Civil Services	
26	RAMOTSHERE	√	Power System	√	Automotive	√	Construction	√
			Electronics	√	Fitting and Machining		Woodworking	√
			Digital Systems	pe	Welding	√	Civil Services	Pe
27	IKAGELENG HS	√	Power System	√			Construction	Pe
			Electronics	Pe			Woodworking	√
			Digital Systems	Pe			Civil Services	Pe
28	ZEERUST HS	√			Automotive		Construction	pe
					Fitting and Machining		Woodworking	√
					Welding	√	Civil Services	

29	**LICHTENBURG HS**	√	Power System	√	Automotive			
			Electronics	pe	Fitting and Machining	√		
			Digital Systems	Pe	Welding			
30	**FM RAMABOA THS**	√	Power System	√	Automotive	pe	Construction	pe
			Electronics	Pe	Fitting and Machining	√	Woodworking	√
			Digital Systems	Pe	Welding		Civil Services	Pe
30	**KOSTER**	√						
31	**SWARTRUGGENS HS**	√						
32	**MORE SS**		Power System				Construction	√
			Electronics				Woodworking	
			Digital Electronics				Civil Services	
			BOJANALA DISTRICT					
33	**BERGSIG HS**	√						
34	**HTS RUSTENBURG**	√	Power System	√	Automotive	√	Construction	√
			Electronics	√	Fitting and Machining	√	Woodworking	√
			Digital Systems	Pe	Welding	√	Civil Services	Pe
35	**RUSTENBURG HS**	√						
36	**GRENSWAG HS**	√						
37	**TLHABANE THS**	√	Power System	√	Automotive	pe	Construction	√
			Electronics	√	Fitting and Machining	√	Woodworking	√
			Digital Systems	√	Welding	√	Civil Services	√
38	**PRES MANGOPE THS**	√	Power System	√	Automotive	√	Construction	√
			Electronics	√	Fitting and Machining	√	Woodworking	√
			Digital Systems	√	Welding	√	Civil Services	Pe
39	**BRITS HS**	√	Power System				Construction	
			Electronics	√			Woodworking	√
			Digital Systems				Civil Services	
40	**HARTBEESPOORT HS**	√						
41	**WAGPOS HS**	√	Power System	√	Automotive	√	Construction	√
			Electronics	pe	Fitting and Machining	√	Woodworking	√
			Digital Systems	Pe	Welding	pe	Civil Services	Pe
42	**HEBRON THS**	√	Power System	√	Automotive	pe	Construction	Pe
			Electronics	√	Fitting and Machining	√	Woodworking	√
			Digital Systems	Pe	Welding	√	Civil Services	Pe
43	**MMANKALA THS**	√	Power System	√	Automotive	√	Construction	Pe
			Electronics	Pe	Fitting and Machining		Woodworking	√
			Digital Systems	√	Welding & Metal.	√	Civil Services	Pe
44	**MOGALE SS**	√	Power System	√	Automotive		Construction	
			Electronics		Fitting and Machining		Woodworking	
			Digital Electronics		Welding & Metal.	√	Civil Services	
45	**MOEDWIL HS**	√	Power System		Automotive	pe	Construction	pe
			Electronics	√	Fitting and Machining	√	Woodworking	pe
			Digital Electronics		Welding		Civil Services	
46	**SEWAGODIMO THS**	√	Power System	√			Construction	√
			Electronics	√			Woodworking	√
			Digital Systems	Pe			Civil Services	Pe
47	**EAGLE CHRISTIAN CO**	√						

ADDENDUM C: Permission to conduct research from the North West Department of Basic Education.



education
Lefapha la Thuto la Bokone Bophirima
Noordwes Departement van Onderwys
North West Department of Education
NORTH WEST PROVINCE

Garona Building, Mmabatho
1st Floor, East Wing,
Private Bag X2044,
Mmabatho 2735
Tel.: (018) 388-3433
Fax.: 086-514-0126
e-mail: sgedu@nwpg.gov.za

OFFICE OF THE SUPERINTENDENT-GENERAL

Enq. : Dr T Phorabatho
Tel. : 018 388 3071/3433

To: Prof JP Rossouw
North West University (Potchefstroom Campus)
Faculty of Education

From: Ms S M Semaswe
Superintendent-General

Date : 03 May 2021

PERMISSION TO CONDUCT RESEARCH: MR JJ OOSTHUIZEN

Permission is hereby granted to you to conduct research in the department as requested, subject to the following conditions:

- You contact the relevant School Principals for your target schools about your request with this letter of permission;
- Considering that your research will involve only educators, the general functionality of the school should not be compromised by the research process.
- The participation in your project will be voluntary.
- The principles of informed consent and confidentiality will be observed in strictest terms, and
- The findings of your research should be made available to the North West Department of Education upon request.

Best wishes

Mrs S.M Semaswe
Superintendent-General

COVID-19 BE SAFE ACT RESPONSIBLY | WASH YOUR HANDS OFTEN | WEAR A MASK WHEN GOING OUTSIDE | MAINTAIN SOCIAL DISTANCING | NDP

ADDENDUM D: Certificate of ethics approval

Private Bag X1290, Potchefstroom
South Africa 2520

Tel: 018 299-1111/2222
Fax: 018 299-4910
Web: http://www.nwu.ac.za

Senate Committee for Research Ethics
Tel: 018 299-4849
Email: nkosinathi.machine@nwu.ac.za

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the Faculty of Education Research Ethics Committee (EduREC) on 29 April 2021, this committee hereby approves your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-SCRE) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: Safety control and workplace security of FET Technology high school teachers: An Education Law perspective

Study Leader/Supervisor (Principal Investigator)/Researcher: Prof JP Rossouw

Student / Team: JJ Oosthuizen (PhD student – 13126628), Prof EK Niemczyk

Ethics number:

N	W	U	-	0	1	9	0	3	-	2	0	-	A	2
Institution				Study Number						Year			Status	

Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation

Application Type: Project

Commencement date: 29 April 2021 **Risk:** Low risk

Expiry date: 29 April 2022

Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.

