HOW DOES PROFESSIONAL DEVELOPMENT ALIGN IN THE CONSTRUCTION WORKPLACE WHEN ASSOCIATED WITH INTEGRATED MANAGEMENT SYSTEMS?

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ABSTRACT

The quality, safety, and environment Standards, each respectively referred to as ISO 9001:2015, ISO 45001:2018 and ISO 14001:2015, have been released and for the first time in the world as a united, integrated management system (IMS) that can be applied to organisations. This IMS is the combination of the said ISO Standards for quality, safety, and environment. Organisation's may address one, two or all three of these Standards. This thesis explores how professional development (PD) in construction workplaces supports workers to have the knowledge, awareness, and competency to deliver IMS. PD is the mechanism used by workplaces to address and prevent issues such as the loss of work because of poor productivity, loss of life, and the lack of preventing pollution. There is a very clear opportunity as this is the 'first time ever' in the world that quality, safety, and environment can present a unified delivery for IMS because of the recognition that these three areas are inter-related as an IMS rather than isolated entities. Consequently, PD now must be delivered as a IMS reflecting this IMS model. Workplace learning is essential in understanding the context and the problem in identifying and reducing the gap in aligning PD to IMS. It is within this thesis this gap and need is explored. An IMS ensures that, by delivering on quality, safety and environment, an organisation operates and functions well, ultimately making a profit. An organisation must not only make a profit through providing quality product and services, it will survive only if it also delivers on the social contract to provide for the safety of interested parties both internally and externally. Furthermore, the product and service should be delivered to minimise environmental impact. To meet these IMS Standards, the PD of people in workplaces should be addressed in an integrated and effective way in alignment with the IMS. My motivation in undertaking this research stems from problems I experienced, and what I have seen others experienced, resulting from what I

assume is poor alignment between PD and IMS. This problem relates to the phenomenon of learning in the workplace. This research focuses upon the question, “How does professional development in the construction workplace align with integrated management systems?” The research was not a test of a theory and hypotheses of why there is the misalignment of PD with the lack of IMS in the workplace. Instead, the research developed conceptual themes to explain the experiences of workers who participated. The participant cross-section consisted of construction and engineering workers and owners in business, that operate an IMS from 15 construction workplaces in Australia that operated locally, regionally, and nationally. These targeted participants were male and female workers that ranged from their 20’s to 60’s in age that directly have the responsibility of managing the IMS. The data collected came from semi formal interviews (resulting in transcripts of the interview) and reviewed secondary data such as documented information and photos. I then used a qualitative methodology with the tool of thematic analysis. The themes developed can contribute to knowledge about PD, workplace learning, and IMS, and better prepare owners and management with the utilisation of IMS to guide PD that delivers quality, safety, and environmental controls within their workplace.

Key Words: Integrated management systems, IMS, safety, quality, environment, ISO 45001:2018, ISO 9001:2015, ISO 14001:2015, professional development, competency, knowledge and awareness, training, and education.

CERTIFICATION OF THESIS

This thesis is entirely the work of *Clayton John Hamilton Lawrence* except where otherwise acknowledged. The work is original and has not previously been submitted for any other award, except where acknowledged.

Dr Sara Hammer

Principal Supervisor

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Student and supervisors' signatures of endorsement are held at the University of Southern Queensland.

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THESIS DEDICATION

My doctoral achievement is dedicated to my family (especially my mother, Diane, and sister, Karina) who through their own life's challenges, such as facing cancer on a daily basis, demonstrates commitment and fortitude, motivates me. To my two sons, close friends and close colleagues who have walked beside me and talked about my thesis. You are greatly appreciated. What seemed to take a long and extended time, I trust that this thesis creates conversation and aids with understanding the learning construction workplace.

RESEARCH PRESENTATIONS AND PAPERS PRESENTED

During the course of conducting the research, the following were presented on various topics during my doctoral journey. Details of these presented are listed below:

Lawrence, C. (2019). *A transforming researcher: How did I get here? The life of a First-Year student undertaking a Doctor of Education*. From Machin, T. M., Clara. M and Danaher, (2019) Traversing the doctorate: reflections and strategies from students, supervisors and administrators. P. A. Springer Nature Switzerland AG, part of Springer Nature

Lawrence, C. (2015, June) *Clayton's presentation on the provocations and postulations of a 3rd year part time student. How did I get here? And Grounded Theory.* A paper presented at the 15th Research Symposium, Postgraduate and Early Career Research (PGECR) Group, USQ, Springfield Campus, Australia.

Lawrence, C (2014, June) *Re-Building and balancing a vocationally happy lifestyle***.** A paper presented at the 13th Research Symposium, Postgraduate and Early Career Research (PGECR) Group, USQ, Springfield Campus, Australia.

Lawrence, C. (2014) *Why do we do what we do? A personal reflective inquiry into lifelong learning personal and professional development within the construction industry*. Submitted for University of Southern Queensland final assessment in EDR 8061 Masters Project II

Lawrence, C. J. H. (2014) *Workplace challenge: The consultant finding a balanced lifestyle amongst the ambiguities of the world.* Submitted for the University of Southern Queensland EDU8601 Advanced studies in professional practice.

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THESIS ABBREVIATIONS

The abbreviations of reference sources that were used in the thesis are listed below with the associated full context of the word meanings presented. Each abbreviation is fully contextualised when first encountered throughout the thesis, except for some citations. Where the abbreviation has been used as a citation, the reference list contains the full context of the abbreviations, and so the reader may need to refer to the list of abbreviations.

Abbreviation	Full context
AS/NZS	Australian Standard and New Zealand Standard
Aust. Std.	Australian Standard
BSA	Building Services Association
IEA	Institution of Engineers
IEC	The International Electrotechnical Commission
IMS	Integrated Management System
ISO	The International Organisation for Standardisation
MBA	Master Builders Association
NER	National Engineering Register
QBCC	Queensland Building and Construction Commission
RPEQ	Registered Professional Engineer of Queensland
OH&S	Occupational Health and Safety
PD	Professional Development
PDCA	Plan-Do-Check-Act
RTO	Registered Training Organisation
TAFE	Technical and Further Education
US	United States of America
USQ	University of Southern Queensland
UQ	University of Queensland
VET	Vocational Education and training
WTO	World Trade Organisation

TERMS AND DEFINITIONS

For the purposes of this thesis, the following terms and definitions apply. These terms and definitions have been sourced from the ISO 9001: 2015 (International Organisation for Standardisation, 2015) equivalent to the AS/NZS ISO 9001:2016 (Standards Australia, 2016), ISO 14001: 2015 (Standards Australia 2015), AS/NZS 4801: 2001 (Standards Australia, 2001) and ISO 45001:2018 (Standards Australia, 2018). Further acknowledgement, and referencing of these terms and definitions, ISO and IEC maintained terminological dates for use in standardisation at the following addresses:

ISO Online browsing platform: available at https://www.iso.org/obp

IEC Electropedia: available at https://www.electropedia.org/

Reference	**Term**	**Definition**
1.	Audit	A systematic examination against defined criteria to determine whether activities and related results conform to planned arrangements whether these arrangements are implemented effectively and are suitable to achieve the organisation's policy and objectives.
2.	Business	When used as, 'the business' means a person's regular occupation, profession, or trade; and/or commercial activity. When used as, 'business' may also be referring to an 'organisation'. There is also the verb 'business' meaning, to be busy.
3.	Conformity	Fulfilment of a requirement
4.	Competence	Ability to apply knowledge and skills to achieve intended results
5.	Competent Person	A person who has acquired through training, qualification, or experience, or a combination of these, the knowledge and skills, qualifying the

Reference	Term	Definition
		person to perform the task required by the Standards.
6.	Compliance obligations (preferred term) Legal requirement and other requirements (Admitted term)	Legal requirements that an organisation has to comply with and other requirements that an organisation has to or chooses to comply with.
7.	Consultation	Seeking views before making a decision.
8.	Continual Improvement	Process to enhancing the management system to achieve improvements in overall performances, in line with the organisation's policy
9.	Contractor	External organisation providing services to the organisation in accordance with agreed specification, terms and conditions
10.	Control of hazards/risks	In Australia, the term 'control of risk' is used, to mean the process of elimination or minimisation of risk
11.	Corrective Action	Action to eliminate the cause of a detected nonconformity or an incident and to prevent recurrence
12.	Document	Information and its supporting medium. Note medium can be paper, magnetic, electronic or optical computer disc, photograph, or master sample, or a combination thereof.
13.	Documented Information	Information required to be controlled and maintained by an organisation and the medium on which it is contained
14.	Effectiveness	Extent to which planned activities are realised and planned results achieved
15.	Environment	Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelationships

Reference	Term	Definition
16.	Environmental aspect	Element of an organisation's activities or procedures or services that interacts or can interact with the environment
17.	Environmental impact	Change to the environment whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
18.	Hazard	Source, situation, or act with a potential for harm in terms of human injury or ill health, or a combination of these.
19.	Incident	Occurrence arising out of, or in the course of, work that could or does result in injury and illness
20.	Injury and ill health	Adverse effect on the physical, mental or cognitive condition of a person
21.	Integration of a management system	The integration of a system management into a business's operations and strategic plans.
22.	Integrated Management System	The integration of all three compliance Standards into the business's operations and strategic plans.
23.	Interested Party (preferred term) Stakeholder (Admitted term)	Person or organisation that can affect, be affected by, or perceive itself to be affected by a decision or activity.
24.	Management System	Set of interrelated or interacting elements of an organisation to establish policies and objectives and processes to achieve those objectives.
25.	Monitoring	Determining the status of a system, or a process or an activity.
26.	Nonconformity	Non-fulfilment of a requirement
27.	Objective	Result to be achieved.
28.	Organisation	A person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives.

Reference	Term	Definition
29.	Occupational Health and Safety Management System (OH&S management systems)	Management system or part of a management system used to achieve the OH&S Policy. The intended outcomes of the OH&S management system are to prevent injury and ill health to workers and to provide safe and healthy workplaces. Occupational Health and Safety (OH&S) and Occupational safety and health (OSH) have the same meaning.
30.	Participation	Involvement in decision making
31.	Performance	Measurable result.
32.	Policy	Intentions and directions of an organisation as formally expressed by its top management
33.	Prevention of pollution	Use of processes. Practices, techniques, materials, products, services or energy to avoid, reduce or control (separately or in combination) the creation, emission or discharge of any type of pollutant or waste, in order to reduce adverse environmental impacts.
34.	Process	Set of interrelated or interacting activities which transforms inputs and outputs.
35.	Procedure	Specified way to carry out an activity or a process.
36.	Risk	Effect of uncertainty.
37.	Safety	A state in which the risk of harm (to persons) or damage is limited to an acceptable level.
38.	Top Management	Persons or group of people who direct and controls an organisation at the highest level.
39.	Worker	Persons performing work or work-related activities that are under the control of the organisation.
40.	Workplace	Place under the control of the organisation where a person needs to be or to go for work purposes

CHAPTER 1. INTRODUCTION

Integrated management systems (IMS), whether a combination of quality and safety, quality and environment, safety and environmental or, all three, provide the foundation and principles of management and operations in business. Qualitative and quantitative in approach, the management system is measured against that of the relative and appropriate Standard.