Special in process conditions of the research for approval (if applicable):

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- *The study leader/supervisor/principal investigator/researcher must report in the prescribed format to the EduREC:*
  - *annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and*
  - *without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.*
- *The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the EduREC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.*
- *Annually a number of studies may be randomly selected for an external audit.*
- *The date of approval indicates the first date that the study may be started.*
- *In the interest of ethical responsibility, the NWU-SCRC and EduREC reserves the right to:*
  - *request access to any information or data at any time during the course or after completion of the study;*

- *to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;*
- *withdraw or postpone approval if:*
  - *any unethical principles or practices of the study are revealed or suspected;*
  - *it becomes apparent that any relevant information was withheld from the EduREC or that information has been false or misrepresented;*
  - *submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or*
  - *new institutional rules, national legislation or international conventions deem it necessary.*

The EduREC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the EduREC or the NWU-SCRE for any further enquiries or requests for assistance.

Yours sincerely

Prof JAK Olivier
Chairperson NWU Faculty of Education Research Ethics Committee

Original details: (23351900) C:\Users\23351900\Desktop\ETHICS APPROVAL LETTER OF STUDY.docm
8 November 2018

Current details: (23351900) M:\Data\Research Monitoring and Reporting Cluster\Ethics\Certificates\Templates\Research Ethics Approval Letters\8.1.5.4.1 EduREC Ethical Approval Letter.docm
5 December 2018

File reference: 8.1.5.4.2

ADDENDUM E: Goodwill permission: school principal

Private Bag X6001, Potchefstroom
South Africa 2520

Web: http://www.nwu.ac.za

North-West University
Faculty of Education (PC)
Research unit: Edu-HRight

Tel: 018 299 1868
Email: joop.oosthuizen@nwu.ac.za

Mr Principal
(School address)
(School address)

Date: 16.04.2021

GOODWILL PERMISSION: SCHOOL PRINCIPAL

Dear principal

I am a lecturer at the Education Faculty of the North-West University where I am also enrolled for a PhD in Education Law. I kindly ask for your permission to engage the FET Technology teachers in your school to participate in my research study. The study will explore the experiences of teachers regarding the physical security in their workplaces. As you are already aware, the workplaces of FET Technology teachers are far more hazardous than normal classrooms. This research study is designed to identify the factors that influence workplace security of FET Technology teachers in order to create more awareness of legislation pertaining to occupational injuries and diseases, as well as the issue of compensation. The input of your teachers will greatly contribute to achieve this goal and will be beneficial to all who participate. The data for this research study will be collected by means of face-to-face interviews of approximately 45-60 minutes. Prior to granting permission, please acquaint yourself with the information below.

The details of the research are as follows:

TITLE OF THE RESEARCH PROJECT:

Safety control and workplace security of FET Technology high school teachers: An Education Law perspective

ETHICS APPLICATION NUMBER

NWU – 01903-20-A2

PROJECT SUPERVISOR: Prof JP Rossouw
CO-SUPERVISOR: Prof E K Niemczyk
ADDRESS: Faculty of Education – North-West University, Potchefstroom
Research unit: Edu-HRight
CONTACT NUMBER: 018 299 1868

MEMBER OF PROJECT TEAM: Mr JJ Oosthuizen
ADDRESS: Faculty of Education – North-West University
School for Mathematics, Science and Technology for Education
Potchefstroom
Office: B09 - G06
CONTACT NUMBER: 018 299 1868

FACULTY OF EDUCATION RESEARCH ETHICS COMMITTEE
Contact person: Ms Erna Greyling, E-mail: Erna.Greyling@nwu.ac.za, Tel. (018) 299 4656

This study has been approved by the Research Ethics Committee of the Faculty of Education of the North-West University and will be conducted according to the ethical guidelines of this committee. Permission was also obtained from the provincial Department of Basic Education.

What is this research about?
The general aim of this study is to determine FET Technology teachers' experiences of professional security at high schools. The specific objectives are as follows:

- investigating what workplace security of FET Technology teacher's entails.
- establishing how the implementation of safety control measures, or the lack thereof, influence the workplace security of FET Technology teachers.
- examining how legal indicators and subordinate legislative guidelines are interpreted by teachers in terms of their workplace security.
- determining if the physical infrastructure of schools contribute to workplace insecurity of FET Technology teachers.

Participants
All FET Technology teachers (Civil and/or Mechanical and/or Electrical). EGD teachers are excluded from the study.

What is expected of the participants?

To partake in a face-to-face interview of 45-60 minutes. The time and location of the interviews will be decided based on the participants' availability and preferences. Participation is voluntary, responses will be kept confidential, participants can withdraw from the study at any time, and minimal disruption to the normal work schedules of the participants will take place. Potential participants will have the choice to contact the researcher with any questions prior to their engagement in the study. Contact details of the researcher are provided above. Teachers who make an informed decision to participate in the study will be asked to sign the consent form and send it back to the independent recruiter for safekeeping.

Benefits to the participants

The study has potential to highlight problems that teachers, principals, and governing bodies face to implement safety control measures and legislation to ensure safer workplaces for FET Technology teachers at high schools. It will also create more awareness of labour legislation pertaining to occupational injuries and diseases, as well as the processes and conditions of claiming compensation when needed. The findings of the research study will be shared with the participants, for them to implement possible preventative measures.

Risks involved for participants

The risks involved in this study is regarded as low. Participants and their schools will not be identified since participation is anonymous, and all data will be handled according to strict ethical guidelines. Apart from the mild discomfort of sitting for 45-60 minutes during the interview, there are no physical or psychological risks involved in the study. All COVID-19 guidelines and precautions will be strictly adhered to during interviews.

Confidentiality and protection of identity

The privacy of participants will be respected and guaranteed by conducting the interviews in confidentiality. They will also be informed that the information gathered will be coded and interpreted in order to determine the phenomenon of workplace security of FET Technology teachers without revealing the names of participants or their schools.

Dissemination of findings

All participants who partake in the study will be informed that the researcher will validate their contribution by means of member checking, as well as making all final research findings available to them. The research findings and recommendations will also be communicated to the North-West Department of Education. Participation in the research will be confidential, but not anonymous. It is important to identify the 4 participating districts in the findings of the study, since demographics may have an influence on workplace security in their schools. If you have any further questions or enquiries regarding your participation in this research, please contact the researchers for more information.

DECLARATION BY PRINICPAL:

By signing below, I …………………………………..………… agree to give permission for the research to take place with the identified participants in the study entitled:

____

[Safety control and workplace security of FET Technology high school teachers: An Education Law perspective]

I declare that:

- I have read this information and consent form and understand what is expected of the participants in the research.
- I have had a chance to ask questions to the researcher and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and participants will not be pressurised to take part.
- Participants may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- Participants may be asked to leave the research process before it is completed, if the researcher feels it is in their best interests, or if they do not follow the research procedures, as agreed to.

Signed at (place)__________________________on (date) ______/______/20____

____________________ **Signature of Principal**

ADDENDUM F: Goodwill permission: SGB

Private Bag X6001, Potchefstroom
South Africa 2520

Web: http://www.nwu.ac.za

North-West University
Faculty of Education (PC)
Research unit: Edu-HRight

Tel: 018 299 1868
Email: joop.oosthuizen@nwu.ac.za

Chairman of SGB
(School address)
(School address)

Date: 16.04.2021

GOODWILL PERMISSION: SCHOOL GOVERNING BODY

Dear Chairman

I am a lecturer at the Education Faculty of the North-West University where I am also enrolled for a PhD in Education Law. I kindly ask for your permission to engage the FET Technology teachers in your school to participate in my research study. The study will explore the experiences of teachers regarding the physical security in their workplaces. As you are already aware, the workplaces of FET Technology teachers are far more hazardous than normal classrooms. This research study is designed to identify the factors that influence workplace security of FET Technology teachers in order to create more awareness of legislation pertaining to occupational injuries and diseases, as well as the issue of compensation. The input of your teachers will greatly contribute to achieve this goal and will be beneficial to all who participate. The data for this research study will be collected by means of face-to-face interviews of approximately 45-60 minutes. Prior to granting permission, please acquaint yourself with the information below.

The details of the research are as follows:

TITLE OF THE RESEARCH PROJECT:

Safety control and workplace security of FET Technology high school teachers: An Education Law perspective

ETHICS APPLICATION NUMBER

NWU – 01903-20-A2

PROJECT SUPERVISOR: Prof JP Rossouw
CO-SUPERVISOR: Prof E K Niemczyk

ADDRESS: Faculty of Education – North-West University, Potchefstroom

Research unit: Edu-HRight

CONTACT NUMBER: 018 299 1868

MEMBER OF PROJECT TEAM: Mr JJ Oosthuizen
ADDRESS: Faculty of Education – North-West University

School for Mathematics, Science and Technology for Education

Potchefstroom

Office: B09 - G06

CONTACT NUMBER: 018 299 1868

FACULTY OF EDUCATION RESEARCH ETHICS COMMITTEE
Contact person: Ms Erna Greyling, E-mail: Erna.Greyling@nwu.ac.za, Tel. (018) 299 4656

This study has been approved by the Research Ethics Committee of the Faculty of Education of the North-West University and will be conducted according to the ethical guidelines of this committee. Permission was also obtained from the provincial Department of Basic Education.

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The general aim of this study is to determine FET Technology teachers' experiences of professional security at high schools. The specific objectives are as follows:

- investigating what workplace security of FET Technology teacher's entails.
- establishing how the implementation of safety control measures, or the lack thereof, influence the workplace security of FET Technology teachers.
- examining how legal indicators and subordinate legislative guidelines are interpreted by teachers in terms of their workplace security.
- determining if the physical infrastructure of schools contribute to workplace insecurity of FET Technology teachers.

Participants
All FET Technology teachers (Civil and/or Mechanical and/or Electrical). EGD teachers are excluded from the study.

What is expected of the participants?

To partake in a face-to-face interview of 45-60 minutes. The time and location of the interviews will be decided based on the participants' availability and preferences. Participation is voluntary, responses will be kept confidential, participants can withdraw from the study at any time, and minimal disruption to the normal work schedules of the participants will take place. Potential participants will have the choice to contact the researcher with any questions prior to their engagement in the study. Contact details of the researcher are provided above. Teachers who make an informed decision to participate in the study will be asked to sign the consent form and send it back to the independent recruiter for safekeeping.

Benefits to the participants

The study has potential to highlight problems that teachers, principals, and governing bodies face to implement safety control measures and legislation to ensure safer workplaces for FET Technology teachers at high schools. It will also create more awareness of labour legislation pertaining to occupational injuries and diseases, as well as the processes and conditions of claiming compensation when needed. The findings of the research study will be shared with the participants, for them to implement possible preventative measures.

Risks involved for participants

The risks involved in this study is regarded as low. Participants and their schools will not be identified since participation is anonymous, and all data will be handled according to strict ethical guidelines. Apart from the mild discomfort of sitting for 45-60 minutes during the interview, there are no physical or psychological risks involved in the study. All COVID-19 guidelines and precautions will be strictly adhered to during interviews.

Confidentiality and protection of identity

The privacy of participants will be respected and guaranteed by conducting the interviews in confidentiality. They will also be informed that the information gathered will be coded and interpreted in order to determine the phenomenon of workplace security of FET Technology teachers without revealing the names of participants or their schools.

Dissemination of findings

All participants who partake in the study will be informed that the researcher will validate their contribution by means of member checking, as well as making all final research findings available to them. The research findings and recommendations will also be communicated to the North-West Department of Education. Participation in the research will be confidential, but not anonymous. It is important to identify the 4 participating districts in the findings of the study, since demographics may have an influence on workplace security in their schools. If you have any further questions or enquiries regarding your participation in this research, please contact the researchers for more information.

<u>DECLARATION BY SGB:</u>

By signing below, I ……………………………….………… agree to give permission for the research to take place with the identified participants in the study entitled:

____

[Safety control and workplace security of FET Technology high school teachers: An Education Law perspective]

I declare that:

- I have read this information and consent form and understand what is expected of the participants in the research.
- I have had a chance to ask questions to the researcher and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and participants will not be pressurised to take part.
- Participants may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- Participants may be asked to leave the research process before it is completed, if the researcher feels it is in their best interests, or if they do not follow the research procedures, as agreed to.