The compliance Standard for the quality management system of a product and service is referenced as the ISO 9001:2015 (International Organisation for Standardisation, 2015) which is equivalent to AS/NZS ISO 9001:2016 (Standards Australia, 2016). The Standard for occupational health and safety management system is referenced as the ISO 45001:2018 (International Organisation for Standardisation, 2018) which is equivalent to AS/NZS ISO:45001:2018 (Standards Australia, 2018). Then there is the Standard for environmental management system as ISO 14001:2015 (International Organisation for Standardisation, 2015) which is equivalent to AS/NZS ISO 9001:2016 (Standards Australia, 2016). Throughout this thesis they will be referenced as ISO 9001, ISO 45001, and ISO 14001.

To understand what a quality service or produce entails, the quality Standard refers to four elements These are:

1. The ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements.
2. Facilitating opportunities to enhance customer satisfaction.
3. Addressing risk and opportunities associated with its context and objectives; and
4. The ability to demonstrate conformity to specified quality management system requirements. (International Organisation for Standardisation, 2015, p. (iv)

The occupational health and safety Standard requires companies to consider similarly the four elements above when considering safety, in addition, they are also “responsible for the occupational health and safety of workers and others who can be affected by its business” ISO 45001 (International Organisation for Standardisation, 2018, p. vi). Essentially, safety is to, “provide safe and healthy workplaces, prevent work-related injury and ill health, and continually improve its OH&S performance” ISO 45001 (International Organisation for Standardisation, 2018, p. vi).

The environment Standard is concerned with the need, “to protect the environment and respond to changing environmental conditions in balance with socio-economic needs” ISO 45001 (International Organisation for Standardisation, 2015, p. vi). Discussed later in the thesis in more detail, an environmental focus is one where there is a focus on preventing and mitigating adverse environmental impacts.

An IMS is when three Standards of quality, safety and environment, ideally together, people interact with the processes, products and services. This, for the purposes of this thesis is called and identified as an Integrated Management System (IMS). IMS, can be considered as a benchmark of best practices for a business. An IMS can add value and opportunities for continual improvement, and ongoing professional development (PD) for the individual, business, and society. This adds knowledge for continual improvement and ongoing PD to enhance the workplace and the deliverables of the business to their respective clients.

It is in this Chapter One, I will provide a background for this research, where I first recount how the need for this research originated from personal experience, conversations with fellow colleagues and observations arising from my auditing of businesses. Secondly, an outline of the aim, purpose, rationale, scope, and ethics of the research is detailed. This is where the research rationale and conceptual framework will be discussed. The key question

and secondary questions are then described. Finally, an overview is provided, to act as a guide for the chapter structure of this presented thesis.

1.1 Personal Rationale for the Research

I have an extensive background in the construction industry, having been bought up with a father in the industry and working most of my life within the industry. The genesis of this research comes from experiencing the de-professionalisation of the auditor/management representative role responsible for IMS. Coupled with observing businesses when working in the industry as a consultant, I saw the lack of professional development within construction organisations that led to a lack of knowledge and competency to carry out the responsibility with the delivery of products and services. Where professional development (PD) failed, I observed the failure of IMS delivery. This leads to less quality in products and services, a greater risk to safety and increases in environmental pollution.

This thesis also builds upon the work I have undertaken in the completion of the Bachelor of Engineering (Civil) and Master of Education (Lifelong Learning). The honours project from the Bachelor of Engineering was titled, “An investigation of construction productivity”. This research found that productivity on the construction site varied between activities and has an influence on efficiency, effectiveness, and economy on site. It was concluded, to assure optimum productivity, it was largely the responsibility of the construction manager and the extent to which they can ensure quality, safety, and environment management systems (the IMS not really focused then) carried out in the workplace. My master’s research project was titled, “Why do we do what we do? A personal reflective inquiry into lifelong learning personal and professional development within the construction industry”. The project focused upon an auto ethnological study focused on a personal reflective inquiry into professional development in the construction industry. I documented my narrative, the researcher’s life. The project examined, unpacked, and

evaluated my narrative against lifelong learning and professional development literature. I concluded that learning and professional development interlaces itself with the workplace and personal experience. The process of the Bachelor of Engineering to the Master of Education, now to the Doctorate of Education, presents a further "thread" of my education, the journey from quantitative to qualitative, to that of a thematic approach in qualitative research.

The personal motivation to research I saw was because of a misalignment that occurs with integrated management systems (IMS) and professional development (PD) that contributed to my journey as a researcher. There is my personal curiosity and need to examine and bring to light the impact of the professional practicing IMS and experiencing PD in the construction workplace.

1.2 The Research Problem

There is a lack of PD with its integration in the workplace to support the implementation and management of IMS. Should PD and IMS not be practiced, there can be mistakes or errors that commonly occur, which I have seen, in the construction industry. These experiences have been in implications of legislative breaches resulting in poor quality, unsafe and environmental breaches and/or with results of injured people or fatalities. Having experienced this firsthand, there is a personal motivation to understand this challenge.

The aim of this research is to increase our knowledge as to what IMS looks like in the workplace, especially that of the learning workplace. In unpacking this IMS and PD, this will add knowledge to teach and coach others to have continual improvement. In examining and exploring what IMS and PD looks likes, the thesis draws upon the practice and perspectives of participants in an interview process, with the aim and desired outcome to assess this knowledge of the construction workplace and people.

This, combined with information gained from the assessment of the workplace, will generate new knowledge and information, which can result in providing coaching and

teaching for all people involved in IMS and PD. Knowing the impact of IMS and PD on the workplace, will provide the basis for extending andragogical theories and developing strategies that are specific to the civil and construction industry. This may have further possible application across other industries.

The rationale for the research is that improved understanding will provide better knowledge of the workplace and the interested parties engaged in the intersection between IMS and PD. The intersection may offer further strategies that improve the effectiveness of IMS and PD. It would be anticipated with these improvements, due to the new information provided by the research, to benefit interested parties, such as the worker, business owner and educator to better equip one another. This equipping of knowledge and information is to take them, from the known to the unknown, when experiencing the challenge their workplace, this research explores those possibilities.

1.3 Conceptual Framework

The conceptual lens used to understand the challenge of workplace learning, especially that of adult learning, is the andragogy in practice at the workplace (Knowles, Holton & Swanson, 2005, p. 67). These core adult learning principles of andragogy, consist of:

1. The learners need to know, the why, what, and how.
2. The self-concept of the learner, that being autonomous and self-directing.
3. The prior experience of the learner, coming with resources and previous mental models.
4. The readiness to learn, where there is the life related and developmental task at hand.
5. The orientation to learning, that being problem centred and contextual; and
6. This motivation to learn, the intrinsic value and personal payoff.

Knowles et al.'s (2005) fifth principle, "the orientation to learning that being problem centred and contextual," is the focus of this research question. Knowles et al. (2005) further acknowledges that in real-life situations, learners are best when confronted with problems where they are motivated to learn.

To provide additional support to the conceptual lens used is the apprentice-master approach that is used throughout construction. This is where the experience of the teacher is shared with the student, in this case another relative interested party, where the achievement is validated in the workplace by the more experienced worker. (Hay & Barab, 2001; Collins, Brown & Newman, 1989, p.487). The conceptual lens used for the research is where problem-solving orientation can also be considered in terms of Kolb's (1984) learning model where transformation through experience takes place in the workplace.

Problem solving is crucial in the construction workplace as it deals with the interaction of materials, directions from various interested parties that are focused on the building of the planned construction work. Issues such as communication, planning and making sure of the materials, products and services get to the site on time and works, in collaboration of other trades and services for the building, be built. When problems of delays, miss communication and wrong materials delivered, or not having the adequate trades and labour, these effect the construction duration for what is built.

On this basis, when considering the research question, Knowles' et al. (2005) and Kolb's (1984) approaches become this lens through which to interrogate the research by looking at the contextual system of learning in the workplace. Additional literature review to underpin this lens is explored, for example the research of Billett (2001), who focuses on how people learn through their everyday work, and how workplaces and workplace experiences contribute to their learning. This is where learning becomes about informed practice. The workplace is a learning place where experiences are shared and integrated both professionally

and individually. The works of Billett (2001), Knowles et al. (2005), and Kolb (1984), emphasise the importance of context and how these impact on workplace learning dynamics, which is explored within my research. This lens of orientation to learning, with the apprenticeship model and a problem-solving orientation, provide this conceptual framework in understanding why this research matters.

1.4 Research Question

The primary question of this research (RQ1) is, “How does professional development align in the construction workplace when associated with integrated management systems?”. Two secondary questions (RQ2a) ask, “How do workers and business owners perceive and value the need for integrated management systems work within their workplace?” Then (RQ2b), “How can the intricacies of integrated management systems and professional development be best designed and implemented for the worker and the business owner?” In unpacking the primary question within the research, these two secondary questions explore the perception and value of IMS and PD, with the level of design and implementation that IMS and PD has within the business.

The first of the secondary questions focuses upon what is known by the worker in understanding what their level of knowledge is about IMS in the workplace. The question examines the meaning that IMS has with the worker and business owner, how they perceive IMS is practiced. This question establishes what is known about IMS giving context as to the level and need for IMS practiced. This question asks about the further implications, practice of IMS with what value it brings to the business. Whether both as a monetary value and as a learning value upon their product and service they provide.

The next question of these secondary questions examines the level of the IMS and PD design and implementation within the business. That is, the level to which IMS and PD is practiced in the construction workplace by the business. This question can have further

implications as to what level of design and implementation, workers and business owners are striving to achieve. The question asks the worker and business owner, to reflect about the past and then as to where the business is now with IMS and PD. The question also asks them as to what they see in the future, as to the level of IMS and PD to be practiced.