Signed at (place)___________________________on (date) ______/______/20____

_____________________ **Signature of SGB Chairman**

ADDENDUM G: Letter of informed consent: Participants

Private Bag X6001, Potchefstroom
South Africa 2520

Web: http://www.nwu.ac.za

North-West University (PC)
Faculty of Education

Research Unit: Edu-HRight

Tel: 018 299 1868
Email: joop.oosthuizen@nwu.ac.za

FET Technology teacher's name
(School address)
(School address)
(School address)

Date: 15.04.2021

PARTICIPANT INFORMATION AND CONSENT FORM

Dear Mr Civil / Mechanical / Electrical Technology

Have you ever felt unsafe in any way in your workplace, or wondered about the consequences to you and your family if you get seriously injured, disabled or contract an occupational disease in your workshop? If you did, I kindly request you to consider participation in my PhD research study regarding safety control and workplace security of FET Technology high school teachers. I realise that you have a busy schedule as workshop teacher, but the findings of this study may help you and other colleagues in your field to better prepare for unforeseen risks associated with FET Technology workplaces. Your participation in this study is voluntary and if you consent, I will ask for 45-60 minutes of your time to conduct a face-to-face interview. The time and place of the interview will be determined by you to ensure convenience and minimum disruption to your busy schedule.

Before you give consent, please acquaint yourself with the information below so you can make an informed decision.

The details of the research are as follows:

TITLE OF THE RESEARCH PROJECT:

Safety control and workplace security of FET Technology high school teachers: An Education Law perspective

ETHICS APPLICATION NUMBER: NWU – 01903-20-A2

PROJECT SUPERVISOR: Prof JP Rossouw
CO-SUPERVISOR: Prof E K Niemczyk
ADDRESS:
Faculty of Education – North-West University
Research unit: Edu-HRight
Potchefstroom
CONTACT NUMBER: 018 299 1868

MEMBER OF PROJECT TEAM: Mr JJ Oosthuizen
ADDRESS:
Faculty of Education – North-West University
School for Mathematics, Science and Technology for Education
Potchefstroom
Office: B09 - G06
CONTACT NUMBER: 018 299 1868

FACULTY OF EDUCATION RESEARCH ETHICS COMMITTEE

Contact person: Ms Erna Greyling, E-mail: Erna.Greyling@nwu.ac.za, Tel. (018) 299 4656

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- establishing how the implementation of safety control measures, or the lack thereof, influence the workplace security of FET Technology teachers.
- examining how legal indicators and subordinate legislative guidelines are interpreted by teachers in terms of their workplace security.
- determining if the physical infrastructure of schools contribute to workplace insecurity of FET Technology teachers.

Participants

All FET Technology teachers (Civil and/or Mechanical and/or Electrical). EGD teachers are excluded from the study.

What is expected of the participants?

To partake in a face-to-face interview of 45-60 minutes. The time and location of the interviews will be decided based on the participants' availability and preferences. Participation is voluntary, responses will be kept confidential, participants can withdraw from the study at any time, and minimal disruption to the normal work schedules of the participants will take place. Potential participants will have the choice to contact the researcher with any questions prior to their engagement in the study. Contact details of the researcher are provided above. Teachers who make an informed decision to participate in the study will be asked to sign the consent form and send it back to the independent recruiter for safekeeping.

Benefits to the participants

The study has potential to highlight problems that teachers, principals, and governing bodies face to implement safety control measures and legislation to ensure safer workplaces for FET Technology teachers at high schools. It will also create more mindfulness of labour legislation pertaining to occupational injuries and diseases, as well as the processes and conditions of claiming compensation or disability if needed. The findings of the research study will be shared with the participants for them to implement possible preventative measures.

Risks involved for participants

The risks involved in this study is regarded as low. Participants and their schools will not be identified since participation is anonymous, and all data will be handled according to strict ethical guidelines. Apart from the mild discomfort of sitting for 45-60 minutes during the interview, there are no physical or psychological risks involved in the study. All COVID guidelines and precautions will be strictly adhered to during interviews.

Confidentiality and protection of identity

The privacy of participants will be respected and guaranteed by conducting the interviews in confidentiality. All information gathered will be coded and interpreted in order to determine the phenomenon of workplace security of FET Technology teachers without revealing the names of participants or their schools.

Dissemination of findings

All participants who partake in the study will be informed that the researcher will validate their contribution by means of member checking, as well as making all final research findings available to them. The research findings and recommendations will also be communicated to the North-West Department of Education. Participation in the research will be confidential, but not anonymous. It is important to identify the 4 participating districts in the findings of the study, since demographics may have an influence on workplace security in their schools.

If you have any further questions or enquiries regarding your participation in this research, please contact the researchers for more information.

Yours sincerely

Mr JJ Oosthuizen
(Researcher)

DECLARATION BY PARTICIPANT:

By signing below, I ……………………………..…………………………………agree to take part in a research study entitled:

Safety control and workplace security of FET Technology high school teachers: An Education Law perspective

I declare that:

- I have read this information and consent form and understand what is expected of me in the research.
- I have had a chance to ask questions to the researcher and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised in any way to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the research process before it has finished, if the researcher feels it is in my best interests, or if I do not follow the research procedures, as agreed to.

Signed at (place)____________________________on (date) ______/______/20____

______________________ ______________________

Signature of participant **Researcher**

ADDENDUM H: Interview schedule

R: Thank you for participating in this empirical study. I'm going to start the interview by asking you some introductory biographical and demographic questions regarding your workplace. Following that, I will continue to ask you 12 questions divided into 3 overarching sections. I want to emphasize that the questions about workplace security only applies to circumstances effecting you personally, and not the learners in your class. This interview will focus on your personal perceptions and convictions regarding workplace security in your workshop. Let's start with the introductory questions.