1.5 Overview of the Thesis

This thesis has seven chapters. Each chapter has key points that provides a structure for the research. Chapter one provides the foundation on which this research stands. It establishes the assumptions I have as the researcher. It further provides the need as to why this research is needed. Chapter two explores literature relating to the research problem. The context as to other studies, the focuses upon professional development and integrated management systems. It focuses on understanding the construction workplace, that critically reviews the literature, concluding by explaining how the proposed research will address a gap in research. Chapter three presents the paradigm as to how the research question is examined and explored. It provides the method of selecting interviewees, the method for collection of data from interviews and further secondary evidence such as transcripts, documented information, and pictures. Chapter four presents the findings from the thematic analysis of the data. This is where the research findings identify themes and sub-themes drawn from the qualitative data. Chapter five is the discussion of the results from chapter four. The findings and discussion of the research question are summarised, and the implication of the research is presented. The contribution to knowledge is identified, where recommendations are made, and conclusion of the research is bought to its conclusion. Chapter six presents the References and Chapter seven presents the appendices.

CHAPTER 2. LITERATURE REVIEW

Presented in chapter one, is the understanding and definition of integrated management systems (IMS) and professional development (PD). The IMS of Standards and PD that takes place in the construction workplace. It was in chapter one the genesis and rationale of the research was discussed, having arisen comes from my immersion in the workplace as an auditor of IMS and my previous post-graduate studies. The research problem was identified as the misalignment of IMS and PD resulting in poor quality, unsafe practices, and environmental increases in pollution. The conceptual lens to understanding this phenomenon of PD and IMS learning was explained being centred about problem solving and understanding the context of the construction workplace. The research question(s) and overview of the thesis was further provided.

It is within this chapter two where discussion occurs as to how professional development happens within the construction workplace when considering the conceptual lenses with the orientation to learning and its context. These factors of andragogy in practice are discussed when relating to literature. It is further discussed how PD is practiced in the construction industry and what research has been performed when considering PD. There is expected to be limited literature about IMS, and the interaction of PD applied in the construction industry and building sectors workplace.

What is to follow in this chapter is the history of literature used in learning about management systems, the development and adopting of Standards for quality, OH&S, and environment, the development of integration and what integration means. The research of others is presented identifying their research, methodologies and target audience when comparing it to this research. The research question and its supplementary questions then become a focus.

Stoner, Collins, and Yetton (1985) presented a body of knowledge as a course book that was the stable diet of Australian engineers and construction, as part of their curriculum, undertaking management studies from the mid ‘80s through to the late ‘90s. This covered a combination of concepts and applied theory that presented the evolution of management up to 1985. Stoner et al. (1985) presented foundational knowledge covering topics that had a structure of: planning and decision making; concepts and practices with organising for stability and change; leading; and finishing with the topic of control. This work was an Australian edition yet was based on the second edition of the American version as, at the time there was little research by Australians. These concepts and applied theories presented are still referenced and reflected in contemporary literature. Though Stoner et al. (1985) related management principals, especially that which related to quality management, through history of craftsmanship, industrialisation of factories, and the military production lines of the wars. Stoner et al. (1985) noted the significant contributors of management theory of Deming, Juran, and Japan’s revolutionary focus on quality improvement. This led to the earliest quality management standard of BS 5750: 1979 (British Standard Institute, 1979a). To sum, Stoner et al. (1985) related the process of management as planning-organising-leading-controlling. Stoner et al. (1985) used contributing theorists and researchers up till 1985, The most recent quality standard was published in 2015. Though, at the time, countries had had their own Standards for safety, known has occupational health and safety (OH&S). Then it was in 2018, the first international standard was published. Stoner et al. (1985) focused, at the time, on quality and is integration into the business. In 1987 management began to embrace the entire organisation with the integration of management known as Total Quality Management (TQM) into business. 824 pages of Stoner et al. (1985) had five (5) pages on learning, referencing the reinforcement theories of B. F. Skinner of 1938. Learning was detailed as operant conditioning and behaviour modification focused on dealing with “how

the consequence of past action influence future actions in a cyclical learning process" (Stoner et al.,1985, pp. 538-539). This is where:

> People behave the way they do because, in the past, they learned that certain behaviours were associated with pleasant outcomes and that certain other behaviours were associated with unpleasant outcomes. Because people generally prefer pleasant outcomes, they are likely to avoid behaviours with unpleasant outcomes, (Stoner et al.,1985, pp. 539).

Kruithof and Ryall (2001), both from RMIT University, Australia, produced a publication that contributed to implementation of the quality Standard ISO 9001:2000 (Standards Australia, 2000). The structure Kruithof and Ryall's book covered the nuances and practices of the quality Standard. It also detailed importantly eight management principals and the three pillars of practices that were at the heart of quality practice. Influenced by the works of Senge (1998), Kruithof and Ryall approach considered; systems thinking; personal mastery; mental models; building a shared vision; and team learning. All of which could contribute to the alignment of IMS and PD in varying degrees of application. Noting that the works of Kruithof and Ryall focused on quality, and like Stoner et a. (1985), TQM was then seen as contributing to the whole organisation.

It was in 2001, a standard was applied to Australian and New Zealand known as AS/NZS 4801:2001 (Standards Australia, 2001) Occupational health and safety management systems: Specification with guidance for use. Later to be superseded by AS/NZS ISO 45001:2018 (Standards Australia, 2018). It was in 2004 an international standard was adopted for environmental compliance known as AS/NZS 14001:2004 (Standards Australia, 2004), later to be superseded by ISO 14001:2015 (Standards Australia, 2015).

It was Bernardo (2014) that presented an integration of management systems as type of innovation rather than an integration of Standards. He proposed a model for the integration

of management systems and the concept of management performance based on quality Standards. Bernardo, himself asserted in the review of literature, there is a definite correlation between quality and that of Total Quality Management (TQM). Bernardo discussed the relationship of implementation of management systems (MS) and the implementation of the management system Standards (MSS). Bernardo defined integration:

> Where integration adheres to three specific perspectives of innovations: institutional, cultural and rational … Integration can be measured in terms of the benefits obtained, capabilities development, improvement of efficiency and financial results, (Bernardo, 2014, p. 132).

Rather than the of integration of Standards, Bernardo focuses upon the level of integration for a business that can be based upon the measure of strategy and the methodology adopted by process. This adopted process was the Plan-Do-Check-Act (PDCA) cycle from Deming. Bernardo focused upon the innovation that comes from integrating management systems relating five aspects to integration: strategy, methodology, the level of integration, audit systems, and the benefits and difficulty faced from integration. In my research, the focus is on the integrated management systems (IMS) linking the three Standards of quality, safety, and environment rather the integration of management systems as a basis of TQM though this is a noted outcome with IMS.

It was Tarí, Molina-Azorín, and Heras (2012) that carried out a literature review upon the simularties and differences between the quality management standard, at the time, of ISO 9001:2000 (International Organisation for Standardisation, 2000) and the environmental management standard of ISO 14001:2004 (International Organisation for Standardisation, 2004). Tarí et al. (2012) identified a greater focus on quality as opposed to the environmental standard. The research was carried out in Spain that used a quantitative approach of an electronic search for literature on databases focusing on the adoption of the two Standards.

Though this appeared as an approach to see the possibilities of simularites, thus gave little reference to the currency of the present IMS. Further, Tarí et al. (2012) study focused on the quantitative approach only. A simular study was performed by Talapatra, Santos, Uddin, and Carvalho (2019) that performed the quantitative analysis of IMS listed on literature databases. Talapatra et al. (2019) provided a list of benefits offered by literature found, highlighting future studies to be of benefit for IMS

Gillett, Simpson, and Clarke (2015) then Abuhav (2017) published books that further built on the older quality standard, providing an understanding quality management system of the ISO 9001:2015 equivalent to the ISO 9001:2016 (Standards Australia, 2016). Gillett et al. (2015) focus was upon the implementation titled, “Thrill your customers and transform your cost base with the new gold standard for business management”. Gillett et al. (2015) text book provided a framework and a process approach for businesses providing knowledge for transitioning from ISO 9001:2008 to ISO 9001:2015. Gillett et al. (2015) provided directions for busines owners, chief executive officers (CEO), top managers and auditors alike, to assist with the transition. Abuhav (2017) simply had the approach of including the quality standard with commentary against each clause of the standard to assist with business to implement the quality standard into its operations. It was then Hinsch (2019) who published a book, again focused on the quality standard of 2015.

Wilson and Campbell (2020) produced an article where the quality standard was evolving and now referenced knowledge mangement (KM). It was their endevour to identify theoretical and practical frameworks between quality management (QM) and KM. Wilson and Campbell (2020) established little had been written or reference QM and KM due to the lack of articles at the time – the majority referenced TQM. They proposed, “There is a lacuna in the research into the potential implications and benefits of knowledge requirements in ISO 9001:2015 which this [their] paper, therefore, intends to address” (Wilson & Campbell, 2020,

p.762). Wilson and Campbell (2020) referenced that, “Deming insisted that all managers should have an understanding of the system of profound knowledge which consisted of four interconnected parts: appreciation of a system, knowledge of variation, theory of knowledge and knowledge of psychology” (Wilson & Campbell, 2020, p.763). So, though the earlier proponents of Deming principles began earlier, it was not till 2015 the quality standard incorporated knowledge management as a requirement. Wilson and Campbell (2020) premise that, “The knowledge cycle provides a suitable structure to assist in the development of quality systems” (Wilson & Campbell, 2020, p.763). With, ”The the key components of the knowledge cycle: identify, create, store, share and apply knowledge” (Wilson & Campbell, 2020, p.765). This article’s attempt to identify the linking literature between quality management and knowledge management, there is a strong link

Important to the topic and to understand IMS, Marta and Karkalikova (2018) also provided insight into management systems evolution. Marta and Karkalikova (2018) presented a book of knowledge about integrated management with the approach of the Lean Six Sigma, from journals and conference papers. The focus is upon the practice of quality management systems and the integrated practice into business applying additionally the Six Sigma methodology and practice.

Like with quality, there is the focus on delivering books of safety, for example Sadiq, (2019) and articles for example, "ISO 45001,"(2018); Elbert, (2020); and, Darabont, Antonov, and Bejinariu, (2017). It was with Sadiq, (2019) book that recognised recognised the simularites of the ISO 45001:2018 (International Organisation for Standardisation, 2018), with the other Standards how focused on the Standards framework providing commentary for each clause. It is seen that Sadiq, (2019) has the focus on OH&S and the methodology for this to be solely implemented into the business.

In the article of Elbert, (2020) presents an interview format that focuses on the need for ISO 45001:2018 (International Organisation for Standardisation, 2018) and the considerations in adopting and going through the certification process for complying to the Standard. There is no reference to an IMS.