Pre interview introductory questions

1. **Biographic information**

1.1 What position do you currently fill? (HOD or teacher)

1.2 What Technology subject(s) do you teach?

1.3 Year in which you obtained your first teaching qualification.

1.4 Year in which you obtained your last teaching qualification.

1.5 How many years have you practised as an FET Technology teacher?

1.6 What is your highest teaching qualification (indicate only highest)?

2. **Demographic information regarding school**

2.1 What is the maximum number of learners your workshop can safely accommodate at once?

2.2 How many grade 10-12 learners currently take your Technology subject?

2.3 Do you currently have a workshop assistant?

3. **Which of the following is applicable to your workplace (workshop)? <u>Yes /No</u> answers only.**

<u>Inside</u>

3.1 Sufficient natural light
3.2 Sufficient electrical lighting
3.3 Adequate ventilation
3.4 Air/dust extraction system
3.5 Shop doors that open to outside
3.6 Multiple fire and emergency escape doors that open to the outside
3.7 Storage room for tools and portable machinery
3.8 Storage room for consumable materials
3.9 Separate storage for chemicals and toxic materials
3.10 Record of any machine inspections done (apart from you)
3.11 Adequate floor space?
3.12 Fire extinguishers – hose type connected to main water supply?
3.13 Emergency evacuation plan in place?
3.14 Rubber mats where electrical work is done? (applicable to Electrical technology.)
3.15 Approved waste system for rubbish, scrap material and chemicals?
3.16 Accessible DB board with lockable main switch?
3.17 Asbestos panels inside workshop?
3.18 Broken, damaged or dilapidated walls / other parts inside the workshop?

Outside

3.19 Adequate outdoor workspaces (where applicable)?
3.20 Record of building/infrastructure inspection?
3.21 Security gate at shop entrance?
3.22 Alarm or cameras in workshop?
3.23 Asbestos panelling on outside of building?
3.24 Asbestos roofs?
3.25 Broken, damaged or dilapidated walls on outside of the workshop?

Section A: Workplace security

1. What is your understanding/definition of *workplace security*? Please elaborate
2. In your opinion, what *factors* influence security in your workplace? Please motivate
3. What is your opinion regarding *safety control measures* that the DBE has put in place to regulate/inspect infrastructure in your workshop?

4. Do you think that the quality of your *school's infrastructure* (buildings) influence your general wellbeing or sense of physical security? Please elaborate.

4.1. Do you feel that seismic activity or the potential threat thereof have an influence on your physical and/or workplace security? (Only applicable to Matlosana-district teachers)

Section B: Legal determinants

5. In your opinion, is *legislation* important in enhancing workplace security and resolving problems found in FET high school workshops? Please elaborate.
6. What are your views regarding your *constitutional rights* as teachers in their workplaces?
7. What is your understanding/views regarding *labour relations* in your workplace?
8. In your view, what role does your *employer(s)* play in your workplace security? Please be specific.
9. Do you think there is adequate consultation/communication/support between teachers (as employees) and the DBE (as employer) regarding security in workshops? Please elaborate.

Section C: Risks in the workshop as workplace

10. Do you experience your workplace as safe? Please elaborate.
11. Is it your opinion that there is a *risk of injury* or *occupational diseases* in your workplace?
12. Do you think that you and/or your family will be adequately *compensated* in case of you getting seriously injured or ill from an occupational disease? Please elaborate.

END

ADDENDUM I: Example of interview transcripts with coding

Pre interview introductory questions – Participant: TM1

R - Researcher: Thank you for participating in this empirical study. I'm going to start the interview by asking you some introductory biographical and demographic questions. Following that, I will continue to ask you 12 questions divided into 3 overarching categories. I want you to understand that the questions about workplace security only applies to circumstances effecting you personally, and not the learners in your class. This interview will focus on your personal perceptions and convictions regarding workplace security in your workshop. Let's start with the introductory questions.

1. <u>Biographic information</u>

1.1 R - What position do you currently fill? (HOD or teacher)

TM1 – Post level 1 permanent teacher

1.2 R - What Technology subject(s) do you teach?

TM1 - Mechanical technology fitting and turning. the motor mechanical shop closed down a long time ago. There is still a lot of machinery, but the workshop is closed now and we don't use it anymore.

1.3 R - Year in which you obtained your first teaching qualification?

TM1 - when did I finish it? If I'm correct I think I finished my studies in 2019.

1.4 R - Year in which you obtained your last teaching qualification?

TM1 - Yes 2019 was when I finished my education studies. After that, I did a postgraduate study in business administration after I finished my teaching studies. Yes, I quickly did a diploma in project management as well.

1.5 R - How many years have you practised as an FET Technology teacher?

TM1 - I'm currently teaching for two years

1.6 R - What is your highest teaching qualification (indicate only highest)?

TM1 - Teaching qualification is a B.Ed. FET Technology mechanical

4. **Demographic information regarding school**

4.1 R - What is the maximum number of learners your workshop can safely accommodate at once?

TM1 - **what I'm what I feel comfortable with not more than 8. it's no It's not more than eight it's a nice group nice amount I can divide them into groups of two per table and then it is easier for me to look after them and yeah it's manageable**…it's a manageable group. Anything more than eight then it becomes really difficult **then kids have to come to school after hours the PAT** is a simple thing to make but if one guy works on the milling machine and the other guy works on the drill press it is difficult to have control over all of them working so yeah I like to split them up into smaller groups it's easier for me. **The problem is also if there is a couple of boys who are mischievous in the group and then it becomes difficult yeah to keep my eyes everywhere**. They do not work safe, and think they know what they are doing but they don't. I do not have a problem with it necessarily. I was also young at one stage. The problem is that most of the boys here come from farms around town, so they so they see how they fathers do it you know, which is not always the correct way so yes I have to tell them yes you can do it like that but the correct way and safe way is like this and that takes a lot of time.

2.2 R - How many grade 10-12 learners currently take your Technology subject?

TM1 – The grade 10s are 22. Of those…20 are boys and 2 girls. The Grade 11s are 14 and the great 12s are 16.

2.3 R - Do you currently have a workshop assistant?

TM1 **- No never had such a thing. The lab assistants fell away, and you are lucky if you get a cleaner, never mind an assistant. I manage the groups by coming in in the afternoons and splitting them up… that is how I manage the big groups.** What I also do is when I have a double period, I let the one group do practicals, and the other group theory. When the bell goes then they just swap around, and the other group then does practicals. Another thing is on Wednesday afternoons they have an opening because it's a test day so after they finish their sport or went to the gym then they have two hours spare in which I then do my practical session once a week.

Which of the following does your workplace (workshop) have? Yes /No answers please

3. Inside

3.1 Sufficient natural light

Yes

3.2 Sufficient electrical lighting

Yes, we have sufficient tube lighting

We also have a huge roller door that we can open up for extra light if we need it.

3.3 Adequate ventilation

Yes, as I said we just open the roller door

3.4 Air/dust extraction system

No, we don't have a dust extractor extraction system, but it does get dusty. The town is very dusty, and when the wind picks up everything is full of dust. It is dusted and wiped clean regularly, so it's not that big of a problem. Now and then we use the compressor to blow out and clean the machines with air.

3.5 Shop doors that open to outside

Yes

3.6 Multiple fire and emergency escape doors that open to the outside – Yes…I have two doors. One is the classroom door and then the big roller door at the back.

3.7 Storage room for tools and portable machinery

Yes.

3.8 Storage room for consumable materials

Yes.I have a separate store for the consumable materials. Also have the empty motor mechanical shop where I can store extra materials if I need to…so space is not a problem. I can show you the store it looks better now as when I got here… it looked chaotic. it was full of school's storage like tables, chairs etc. But it is gone now, so it's much better.

3.9 Separate storage for chemicals and toxic materials

No not really the only dangerous substances we have is the gas cylinders in the back of the workshop it needs a screen in front of it.

R – Are the gas bottles installed inside the workshop?

Yes, the gas bottles are inside but of the five I think one is half full. The others are all empty. I can't remember the last time it was filled because the fitting and turning curriculum covers the theory of gas welding, but there are no practicals set out for welding, so we don't do any practical's where we need gas. I only use the gas to demonstrate it to the learners and that is about it.

3.10 Accessible DB board with lockable main switch?

Yes. **I actually have two DB boards the one in the back is connected to all the lathes so I can quickly put it off there on that wall, but then it is also connected to this DB here in front which is the main switch that switches off all the power in the workshop including the lights and plugs as well.** The only other problem with power is the alarm. My class alarm is connected to the class above me so when he puts off the alarm in his class my alarm is also off.

3.11 Record of any machine inspections done (apart from you)

I have no idea. Two of the milling machines have stickers on it that says that it "passed inspection" but I do not know when that inspection took place. The only lists I received from the previous teacher who was here was for inventory and machines, but there was **no list for any inspections or maintenance done by anybody.** As far as maintenance is concerned, I can only speak from my personal experience when the support arm of the guillotine broke and I installed the new pulleys that someone came to inspect it afterwards. It was a mechanic parent from town who has his own business and have knowledge of these machines, but apart from him **I have no idea when any machine was last inspected by anybody. I also have no list of inspections ever done.**

3.12 Adequate floor space?

Yes. When the roller door is open. We do not really work outside a lot, but there is more than enough space to work outside if we need to.

3.13 Fire extinguishers – hose type connected to main water supply?

Normal powder extinguishers against walls.

3.14 Emergency evacuation plan in place?

Yes, the school as one.

3.15 Rubber mats where electrical work is done? (applicable to Electrical technology.)

n/a

3.16 Approved waste system for rubbish, scrap material and chemicals?

The groundsman comes around weekly, or when the bins are full and removes all the bins

3.17 Asbestos panels inside workshop?

Not that I know off, no. Not in my workshop. But my theory class is made of asbestos. I am not even sure if it is asbestos… I think its rhino board. The other workshop is also made of rhino board but like I said we don't really work there anymore it is closed.

3.18 Broken, damaged or dilapidated walls / other parts inside the workshop?

No, nothing. Except the rhino boards we talked about…nothing else.

4.Outside

4.1 Adequate outdoor workspaces (where applicable)?

Yes, enough when I divide them into manageable groups of 8.

4.2 Record of building/infrastructure inspection?

No not at all. Like I said, the only inspection I am aware of was that one machine that I told you about I have no idea when or if there ever was inspection on the buildings.

4.3 Security gate at shop entrance?

Yes

4.4 Alarm or cameras in workshop?

Yes, we have cameras in the workshop there at the back. The one picks up the whole shop up to the door, but it's a bit dark there because of the small window. So, you can't really see well at the furthest end, but the rest of the workshop you can see pretty well.

R – Do you experience the cameras as positive or negative?

The cameras were here when I started. I just saw one day in the office that my workshop had a camera that I wasn't aware of, but we never had to use it before like for instance when there was an accident or anything like that where I may be blamed. **I now have a foot to stand on in case something goes wrong…it is not his word against mine anymore. I am pro cameras because if something happens, we can always check the cameras.** It can also prevent an accident from happening in the future again or to determine what caused the accident if it was me or if it was a child being negligent so yes, I enjoy the fact that there is a camera in the workshop because it adds to the safety in the shop it also helps with preventing theft etc.

4.5 Asbestos panelling on outside of building?

No…not the workshop.

4.6 Asbestos roofs?

No, corrugated iron roofs

4.7 Broken, damaged or dilapidated walls on outside of the workshop?

Not that I am aware of.

Section A: Workplace security in the workshop

6. **R - What is your understanding/definition of <u>workplace security</u>? Please elaborate**

TM1 – **To me, workplace security basically means that the place where I teach must be safe for the learners and myself. Safe means free from any serious dangers.** That's what I would say workshop security is for me.

7. **R - In your opinion, what <u>factors</u> influence security in your workplace? Please motivate**

TM1 - **Yes in general all workshops especially the mechanical workshop is a dangerous place.** One thing that really bothers me especially with schools that have technical subjects is the materials that we get from the department. **For instance, take grinding discs. If I look at the name of the disc, I've never heard of this company making these discs. I am worried that those discs might break and fly into my face** and cause a serious accident. I'm not sure where they get these cheap materials, but I like to buy from one specific shop in town where I know that the quality of the materials, I buy is very good or a relatively good make. In the past we have bought materials in town and then sent the department the invoice to pay. **They weren't happy about it, but I am not risking getting injured.**

R – So you feel that this may contribute to making your workplace unsafe?