Darabont, Antonov, and Bejinariu, (2017), a Romanian paper, recognise the evolution of the quality and environmental Standards with their contribution to the evolution of OH&S Standards. However, then states:

> The structure of the ISO 45001 corresponds to ISO Annex SL, guideline for writing standard for management systems. The main advantage of this approach is that all management Standards have the same high-level structure, facilitating the implementation of an integrated management system, especially with ISO 9001:2015 and ISO 14001:2015, (Darabont, et al., 2017, p. 2)

Darabont et al. (2017) then focuses on the providing comentary for each cluase of the OH&S Standard, though concludes:

> Occupational health and safety management system is one of the main elements of the company's general management system and its implementation should be made by integration with other management systems which are relevant for the organization, such as quality, environment or social responsibility. (Darabont, et al., 2017, p. 7)

Darabont et al. (2017) recognises the need for an IMS however, the paper talks more about the release and migration to ISO 45001:2018.

Reber, K. (1999) article is based upon a case study from in Switzerland that identifies the evolving process where an IMS occurs and is managed through a central document called the Management Manual evolving from the Quality Manual that describes their polcies and procedures. This article provides evidence that IMS is occuring.

Research that somewhat parallels the research of IMS and PD is found Kent and Becerik-Gerber (2010). Their research is with the increasing trend of Integrated Project Delivery (IPD) in the construction industry targeting continuing professional development. IPD was defined as, "integration of people, systems, business structures, and practices into a process that collaboratively harnesses the talent and insights of all project participants to optimise project results" (Kent & Becerik-Gerber, 2010, p. 816). Kent and Becerik-Gerber's (2010) definition fits well with IPD as it provided a similar definition with that of integrated management systems of TQM. That is, it embodies the focus upon systems, process, people, and its advantages it provides to the efficiencies of the construction organisation's operations. This definition is somewhat comparable to my research question though further research is needed in detailing what IMS is and its requirement for professional development.

In asking these questions about feedback of IPD, Kent and Becerik-Gerber (2010) move away from their quantitative approach to a qualitative in order to ask participants what they see as benefits for professional development and its alignment of IPD in the workplace. This literature, whilst American based, draws upon a cross-section of construction-based organisations as to the adoption of IPD with 15 interviews (face-to-face and phone based) from an online survey. Kent and Becerik-Gerber (2010) reached the conclusion from the feedback of the survey, that participants could understand the benefits and need for the adoption and continual implementation of IPD throughout the phases of construction. Kent and Becerik-Gerber (2010) invite further research to be undertaken.

The research of Jaakkola and Hallin (2018) examined, in another industry sector, what kind of organisation structures firms use for new service development (NSD) and what implication of such structures have for NSD. NSD as a growing discipline has similarities and contributes to the IMS as being process and systems based. Jaakkola and Hallin (2018) based their research on a multiple case comparative approach of nine companies that had the

result of several simultaneous organisational structures influenced by NSD, with no one factor being more superior than another. The research of Jaakkola and Hallin (2018) is relevant to this research, where it is expected that PD and IMS have its own factors to consider that will influence alignment.

Backlund and Sundqvist (2018) researched continuous improvement (CI) from a project-based organisation (PBO) on an exploratory and qualitative approach of six management teams. In comparison to PD and IMS, the PBOs researched contained engineering and construction projects. Though focused on CI, a compliance requirement of IMS, this is practiced business wide. Referencing A guide to the project management body of knowledge (PMBOK guide) (2017) presents many projects management models where CI is outcome focused, building upon efficiencies and effective practices that is also a focus on PD and IMS. Backlund and Sundqvist (2018) concluded that time and operational tasks, communication becomes essential, especially post-project based, with others for CI. In comparison, the study of PD and IMS, Backlund and Sundqvist (2018) will provide insight into understanding the elements of alignment yet, welcome further research.

Hill (2019) researched learning organisations (LOs) on a case study approach in exploring the role of student agency. What can be perceived as parallel my research, used questionnaires and a semi-structured approach for its interview process. The research of Hill (2019) focused upon the integrative nature of PD, learning communities and organisations. Hill's (2019) focused on LOs, literature and practice of learning research which revealed the needed for dialogue and learning exchanges between students and teachers. It was the valued where the discussion differing opinions and diverse ideas invariably includes each person that has a differing perspective. Like with PD and IMS, to understand the construction workplace, the strategies, and needed dialogue is to be considered. Hill invites further research.

It is within the research of Pienaar, Zhong, Wu, and Feng (2015) that provide further insights in their exploration of the gaps for construction graduates in Australia from an industry point of view. A survey of 252 construction graduates identified eight competency gaps, initially 32 gaps (from literature and interview reviews). Three of the eight competency gaps included problem-solving skills, risk management and business management. Based on their analysis, Pienaar et al. (2015) concluded that there is a clear mismatch between educational attainment and on-the-job training requirements for under-qualified graduates. They concluded the welcome of further examination that draws upon the accreditation Standards for Australian and international construction programs. They invite further research to strengthen their results, which they claim were subjective and based on imprecise definitions such as work experience and their varied job nature of respondents across the construction sectors. Again, research is invited.

Other research of Detsimas, Coffey, Sadiqi, and Li (2016) reported on the apparent skills gap within the construction industry in Queensland Australia, in understanding the workplace learning, this utilised an online survey method. This report demonstrated where research had been undertaken the need for considering the industry context for workplace learning. This survey methodology approach undertaken by Detsimas et al. (2016) was acting on behalf of the Australian Chamber of Commerce and Industry and the Business Council of Australia (ACCI/BCA). In the report, Detsimas et al. (2016) addressed eight key generic employability skills. The results of the report suggested that workplace learning is driven by personal self-development approach where there is an apparent lack of formal and structured learning when applied to specific role related responsibilities. Detsimas et al. (2016) focused upon workplace learning, provided detailed data in understanding context of the workplace. Detsimas et al. (2016) draws conclusions on preferred learning methods from similar cross-section of position responsibilities from the construction industry. Detsimas et al. (2016)

concluded that there had been limited research undertaken about workplace learning in the construction industry in Australia and invited others.

Wall and Ahmed (2008) detailed the importance of learning in the workplace for continuing professional development in construction industry in Ireland, where the need for project management was apparent. Their research recognised the need for formal and the informal, face-to-face and technology-based, with blended online learning. Wall and Ahmed (2008) used the case study approach, where they ran a blended learning pilot program where the average age of their participants was 30 and having at least 10 years' experience in the construction industry. This research focused on the aspects of the blended learning that assisted them to draw conclusions about the need for instructors to be motivated and interactive. Further, blended learning required the use of technology including a combination of media (for example the use of video, pdfs and audio). It required consideration of the learner and instructor's characteristics, instructional goals and strategies, learning environment and the availability of resources. Wall and Ahmed (2008) drew attention to idea that existing workplaces require a multitude of methods and tools used for workplace learning. They too, invited further research.

Klerk (2012) research described an initiative to invest in continuous professional development (CPD) for younger workers (35 years and younger) within the construction industry that had tertiary qualifications. This CPD included social events for networking, activities and industry education tours. Klerk (2012) intention with this method of CPD was to foster communication, teamwork and the encouragement of multi-disciplinary work between contractors, engineers and stakeholders. Klerk (2012) used a case study approach that was focused visiting a cement processing plant. The factory tours formed the basis for both social networking and the development of technical understanding. Klerk's (2012) detailed that visiting other workplaces can have a positive impact on workers who can bring

learning and CPD into their present workplaces. This paper, though based on uncritical feedback from a tour, presents the need to consider the previous knowledge that is employed in the current workplace for workers for workplace learning to occur. Workplace learning and the need for PD is to further consider and to consider past experiences of workers.

In contrast, Strasheim and Hugo (2013) presented their research where continuing professional development is applied in a four-week intensive program that has been operating since 1976. Strasheim and Hugo (2013) utilised a set curriculum that targets middle to top management in the construction industry of South Africa and promotes management and systems thinking. Strasheim and Hugo (2013) noted their success of the professional development to the involvement of alumni as a guiding panel to keep the curriculum current and address relevant issues and topics faced by builders and engineers. Strasheim and Hugo (2013) research contrasts the difference between workplace learning and andragogy away from the workplace, using experienced workers telling their stories and including networking, collaboration and task centred learning within this training intensive. Rather than learning in the workplace, learning became about a reflective and applied process away from the workplace.

Wall, Ahmed (2008), Strasheim and Hugo (2013) recognize that continuous professional development is not solely about the experience at the workplace; it also includes the attitudes and behaviour of workers. This comparison requires the engagement of the thinking worker who carries out a thoughtful provocation and then acts to add or subtract from learning that takes place.

In understanding the attitude toward workplace learning, Markin and Hoyle (1993) carried out research based on the premise of the Premack Principle with 4 engineers in a workplace. Markin and Hoyle (1993) used the Premack Principle, where they assume that in amongst the complexities of tasks, people have differential preferences related to tasks they

find as pleasant and unpleasant (less pleasant) that can be organised hierarchically. These pleasant tasks are carried out in a timelier way, with more time spent and greater levels of enjoyment. Markin and Hoyle (1993) explained that once the hierarchy can be identified, the goal is to change the hierarchy so that the most preferred parts of the job are made contingent on completing the more disliked parts of the job first. The Premack analysis revealed a simple but significant explanation for the low level of output, that is, engineers were spending time on aspects that were necessary but not essential. Modification of the engineer's hierarchy with their behaviours with the reward of praise, feedback and recognition provided over a 12-month period greater productivity and satisfaction. This research, though dated 1993, provided an insight, though simple, a contributing factor to the misalignment of professional development with the requirements of IMS could possibly be due to its perceived unpleasantness. Markin and Hoyle (1993) identified the need for the organisational behaviour modification in the workplace for greater quality performance. Hence, the application of this research suggests the need to consider the behaviours and attitudes of workers toward PD in IMS in the construction workplace.

The research of Lery, Haight and Roscoe (2020) rather than focusing on PD, reviewed skills for collaboration. Their targeted approach was on training graduates in the social welfare sector, where there are the similarities of working in a highly structured and systemised organisation experienced by PD and IMS. In this case, the researched was an organisation that seeks a to end homelessness. Lery et al. (2020) took the opportunity to develop and apply a theory of cross-system collaboration as part of implementing intervention strategies. It could be perceived that IMS has similar cross-system elements, though the focus is between quality, safety and environment management systems. The similarities of Lery et al. (2020) research was the importance of continuous quality

improvement (CQI) framework that is also applied in an IMS. Due to their research focus and limitations, they welcome further research.