TM1 - Definitely…this puts not only the safety of the learners in jeopardy but also mine when they work with it. Another thing is time. It is a big factor. **Sometimes the department expects us to finish a huge PAT that takes a lot of time.** Now even though I teach mechanical technology, the learners also have six other subjects for which they must also prepare for the final exams…and there is not enough time for everything. When do they think must we finish these big practical projects? We all know that when somebody begins to rush things to finish then you're going to take chances and then it is when you don't pay attention and when accidents happen. **The fact that you are rushing causes you to make accidents and make you negligent. The learners are always rushing to finish.**

8. **R - What is your opinion regarding <u>safety control measures</u> that the DBE has put in place to regulate/inspect infrastructure in your workshop?**

TM1 - I don't really know but my subject advisor is a very nice guy he always tries his best to support us in the workshop to address problems but above him I'm not sure if anything happens. **He does his job well and he sends us additional information regarding safety, but he doesn't get any support from the people above him.** Even during this whole COVID story he sent us additional information on how to handle the virus in the shop for instance do not allow more than a certain number of learners, sanitize between classes etc. I feel he is somebody that looks out for us and will support you wherever he can. Before I started here, I was at another school where I taught Civil and we never ever discussed safety at all. I don't know if it is because I moved over from Civil Technology to Mechanical Technology, but I feel that maybe the difference in support between subject

advisors for the different subjects was not the same. **I did not get any guidance regarding safety from the other subject advisor when I taught Construction.** I must say that the mechanical subject advisor regularly gives us updates and discusses the safety matters with us and will support us in cases where we were not negligent in an accident.

9. **R - Do you think that the quality of your <u>school's infrastructure</u> (buildings) influences your general wellbeing or sense of physical security? Please elaborate.**

TM1 – No not really. But there is always a risk of working in a workshop. I would like to see that the machines in our workshop is updated more regularly with more modern machines. It will be nice because you always feel safer with a newer machine that has the lightest safety features compared to the older machines we have. **The older machines are not inferior in quality, and some do have their guards on, but they do not have the latest safety gadgets on them. It gives you peace of mind if you work with newer, safer machinery.** Most of the schools where I did my practical training or where I've taught all of them had old machines there's nothing wrong with them, they do the same job but it's all old technology. The latest lathes and milling machines are very safely designed where you stand nearly two meters away from them when you work compared to the old machines.

R – You mentioned inferior tools from the dept. Have you received machinery or hand tools that you feel is inferior quality?

TM1 - The previous teacher before me bought 2 cut off machines and one bench grinder. The one is a Bosch and the other ones are Makitas so when you look at it, it looks really nice and you would say it's great machines but at the end of the day it is not industrial machines. What bothers me now is that you have 22 boys that work on a cut off machine that is not made for heavy duty. **It is DIY machines meant for use by one person, working in your home garage. It is not supposed to be used constantly by learners making PATS, and because it is a cheaper DIY tool and not the expensive professional type… they do not last.**

For instance, **I have old industrial bench grinders in the back of my class that is nearly twice my age that was made in Italy and is very good quality and is still working perfectly after all these years compared to the brand-new ones I have now**. It is a concern but we can't really say no thank you for machinery that we get for

free so we take what we can get. I think it is better to pay more for the industrial machines and they last longer then buy the cheaper ones that doesn't last as long with heavy use. We are thankful for the machines but yes there are schools that have no machines, and then there are other schools that have all the machines, but they do not do any practicals with learners in them, so yes.

9.1. R - Do you feel that seismic activity or the potential threat thereof have an influence on your physical and/or workplace security? (Only applicable to Matlosana-district teachers)

TM1 – n/a

Section B: Legal determinants

10. R - In your opinion, is legislation important in enhancing workplace security and resolving problems found in FET high school workshops? Please elaborate.

TM1 - Yes, I think so definitely. To be honest everything I know about safety was based on theory that I learned when I was still studying but all the practical implications, I only learned the moment I started teaching. **I realized that the implications of somebody getting injured in my classroom you know with all the court cases and learners getting injured that it was important to know about the law for me to protect myself**. I took Civil and I asked myself why I need to know all these safety rules when I know how to use a drill for instance. **Now I realize that I was taught what can go wrong if you do not follow the law, and how you should prevent it from happening and be held accountable.** Also, who is responsible when someone gets injured, hopefully never one day, so that I have done everything I could to prevent it.

R – Do you feel that you received adequate training as a student regarding legal issues you might face in the workshop specifically?

TM1 - The EDCC Education law module at the NWU was very broad. It did not really focus on workshops in detail. I think there was one question in the final exam that was about a workshop accident. If I speak in general terms now, the training in the technical subjects was of a very high standard, theory and skills training wise. The EDCC and psychology subjects were good enough to prepare us to interpret the law and to be prepared for what to expect with the learners. But when physical problems arise what do you do then the implementation in real life situations was not really done with us and that is where I personally felt that the senior teachers in school gave me a lot of guidance when it came

to that. They have a lot of practical experience handling problems like this in school and I learned a lot from them. For instance, what do you do when a child is injured in your classroom, what forms must you complete and so on**? One example was when I got injured myself when working with a small piece of metal. I did not clamp it properly and it spun around and cut my hand. I used some of the stock in the first aid kit but was not aware that I should have reported the accident and exactly what I used to treat myself, things like that for instance.** We were never taught that specifically. I think our training should focus more on preparing us for real life situations like that. I think all the students from all subjects will gain from this, but it will help the Technology students the most. We are trained in very good workshops where there are little problems but the schools where we end up as teachers are not of the same standard. I am a teacher at the school hostel as well, and the broader knowledge of the law helps me, but we should be better prepared for real life problems as I said.

6. **R - What are your views regarding your constitutional rights as teacher in their workplaces?**

TM1 – **Basically that I am entitled to work in a safe place. I am not sure what else.** I can think of anything else right now.