To understanding the need for particular behaviour and attitudes at the workplace, the research of Turner and Mariani (2016) explored the work-family experience of construction project managers in the commercial sector of Melbourne, Australia. This research was a qualitative analysis based on interviews with nine project managers that helped to identify how they managed work-family conflict. Interviews were recorded and a dossier was kept with the participants' individual and family details. Researchers found that managing work-based stress, having a supportive partner, prioritising non-work time for family and trading of activities were four methods used by project managers to deal with work-family conflict. Though the focus was upon work-family conflict, the researchers identified the limitations of the data sample based on geography, commercial sector-based and male only interviews. Turner and Mariani (2016) admission of limitations from the data sample provided an example and a lesson to ensure greater representativeness, non-discriminatory sampling and a wider scope beyond the commercial sector within construction, as well as a wider geography of data sampled. Turner and Mariani (2016) concluded that worker-family conflict study emphasised that workplace learning has many factors, and that performance and attitudes are greatly affected by the worker. This emphasises to have a holistic approach to the workplace learner and to consider the whole person rather than just the worker aspect.

Horan, Chory, Craw and Jones (2021) also researched the topic though focused on blended work/life relationships where communication included the relational aspects that may build close workplace relationships. It is important to recognise that when focused on how PD aligns in the workplace with IMS, the level of relationships can also contribute to the IMS. Horan, Chory, Craw and Jones (2021) identified two conceptual parameters, organisational interpersonal and role-based relationships in doing ones work yet, focuses on

personal relationships, as a matter of discussion, that occur at the workplace, where the research of Turner and Mariani (2015) provided this understanding of the personal worker-family relationship. Necessary consideration of workplace relationships whether, inter-personal, role-based, and personal is needed when examining the construction workplace.

Jollands, Jolly and Molyneaux (2012) argued that problem-based learning (PBL) is a significant contributing factor in workplace readiness in learning at the workplace. Hadgraft (2007) supports the proposition that the "rounded engineer" requires PBL. PBL not only includes the technical competency but also the need for communication, teamwork, leadership, innovation and initiative. Jollands et al. (2012) research focused on the need for competencies required over and above that of technical knowledge applied in workplace. Their paper concludes that there are competency gaps are apparent existing in the workplace learning identifying the need for research upon the efficiencies to engage in problem solving in the workplace. Hence, since 2004 RMIT with Engineers Australia (EA) have used Jollands et al. (2012) competency and characteristics as guidelines for mature engaged professional engineers. These guidelines provided greater engagement and learning through PBL rather than that of traditional curriculum. Their paper supports the need for research to be undertaken to establish whether PBL is effective once graduates have entered the workplace. Jollands et al. (2012) research focused upon the interviews with a cohort of 10 graduates and their managers (20 in total) where only two were civil engineers. They concluded that PBL readied students showed greater workplace preparedness.

The work of Madichie (2014) considered the gap in literature of understanding the lack of understanding the interfunctional relationship in a non-Western context. Though my research is focused on the Australian business, further consideration is needed to understand the literature contribution from Madichie as the cross section of workers to participate are multicultural. Madichie looks at how market orientation is continuously improving from a

performance-based approach. The relationship marketing perspective, according to Madichie, there is a level of contention, “that organisations will profitably satisfy their customers if they ensure harmonised integration between functional departments”, (Madichie, 2014, p. 30). This is where Madichie identifies in literature examples of these functional relationships of marketing-research and development (R&D), marketing-sales, and marketing-accounting. Organisational charts best represent this interfacing of functional areas of the business to occur, and attention is needed to enhance corporate performance, becoming more in sync with each other. Madichie’s (2014) body of research further provides understanding how the organisational structure factors affect one another and how relationships interact with one another giving understanding of what the workplace looks like.

McEwan and Guerrero (2010) presented research on communication by examining first-time freshmen and the use of communication skills and friendship formation strategies in a 6-week duration. Friendship was seen as a primary source of support and how this relationship was built were identified in their research. Whether it was through group involvement, the active self-disclosure components of communication, the responsiveness and invitations, levels of friendships could be identified. Relationship with its varying degrees of friendship was important in this research as it could be perceived and identified with those that had more and stronger friendships, more resources were available to navigate through their experiences. It was with these friendships that depended on the social and emotional needs. It was through the researchers using quantitative analysis that came to the conclusions where the more skilled and competent freshman were likely to have stronger friendships than others that were not as competent. Even though this study was carried out on American freshmen, this could be equally appropriate to consider the friendliness of PD with the sharing of IMS knowledge. McEwan and Guerrero identified 5 friendship formation skills (interaction initiation skills; negative assertion skills; self-disclosure skills; emotional support

skills; and conflict management skills) can have affect upon the workplace when aligning PD and IMS. The level of friendship is important when researching this alignment between PD and IMS.

Workplace friendship research was also performed by Sias, Pederson, Gallagher and Kopaneva (2012). This however focused on the electronically connected organisation experiencing workplace friendship dynamics. It was identified:

> Personality, shared tasks, and perceived similarity are the most important factors to co-worker friendship initiation, and the importance of physical proximity to workplace friendship is diminishing in the electronically connected workplace … Results confirm the primacy of face-to-face interaction for workplace friendship initiation and maintenance. E-mail, phone, and texting were also central to communication among workplace friends. (Sais et al. 2012, p. 253).

In the research of Madter, Brookes, Bower and Hagan (2012), focused upon in the importance of CPD within the engineering sector and its current practice amongst 17 companies. Project managers were examined using qualitative, one-on-one interviews. Questioning began by focusing on general scoping of projects managed such as the nature and size of projects undertaken. Participants were then asked to describe their career paths and then to comment on how project management CPD were identified and implemented. Madter et al. research concluded that CPD was “highly unsystematic approach and a very limited adaption of CPD to the engineering context” (Madter et al., 2012, p. 639).

The research of Madter, Brookes, Bower and Hagan (2012) though not considering the integrated management system, presents that importance of CPD. The conclusion of Madter, et al. (2012) informs that there are some limitations with CPD in the workplace learning. These limitations of CPD may well include the unsystematic and limited adaptation of CPD.

To conclude this section on literature reviewed, there are obvious similarities and parallel research and studies performed to understand management systems. Though, there is none as precise when considering IMS, the practice of compliance Standards at the workplace taking into consideration the practice of PD. There is also limited research on professional development (PD) of the construction workplace when considering PD. The contrast of research undertaken providing various focuses on contributing factors, though raises that are needed to take these into consideration when examining PD. Whether termed as factors, characteristics, or influential issues or, considerations, this section of the thesis presents the need for this research.

2.1 How Professional Development Occurs in the Workplace

The research question, "How does professional development in the construction workplace align with integrative management systems?" is a specific challenge that is experienced within the construction industry. This is where I had observed there is a lack of Professional Development (PD) in the workplace to support the implementation and management of Integrated Management Systems (IMS). To understand how PD has been integrated in the workplace this was discussed in Chapter One with adult learning known as andragogy in practice (Knowles, Holton & Swanson, 2005, p. 67), Knowles et al.'s (2005) fifth principle, "the orientation to learning that being problem centred and contextual".

This is reinforced by Lave's (1997) research on communities of practice where learning is a social phenomenon, a situated experience. This is where, "communities of practice and cultural processes of identity construction shape each other", (Lave, 1997, p. 80). Lave's anthropological study of apprenticeship, crafted learning as a "process of becoming a member of a sustained community of practice", (Lave, 1997, p. 65). This community of practice is needed consideration when examining the alignment of PD with IMS, as a major

factor of workplace learning having several actors, whether on site or in the office, where knowledge is a shared process.

Another contributing factor when considering PD with the approach of learning in the construction workplace, is this traditional model of apprenticeship. The model of apprenticeships when learning a trade (a blue-collar worker) can also be liken to the practice of cadetships in the office when learning administrative and managerial work (a white-collar worker). This model of apprenticeship works upon the core elements of working in a real and actual physical context, side by side with a mentor. This mentor has the attributes and respect of a teacher, coach, or master. This master has experience, knowledge and skills, and competence in the workplace where others can learn from their example. When workplace learning occurs between the apprentice and master, they are immersed in activities performing tasks and solving problems (Barab & Hay, 2001; Collins, Brown & Newman, 1989). This apprenticeship model is another occurrence where it is generally assumed that PD is taking place in the construction workplace.

The work of Barab and Hay (2001) examined the work of apprenticeship learning of 24 school learners working with scientists on a 2 weeklong camp where reflecting ‘in’ and ‘on’ practice for this duration. Barab and Hay (2001) saw how the apprenticeship learning, like experienced in the construction workplace, is learnt by the process of immersion and participation. Barab and Hay (2001) saw this capture of communities of practice (Lave & Wegner, 1991) and the concept of the cognitive learning (Collins et al., 1989). Bara and Hay combined these two trains of thought to where they determined:

> Fundamental to the apprenticeship perspective is the notion of practice: practice as an activity that embodies and builds understandings, as well as one that has the potential to wed an individual to a community which uses and values the particular practices being carried out (Barab and Hay, 2001, p. 73).

This is important, in examining the workplace and questioning the alignment between PD and IMS, as the apprenticeship model of learning has been practiced historically in the construction workplace.

Billet (2001), who focuses on how people learn through everyday work, and how workplaces and workplace experiences contribute to learning details that learning becomes about informed practice. This is described that at the workplace, learning takes place where experiences are shared and integrated both professionally and individually. Billet's (2001) research explains how workers have informed their practice in the workplace with this phenomenon of learning. The core ideas promoted by Billet (2001) are about how people learn at the workplace:

> If we are thinking and acting, we are learning. This is where the curriculum for the learning is founded upon the contribution and circumstances afforded by the workplace. Learning is not about, 'just do it', it is about how learning experience is structured to develop the capacity of the workers. Further, workplaces are contested terrain where learning discriminates and displaces worker's ability to access learning activities and guidance. Learning best comes from integrated experiences where workplace and formal learning are complementary (Billet, 2001, pp. 6-7)

The construction workplace must take into account the learning that occurs relationally and experienced when problem solving. This problem-solving learning has contributing factors what others have learnt and shared.

Thijssen (2014) research parallels the work of Collins et al. (1989), Lave and Wegner (1991), Lave's (1997), Kessel's (1995, 1996, 2001), Barab and Hay (2001), and Billett (2001) to the reviewing workplace learning and understanding theory creation. Thijssen study purpose was, "to bridge the gap between education and practice addressing the complex work issue of poverty and social exclusion", (Thijssen, 2014, p. 444). Performed in the

Netherlands, it was focused on theory building from the complexity of the real world, to the see what connection theory creation has with other theories being built on workplace learning. Thijssen tells of his eclectic approach with a comment about the concept of workplace learning and understanding theory creation across literature as:

> To be competent across working life requires workers to be able to effectively meet and respond to the particular and changing requirements of work and workplaces … the development of vocational and professional expertise requires the integration of different types of knowledge, the interaction between theory and practice, and that the development of the workplace as a learning environment both for employees and students is important to ensure the continuous development of competence, (Thijssen, 2014, p. 445-446)

Thijssen (2014) contribution was needed as this brings a connection to the conceptual lens of context that my research is focused upon. Thijssen (2014) further makes a connection to the approach of IMS where process, product and services are continually improving hence, learning at the workplace is to be continuous. This is where further research is welcomed.

Ashton (2004) reinforces that, "members of communities of practice, in constructing the learning process", (Ashton, 2004, p.43), where he supports the point that formal and informal learning, is a part of our daily lives of learning. Whether in the community of practice and through daily living, the workplace that is to be examined in this research must consider these variables. Ashton (2014) questions the organisational factors on the process of learning where he notably contributes the understanding of how learning shapes the workplace. This is where it is shaped by the distribution of knowledge and information with the rewards of learning, and the motivation of prior experience that contributes with the opportunities to practice learning in the workplace. Ashton (2004) adds, the supports for learning are contributed by motivation and rewards for learning. This provides a framework

on how organisational structure and culture impacts the learning process that is necessary to understanding how PD and IMS is to be experienced in the workplace.

The question, how is PD experienced in the workplace, and how does IMS provides the structure, based on the quality, safety and environmental Standards? Ashton (2004) concludes, “the main ways in which the organisational structure shaped access to information was through the attitude and behaviour of line managers”, (Ashton, 2004, p. 48). Access to the information of IMS may bottleneck with line managers where alignment of PD may lack because of the limited dissemination of information and the decision-making ability of a structured community of practice. It is important to keep in mind, in my research, the activities of the workplace will have a framework and is structured. Ashtons (2004) finished by asking for more research to raise the awareness of the impact of organisational structure has on the different levels of learning and skill formation within organisations.

The contributions of Limerick, Cunnington, and Crowther (2002), rises the need of collaborative individualism. This, “stresses the need for individuals to work towards a common vision and mission, however, gives the individual, in this post-modern age the ability to reject hierarchical organisation and bureaucratic rules “, (Limerick, Cunnington, & Crowther, 2002, p 103). It is via this medium of collaborative individualism where there is the exchange of knowledge that is needed to solve problems and to work collaborative in the workplace. The levels of collaborative individualism will help to benefit and understand the alignment of PD with IMS in this exchange.

It is the research of Chen and Huang (2007) that questions, “How organisation climate and structure affect knowledge management?” This research takes an ontological framework from a social sciences position of interacting with organisational climate, structure, and knowledge management. Chen and Huang (2007) defined organisational climate having a form with certain attributes and expectancies fostering continuous innovation that contribute

to greater socializing among organisational members to undertake their work. Organisational structure is established as this formalisation, centralization and integration, each affecting decision making and behavioral interactions as variables to perform tasks. Chen and Huang (2007) described how trust, communication and coordination contribute to social interactions in the workplace. Chen and Huang (2007) research examined how each, organisation climate and structure, mediates the effect on knowledge management. This is important for my research where the examination of PD and its alignment with IMS will depend on how the knowledge and information of the IMS is disseminated in the workplace. In Chen and Huang (2007) examination of 146 cases in Taiwan they concluded:

> In general, if the characteristics of organizational structure are less centralized, less formalized, and more integrated, the social interaction among organizational members would be more favorable and then the levels of knowledge management would be more enhanced. Organizational structure can lead to favorable social interaction and, in turn, results in a higher degree of knowledge sharing and application. Thus, social interaction plays a mediating role in the relationship between organizational structure and knowledge management, (Chen & Huang, 2007, p. 113).

The research of Chen and Huang (2007) is important as IMS can be characterized as providing knowledge (policies, procedures, forms and reports) and how that knowledge contributes to the organisational climate and structure of the workplace so that PD can occur continuously.

The problem-solving orientation can also be considered in terms of Kolb's (1984) learning model where transformation through experience takes place in the workplace to understand how professional development occurs. Where this real-life situation, people learn best when confronted with problems where they are motivated to learn. In this motivation, they acquire "knowledge, understandings, skills, values and attitudes" in the solving of

problems to real-life situations, context (Knowles et al. 2005, p. 67). This construction workplace setting, my research must take into account the transformative learner.

Eraut's (2000) research focused upon the non-formal learning and tacit knowledge as applied in the workplace. This research came from empirical investigations and began with defining personal knowledge, "where the person has a range of cognitive resources enabling them to think and perform", (Eraut, 2000, p. 114). (2000) puts formal learning into a formal domain, then reframes informal learning as being non-formal learning, where learning is part of situation ranging from the deliberate to the implicit. Eraut (2000) defines implicit learning as the acquisition of knowledge independent of conscious attempts to learn and in the absence of learning at the time it takes place (Citing Reber, 1993). The domain of timing the learning, Eruat (2000) sees as important, is referencing the time it occurs and the level of intention with respect to the timing of that learning. Eruat (2000) references the work of Schon (1983) about the reflective practitioner in respect to this timing whether reflecting 'in' and 'on' practice. This research draws attention to how PD occurs and how this may align the IMS depending upon the formalities in which it is taught. This is important for my research as it further focuses upon the situation and context which PD is practiced.

Ammentorp, Bigi, Silverman, Sator, Gillen, Ryan and Martin (2021) research focused on the experiences and the identification of main facilitators and barriers for the implementation process of large-scale communication training programs. A case study approach using 20 open-ended questions, was undertaken of programs taken from Australia, Ireland, Austria and Denmark of healthcare workers. Comparably, the Calgary-Cambridge Guide had been adopted and used elsewhere, USA, Canada, and Europe to teach communication skills. This is significant to understand that amongst the international Standards for IMS, there is a standard, though not universally accepted for communication used in the social sector that may be taken into consideration of the construction workplace.

Salmon and Young (2011) researched communication skills experienced in a clinical context. Where there are limited studies into communication skills in the construction workplace, then when considering PD and IMS, this research demonstrates parallels of learning that can be experienced in both. Salmon and Young (2011) noted the complexities between the pedagogical understanding of communication skills to real world experience as it is ever changing, inherently needing to be creative with communication. It is in building relationships that require good deploying of communication skills to the changing experiences. Salmon and Young (2011) argue that:

> When qualitative researchers examine communication inductively, they often identify phenomena that do not closely correspond to skills described in the quantitative research literature … practitioners themselves describe communication in reflective practice papers, they often emphasise intuition or departures from rules, rather than the expert application of previously defined skills, (Salmon and Young, 2011, p. 218).

Throughout their research article, Salmon and Young (2011) warns of a reductionist method for communication skills yet, remind that communication is complex and no one skill can be applied to the varied experience. They provide some solutions of empathy knowing communication is subjective requiring creative change meeting the need at the time.

> Rather than using checklists, the use of SEGUE (Set the stage, elicit information, give information, Understand the patient's perspective, and end the encounter) framework emphasises the attainment of communication goals, leaving learners to decide how to reach them, (Salmon and Young, 2011, p. 219).

Amongst the checklist process approach of IMS, Salmon and Young (2011) remind the alignment will change, and change will require the communication to be adaptive and useful to reach various project goals. An important concluding remark is:

> Instead of encouraging the deployment of predetermined skills, educators will aim for learners to make good judgements, to develop a style tailored to their individual characteristics … to develop the capacity to handle novel situations rather than simply delivering consistency, and to appreciate keenly the uncertainty surrounding their communication, (Salmon and Young, 2011, p. 221).

In researching the alignment of PD and IMS, there is no clear, good, or bad of communication. It is important where IMS relies on structure and compliance, my research into alignment between PD and IMS, there is the need for communication and the level of relationship will vary with changing experiences.

Boyatzis, Rochford and Taylor (2015) made significant contribution to management and psychology as to the influence and impact of shared vision has on organisations. In Lima, Filion, Dalfovo, and Urbanavicius (2013) research is presented with the concepts of vision, mission having purpose. The research is targeted to micro and small enterprises (MSEs), small businesses, carried out in Brazil. And, as this research targeted small to medium size businesses, provides a context in which principals (Owners, Chief Executive Officers and Directors) are supported. These principals have concepts and need of vision, mission and purpose to motivate, to support the strategic conversation process required to its workers. The research explores the needed learning about strategic management that sums the vision, mission and purpose document produced by MSEs like IMS. Lima at al. (2013) research promoted the need of strategic conversion empowering the workers that surround and support the principals of the MSEs. They finish their research by stating their discovered theme, strategic conversation, requires further research as their an apparent lack when examining MSEs.

Munsung and Satish (2013) focused their study the role of operational proactiveness to that of functional alignment, enhancing performance and strategic alignment in

manufacturing businesses. Munsung and Satish (2013) argue the need for operational function to align with strategic direction taking a proactive stance contributing effectively to a competitive strategy. It is this proactiveness concept which is debated and explored. The proactiveness concept explains how operational achievements contribute to the strategic decision process to assure business remain in alignment with their strategic direction. They note the limitations due to their sampling size and the collection method of one informant where they may have not been the most appropriate to understand strategic activities, where they welcome further research to explore these limitations and the extent to which their findings can be tested.

Eldor (2020) explored the importance of a business model that has a shared vision, competitive intensity, and service performance from management literature and 198 retail-service branches of an organisation. Eldor (2020) identified that is was through a collective engagement of the workforce where at the individual level engages with performance of the business from a willingness to invest physically, emotionally and cognitive energies into the organisations business goal (strategic direction). This could be perceived, for my research, where PD engages and can further align to IMS as an important aspect of the research considering collective engagement. Eldor (2020) welcomes further research.

Harder (2017) publication provides an understanding of the workplace and its context when examining how workers are engaged and find purpose amongst work. The structure of his book presents characteristics of business workers and the needed engagement of the owner. The book presents needed understanding where systems and management coincide in understanding the workplace. Harder (2017) commences his book with the concept of disengagement, and how change has affected the workplace and the worker, then finished by providing a practiced strategy in re-engagement. The book, which details systems and

characteristics of engagement, where this important for my research to consider, because it offers mechanisms that may relate similarly to unalignment and alignment of PD and IMS.

Rodrigo, Aqueveque, and Duran (2019) research looks at the corporate social responsibility (CSR) when examining strategic-making processes to better engage workers. The sharing of CSR with workers, there is better alignment and commitment to corporate mission, vision, and direction. This parallels the study on PD and IMS, where CSR is introduced liken to the introduction of IMS.

Galvan (2019) publication presents the background of organisational structures, their components and characteristics. Understanding organisational structures, Kaufmann, Borry and DeHart-Davis (2019) researched the conceptualization of 'red tape' being a pathological subset of organisational formalisation. PD and IMS may present a perception and understanding of formalisation, where it can be considered as 'red tape'. Kaufmann et al. (2019) debated and argued that rules, regulations and procedures that require compliance, and inefficient processes or barriers encountered in the workplace as 'red tape'. Kaufmann et al. (2019) invited further research as they saw that their definition of 'red tape' required further eliciting.