7. **R - What is your understanding/views regarding labour relations in your workplace?**

TM1 - I have a little knowledge from when our subject advisor spoke to us about it but not very much. It was not very in-depth discussions. **Sometimes it is only about examples of accidents that happened in other schools and then he gives us guidance in preventing the same accidents in our workplaces.** He would discuss the procedures, and how we should handle similar situations. I would say that my knowledge just barely scratches the surface.

8. **R - In your view, what role does your employer(s) play in your workplace security? Please be specific.**

TM1 - So far as from the school's side, as I said senior teachers as well as the principal are all very supportive, they support the technology subjects in the school, and they help wherever they can. **If I need to buy something or report a problem, there is finances available to address the problem.** My experience is that the **support from the school is very positive and uplifting.**

From the department side I feel that the support from my subject advisor is good, but it basically stops with him. If we do not receive an email from the department, we do not know what is going on.

9. **R - Do you think there is <u>adequate consultation/communication/support</u> between teachers (as employees) and the DBE (as employer) regarding security in workshops? Please elaborate.**

TM1 - I feel from their side they can do much more in terms of **helping schools with materials and machinery.** The support to schools is different as I said I was a teacher at two other schools and all schools do not receive the same support or materials or machinery I think that **the department should make an effort to try and find out what the needs are of every school so that they can support them better.** As I said my subject advisor is very good, but the department can also do more when it comes to training.

Section C: Risks in the workshop as workplace

10. **R - Do you experience your workplace as safe? Please elaborate.**

TM1 - **No not really, everything works. Like I said the machines are old, but they are still good.** For instance, if you look at the hydraulic press, the old one is still very good but compared to the new one it doesn't have a safety guard at all so there is some risk or more risk involved when working on the older machines than the new ones. The old one didn't come out with a guard, and you can't fit one on it either.

11. **R - Is it your opinion that there is a <u>risk of injury</u> or <u>occupational diseases</u> in your workplace?**

TM1 - Under normal circumstances I don't really think there is a big risk. Some of the learners work very unsafe and try to be funny, but they are not that bad compared to some of the students that studied with me. **I don't think there is a risk for serious injury, but there is always risk involved when learners do practical sessions.** Anything can happen.

12. **R - Do you think that you and/or your family will be adequately <u>compensated</u> in case of you getting seriously injured or ill from an occupational disease? Please elaborate.**

TM1 - Well I never thought about it now that you mention it. **No. I hope so. Like I said previously my knowledge regarding labor law is very limited.** Without trying to offend somebody but the value that I place on my arm compared to for instance what the department puts on it is not the same. I come from a farm and I cannot imagine working without an arm compared to somebody else. People who work with their hands like me, for who it is second nature it's a much bigger asset then somebody who doesn't work with their hands. I have never really thought about it to be honest. Losing a body part is similar than losing your life or doing what you love. **I think the department should make sure that teachers are supported fully when the time comes especially if they want to raise the standards of education and improve our rights against possible disabilities.** Our wellbeing as teachers should matter to them because we are responsible for the standard of education in this country.

R – Have you taken additional precaution against possible injuries or disability?
TM1 **- I don't know if it really would cover everything if something like that should happen.** I've only been employed full time for about a year now and I basically just have GEMS medical aid and a policy on the side. **To be honest I think I have cover but not as much as I should have. I also do not think that I'm covered for legal liability when I get sued for instance. I do have a policy in place, and I think that every young teacher should have something similar, but I think it may not be enough.**
R - Are you part of a union, and what role should the union play in this regard?
TM1 - **Yes, I am part of teacher union. I feel that the union should play a part because what is the use of a union otherwise?** It's my opinion regarding that. I feel a union is there for the big issues to represent you against say for instance the department themselves. They are supposed to have your best interest at heart as your union, and I feel that is their responsibility to support you. Issues at your school I think you can sort out yourself but when it gets to bigger issues like this, I think the union should play a supporting role. For instance, **I feel that the union should also hold SACE accountable**. For instance, when we do the PAT, our unions shoot support us regarding safety, like we have to do this PAT but you're not supporting us with safe gear or safe machinery, in other words they should defend our situation and hold them responsible. **The department cannot have issues with the final matric marks or the standard of education if they do not support us for instance by sending us**

on additional training and safety courses to help us do our jobs better. They are responsible.

R - Have you ever had to go for a medical checkup?

TM1 - **No not that I'm aware of. The only time I needed to do a medical was when I applied** for my PDP license for the school bus but as far as for the workshop not at all.

R – Do the school have insurance on you?

TM1 - **I have absolutely no idea.**

END OF INTERVIEW

ADDENDUM J: Occupational diseases.

Occupational diseases: Schedule 3 of COIDA, 1993 (adapted from table 3.1 in the schedule).

Diseases	Work
	(a) Any work involving the handling of or exposure to any of the following substances emanating from the workplace concerned:
1. Pleural thickening causing significant impairment of function	asbestos or asbestos dust (A)
2. Occupational asthma	the sensitizing agents-
	(1) hardening agents, including epoxy resins (M,C)
	(2) soldering or welding fumes (M)
	(3) organic dust (C)
3. Erosion of the tissues of theoral cavity or nasal cavity	irritants, alkalis, acids or fumes thereof (A)
4. Allergic or irritant contact dermatitis	dust, liquids or other external agents or factors (A)
5. Mesothelioma of the pleura or peritoneum or other malignancy of the lung	asbestos or asbestos dust (A)
	(b) Any work involving the handling of or exposure to any of the following:
6. Hearing impairment	excessive noise (M,C)
7. Hand-arm vibration syndrome (Raynaud's phenomenon)	vibrating equipment (M,C)
8. Any disease due to overstraining of muscular tendonous insertions	repetitive movements (A)

Applicable Technology workshops for diseases:

(C - Civil, M - Mechanical, E - Electrical, A – All)

ADDENDUM K: Language Editor's Certificate

EDITING

19 November 2021

To whom it may concern

This letter serves to confirm that the following thesis was edited:

Safety control and workplace security of FET Technology high school teachers: an Education Law perspective

The onus is on the client(s) to work through the proposed track changes and to accept or reject proposed changes. Clients might amend the content after the editing process. Clients should also make certain that all sources/references have been cited.