Monteiro, Hopkins and Frutuoso (2020) researched the impact that organisational structures have on operational safety of three case studies from the oil and gas sector over two parts. In the second part, that is reviewed, a design strategy that is proposed. What is learnt, is that the more centralised and independent control of risk is needed to address safety issues at the asset level – functional centralisation and physical decentralisation. All of which, require an integrated design. Integrated included with business practice for safety. Montiero et al. (2020) research is important to my research, as this parallels the research of IMS with the focus on quality and safety yet, excluding the environmental component of IMS. In referencing a management system, Montiero et al. (20220) refers to structure as defined with

the use of decision making and management, where a decentralisation structure is lack of decision and limited management.

To summarise and understand how PD occurs in the workplace from examining literature, where the orientation to learning is important. This is how the learning experience is orientated to develop the capacity of the learning worker being engagement in the workplace. To conclude, this section, the above research that is listed, there is emphasise the importance of PD in relation to the orientation to learning when considering context and how these impacts on workplace learning dynamics in the construction workplace.

2.2 Professional Development Practiced in the Construction Industry

To practice as a professional in the Australian context of the construction industry there are certain industry requirements. For instance, to be a chartered engineer, Engineers Australia (2017) state the requirement for continuing professional development is a minimum 150 hours of structured learning over a three-year period. Further, special conditions are required for engineering academics and teachers, and special provision for part-time workers. Practitioners must provide at least 50 hours relating to the area of practice, 10 hours covering risk management, 15 hours addressing business and management skills. The remainder cover a range of activities relevant to career and interests. Queensland is different requiring additional registration of practicing engineers under the Queensland Engineering Act of 2004 with the Board of Professional Engineers of Queensland.

Builders within the construction industry vary state-to-state in Australia. For example, Fair Trading NSW (n.d.) detail that continuing professional development for builders and swimming pool builders have required since 1 January 2008 12 points per year. Prior to this, there was a 25 point per year system. This point system is an allocation against the hours attended and the subject matter that professional body recognises. The New South Wales Fair Trading Home Builders Act of 1989, outlines continuing professional development

requirements for the licensed builder. As with the chartered engineer, the licensed builder point entitlement equates to learning category 1 of 1 points-per-hour of training when related to workshop, forums and conferences; learning category 2 equates to 2 points per hour for structured learning. Comparing this with the Queensland Building and Construction Commission (2014), continuing professional development for pool safety inspectors on approved CPD point system for their continued participation with approved activity and maintenance of membership with listed industry bodies with the accrual of points; however, it is ambiguous as to those required per year. Queensland builders simply require a renewal fee and the maintenance of the license. The loss of the license occurs whether there is a suspension or cancellation for breaches against the Building Act, criminal offence, governance breaches and insolvency.

The practices and requirements for professional development whether as an engineer or builder are examples where continuing development is necessary to work in the construction industry. There is the continued practice to maintain accreditation and in the case of a builder, a license to operate. However, not all positions in operation of a construction organisation require a license, such as those in roles of management taking upon the responsibilities of integrated management systems. Should the management representative of the IMS, it is entirely optional and voluntary to maintain their professional knowledge. There is however the pathway for IMS management representatives to be members with an association called Global Exemplar. Global Exemplar is the leading business entity liken to an association for the international registration acknowledging professionals engaged in continuous professional development with international management Standards. It is those businesses and companies that are certified require continuing third party audits to maintain registration. It is then within the requirements of the international Standards (quality, safety and environment) to determine and maintain

necessary competence of person(s) that affect the performance and effectiveness of the IMS. In the documentation of the IMS examples practiced as part of the requirements of the International Standards are the provision of training to, mentoring of, or the reassignment of currently employed person(s); and the hiring or contracting of competent person(s).

2.3 Summary of Chapter 2 – Literature Review

The summary of this chapter presents a review of the literature based on andragogy in the workplace, that highlights a need for PD that accounts for the contextual and the individual nature of the workplace.

Examining workplace learning, the apprentice model is necessary to draw upon the resources with the need for employability, competency and problem-based skills required for PD to take place. Transformational learning requires informed reflective practice with the phenomenon of learning in the workplace when considering PD with IMS.

Though CPD points are a measurable component to maintain professional Standards, there is also a question as to whether CPD activities address those listed skills.

What can be learnt from the researched literature is the need for the identification of personal identity, the community of practice, the connectedness to family, project delivery and business/community interactions. The use of blended learning, problem-based learning influences the workplace learning. The literature determined various mechanisms that contribute to the learning workplace when considering IMS and PD.

Stoner et al. (1985) presented the historical influences and evolution of management theory and management of systems – whether integrated into the business through quality and TQM. The learning workplace for Stoner et al. (1985) was seen as operant conditioning and behaviour modification. Improvement was seen through the management cycle of PDCA. Australian research and publication came from Ryall and Kruithof (2001) that covered the

implementation practices of the quality standard with management principals and pillars of practice.

Research showed that integration of management systems as innovation and the concept of management performance supported by the PDCA, TQM and the Lean Six Sigma approaches (Kruithof & Ryall, 1994; Senge, 1998; Bernardo, 2014; & Marta and Karkalikova, 2018).Research that also was similar to PD and IMS was in Kent and Becerik-Gerber (2010) that discuss Integrated Project Delivery (IPD) where there is the integration of people, systems, and structures to practice collaboration. In Jaakola and Hallin (2018) researched organisational structures with the practice of NSD as a growing disciple having similar approaches of process and systems-based thinking. And it was also revealed with Backlund and Sundqvist (2018) with the study of PBO's and the practice of CI and various project management models related in, A guide to the project management body of knowledge (PMBOK guide) (2017).

Hill (2019) presented how the integrative nature of learning communities and organisations where dialogue and learning occurs from exchange of each person sharing a different perspective.

It is revealed in the skills gap studies in Queensland, Detsimas, Coffey, Sadiqi, and Li (2016), that identify the gap in formal and structured learning when related to specific role related responsibilities. Madichie (2014) further identified the needed research from the lack of understanding interfunctional relationships with a non-Western context. And, from the industry point of view from Pienaar, Zhong, Wu, and Feng (2015) the need for relatable problem-solving skills, risk and business management skills were lacking. Wall and Ahmed (2008) reinforce these skills form their project management-based research with the need of multiple methods and tools needed to increase skills in relationship to PD. Though, the research of Strasheim and Hugo (2013) see that to increase these skills is best to happen away

from the workplace in an intensive program stressing the need for relationship building post-program. It is with Wall and, Ahmed (2008), and Strasheim and Hugo (2013) that introduce the concept of the thinking worker, where learning is worker centric being about their attitudes and behaviours. The attitudes of workers were also examined from a work-family experience and the work/life relationships that gave understanding of the worker entering the workplace (Turner and Mariani, 2016; and Horan et al., 2021) and Mariani (2015) consider these organisational behaviours of workers with their attitudes and the studies of Markin and Hoyle (1993) modifying these organisational behaviours in applying their study of the application of the Premake Principle. The study of Klerk (2012) observed that PD also needed to take into account what previous worker experiences have upon the current workplace learning environment. In summary when considering the research of others, it could be best described, Klerk (2012), workers PD need not only take into account the technical PBL yet also the necessary skills of communication, teamwork, leadership, innovation and initiative. Madter, Brookes, Bower and Hagan (2012) conclude that the importance of PD in the workplace may certainly relate to the limitations where PD become unsystematic and limited in adaption.

The literature specific to the construction industry reviewed where others have researched PD or relatable IMS. Others' research focuses more on what is happening with PD in the workplaces, whereas the research in my thesis is focused particularly on how alignment of PD and IMS is achieved in construction workplaces. Lery, Haight and Roscoe (2020) research the skills for collaboration as learnt from the social welfare sector. Lery et al. (2020) added the needed cross-system of implementing intervention strategies and the importance of QCI framework. The readiness factor of the worker in the PBL is significant, being a rounded engineer (Jollands et. al., 2012; & Hadgraft, 2007). Communication skills and relationships

with their levels of formality and dynamics at the workplace contribute to the friendly nature of the learning workplace (McEwan & Guerrero, 2010; & Sias et al. 2012).

In conclusion, the literature examined raises the need for this research on what does workplace learning look like when examining PD specific to integrated management systems in the construction workplace? It is in Chapter 3, that examines the thesis' research philosophy, research design, and the overall approach being a qualitative research focus including rationale for this approach. The thesis then details the research method of thematic analysis describing the research participants, the data types. Details of the data collection and analysis process is finally presented.

CHAPTER 3. METHODOLOGY

3.1 Introduction

The previous chapter one reviewed the literature review; it provided a synthesis of literature used to explore the research problem and identified the gap in the field related to this problem.

This chapter three presents the methodology of the research, detailing firstly the research philosophy, then the research design. The research design outlines the overall qualitative approach of the research, and the research rationale. The research design uses a thematic analysis approach. It details the participants and the data types that help to answer the research question. The chapter then describes how the data was collected and analysed for each type of data. This chapter concludes with a summary of main points related to the research methodology, preparing for the following chapter four, findings.

3.2 Research Philosophy

In Chapter 1, I detailed my past. In this chapter, I will detail my ontology and how my past has influenced that ontology. Ontology is defined as, the sense of being (Smith, 2012). In dealing with injuries and illness, poor quality of production and services provided, and environmental impacts upon society, I have concluded there is a need for research that explores systemic solutions to overcome these persistent problems.

My ontology has been formed and reformed through a process of transformational learning. My learning stems from reflection on a range of challenges: overcoming hardship, encountering wrongdoing, conflict that arises from the different values between myself and others. Differences include the workplace being seen as a means for simple profit, rather than a place where people work safely, producing a quality product and service, while preventing pollution. These and other challenges continue to transform my worldview. My ontology is

that progressive learning and the practice of continual improvement will create and sustain construction workplaces that are pragmatic, providing worker wellbeing and a safe industry.

In the construction industry, workplaces vary. One workplace could be in a designer's office. Another could be a machinery plant, and others could be focused on trades: a carpenter, electrician, or a plumber. However, across all these workplace types, it is the Professional Development (PD) and Integrated Management Systems (IMS) that can be designed together to universally encourage employees' use of workplace experiences for transformational learning and continual improvement.

Where the context for each individual will be similar, yet not the same, having an IMS and PD brings to the business a level of control and consistency of practice so as to reduce incident and injury, promote quality of production and services, and reduce pollution on the environment. Differences between workplaces will affect my own engagement with individuals during the interview process.

I have explained in the introductory chapter that there has been limited research on the alignment of IMS and PD. This gap motivates me to explore and research this alignment issue. My work "in, with and for" the construction industry has given me a sense of purpose and clear direction towards managing business systems to operate according to global benchmarks based on international Standards for quality, safety, and environment. In answering the research questions, the research aims to explore gaps between PDs and IMSs for understanding, and to remove the misalignment. There is much to learn progressively and having an approach for continual improvement for the construction and civil industry drives me to undertake this research.

All participants, including- myself, the worker and the business owner have the opportunity to use the research as an exploration of possibility, for how IMS and PD can scaffold progressive learning and continual improvement. Because I am familiar with the

industry and its challenges, and I also am a learner in this research, I have empathy for those that I interview. With this familiarity and viewpoint, I am an insider-researcher and as such I bring subjectivity to the research interview.

My epistemological position as a researcher is informed by an interpretivist approach to qualitative research, that is, in interpreting elements of the study, human interests are considered, and I recognised myself as a social actor who appreciates the differences between people (Saunders, Lewis & Thornhill, A. 2007). This approach is focused on what can be learnt from experience, and experience makes us who we are. In the words of Schwandt (2014, p 224), "we do not simply live out our life in time and through language; rather, we are our history". The interpretivist tradition of asking about, learning, and interpreting the workplace experience, informs this research by recognising the differences between people's experiences.

The context, background and experience provide a frame of reference that will influence my perspective upon the data collected, analysed, and used for each individual. My interpretation of data will vary from the interviewee to interviewee because of participants' differing roles, abilities, experiences, and competencies. For example, each workplace will have a variety of those with university degrees through to those that have solely gained knowledge via the workplace experiences. Interviewees will have different perspectives based on their roles within the company. Such diversity enriches the data collected.

Interpretivism is particularly appropriate for this research because of the subjective, interested position I bring to this research and to my work with the participants. This position is inevitable due to the operational nature of the businesses and the maturity of the professional relationships I have with the participants. It is in my role of researcher, rather than external auditor, that I bring both empathy and experience with the individual and their workplaces. Consequently, I am unlikely to act impartially as I have experienced IMS and PD

challenges and have been involved for years with those I interview. Based on this epistemological viewpoint, the best data with which to explore the gaps between IMS and available PD in particular workplaces will be the experiences of interviewees. Consequently, to this research I bring my own experience of the workplace, my values of transformational learning, continuous improvement, and workers' well-being alongside profit. My role as a researcher-participant aligns well with the interpretivist paradigm because of its focus on individual difference, appreciating diversity and integrating human interest into the research.

3.3 Research Design

3.3.1 Overall Approach

This research is qualitative in its approach. The research design stems from my experience in the industry, my approach as a participant-researcher and the research questions. The design determines both, what counts as data, and what type of data should be collected to address the research questions. Data will be collected from my primary source, interviews, and secondary source, evidence from documents and observations.

Braun and Clarke (2013) detail the differing paradigms where the families of thought make up the overarching framework for conducting research. These, in turn, are founded on beliefs, assumptions, values and practices. Braun and Clarke focus on families of data having eight differences between quantitative and qualitative paradigms (Braun & Clarke, 2013). Three of these differences are particularly important for me in taking a qualitative approach.

The first of these three differences, for me, is that qualitative approach seeks to understand and interpret more local meanings, and that qualitative recognises data as gathered in a context. In my research, to understand the construction workplace is of primary importance, and further, this context is one of complexity. Whereas the quantitative approach seeks to identify relationships between variables to explain or predict events and behaviour

with the aim of generalising the findings to a wider population, and this is not the intent of this research.

The second difference important to my research project, is that the qualitative approach collects data generatively and inductively rather than deductively, to test a theory. Braun and Clark (2013) explain that the qualitative approach works up from the data, drawing and extracting themes from the data. This aligns with my research aims that are designed to gain knowledge of the context and its participants, rather than testing a theory. On the other hand, quantitative paradigms tend to apply theory-testing and uses data deductively.

The third point of difference is that the qualitative paradigm promotes a subjective point of view relative to the data. This is important to me, as the data is about the context, the social interaction with the workplace. This is where the bias of the data provides meaning to what is said by the words rather than just the words. Braun and Clark (2013, p6) state that,

> ... a broad cluster of features and assumptions make up a non-positivist qualitative research paradigm. One thing is fundamental, that it tends not to assume there is only one correct version of reality or knowledge. Instead, it comes from a perspective that argues that there are multiple versions of reality - even for the same person - and these are linked to the context they occur in, (Braun and Clark, 2013, p. 6)

This emphasises the approach of my research as it is the basis of my qualitative thematic analysis design. This adds the essential trait for the researcher is the “developing a qualitative sensibility” (Braun & Clarke, 2013, p. 8). As a part of the industry, and having worked with industry, being familiar with its language and context, I can associate with the data, and as such I have the sensitivity and insight in working with the data. The qualitative methodology places me as an insider, playing an active part with the interviewees where there is a shared circumstance and experience. I am attached to the data, being relatable and

understanding, empathic toward the interviewees and their workplace brings the ability to elicit further data from interviews. Where I had the awareness, competency and historical experience having worked “in, with and for” industry.

Through the practice of listening intently and critically reflecting on what is said at the moment, responding appropriately, complex and rich data is drawn out. This practice discourages indifference or ignoring data and encourages being sensitive. It is not taking things at face value yet, asking why. As Braun and Clark (2013) argue, having a critical, quizzical view to life enables the researcher to elicit more data. Overall, it is an interest in process and meaning, over and above cause and effect; to have the ability to reflect on the data, yet, stating one’s own assumptions then bracketing them off so that research is not automatically shaped by these.

Having previously networked with many of the participants in the research, I am drawing upon friendly relationships to facilitate the collection of the data. Having a good interactional skill set, to enable me to build rapport and trust, and being warm and friendly, helps put interviewees at ease.

3.3.2 The rationale for the Approach

This qualitative research approach enables me to gather information about participants’ perceived experiences and learning in the workplace. The aim of the research is to elicit information, and to understand, the potential misalignment of IMS with PD in the workplace. Researching participant experiences is an important way of exploring the relationship between IMS and available PD. Eliciting, collecting, and analysing information qualitatively offers greater clarity and contrast in the exploration of learning in the construction workplace in examining IMS and PD.

3.3.3 Research Method

This particular qualitative method to be applied in this study is, thematic analysis. Thematic analysis can be defined as a method for analysing data that identifies patterns of meaning across data sets. According to DeSantis and Ugarriza (2000) a data "theme" can be defined as and used to denote the fact that the data are grouped around a central theme or issue. Brink and Wood (1994) explain that a theme can also be used to describe a structural unit of meaning as essential to presenting qualitative findings, further explained, and supported by Speziale and Carpenter (2011). According to Polit and Hungler (1997), a theme is a recurring regularity emerging from analysis of qualitative data.

Thematic analysis reveals patterns and themes that arise from data through careful analysis. This is a good fit for this research because taking a constructivist approach allows me to see what patterns and themes emerge from the data rather than imposing expectations onto the data, and that will help to answer my research question. For example, it is used in phenomenological studies, which analyse data from interviews from study participants to discover themes or categories of experiences as viewed from the subjects' perspective. From this perspective, thematic analysis is a strategy a that involves recognising common themes in textual data. (Wilson, 1993, p. 342). DeSantis and Ugarriza's (2000) conclude that a theme includes but is not limited to, "conveying a sense of wholeness, abstract, openly promoted, a pattern, captures the essence and comes from categories". DeSantis and Ugarriza (2000) further explains that the emergence of themes "is extracted by the careful mental process of logical analysis of content from all data sources" (as cited Germain, 1986, p. 158). DeSantis and Ugarriza agree that themes function to:

- Unite a large body of data that may otherwise appear disparate and unrelated.
- Capture the essence of the meaning or experience; and
- Direct behaviour across multiple situations.

In this research, themes are developed from the process of gathering data, coding the data, then expressing what has been coded as themes and sub-themes.

It is the approach of thematic analysis of Braun and Clark (2012) that was applied to this research, included a process of familiarisation, generating initial codes, searching themes, and then reviewing potential themes, followed by the defining and naming of these themes. Familiarisation includes reading and re-reading the data, annotating, and highlighting the items of potential interest. It is by reading the data with purpose and becoming familiar with it that enables me to identify codes and, eventually, themes. As Braun and Clarke (2012) explain, “reading the words actively, analytically and critically, starting to think about the data what the data mean” (Braun & Clark, 2012, p. 3) is critical to the thematic method.

Braun and Clark (2012) explain that the practice of coding is like constructing a house, where the codes are the blocks of the house that build upon one another to form the walls. Codes label data that is potentially relevant to the research question. Codes should “mirror participants’ language and concepts; others invoke the researchers’ conceptual and theoretical framework” (Braun & Clark, 2012, p. 4). The succinct framework of the code is a mix of what is read and what is expressed. It is in the number of codes where patterns emerge from the data. This gives rise as to the next step, themes.

Themes, as discussed earlier, uses codes to capture the importance of what the data is saying. It is the review of coding, seeing the clusters of codes, drawing out themes that tell the overall story. Braun and Clark (2012) state that theme names be “informative, concise and catchy.” Braun and Clark (2012, p6).

Braun and Clark (2012) describe the review of the themes as a recursive process that removes ambiguous themes, questions codes, and makes sure that codes and themes are meaningful and purposeful. Mapped themes from the codes create the overall tone of what is represented by the data.

3.3.4 Research Participants

The group of participants selected for the research are workers, business owners and executive managers with lengthy work experience in the construction industry. The selection of the participants particularly emphasised those that worked in and were exposed to the concepts and practices of management with varying levels of awareness and competency. These participants were chosen as they are those who influence and have direct commitment to the need and execution for IMS and PD to take place.

My relationship was a contributing factor with the selection of the participants. Participants were recruited in person during my visits as part of the auditing process. This is where prospective participants were approached from the networking that I had as an auditor. These participants were those that I had established relationships over a considerable time, for instance some I had known for over 5 years.

The selection of the interviewees was based upon their having experience with management system of the business and their vocational placement in the construction industry such as engineers, contract management and administrators. The interviewees targeted ranged from 25 to over 60 years old male and female, and from a variety of cultural background. They had as well, extensive, and varied background in quality, safety and environmental awareness and competency within the business they work with.

3.3.5 Types of Data Collected

The primary data set collected from 15 participants emerged from semi-structured interviews. Semi-structured interview processes are useful as they combine benefits from both structured and unstructured interview processes. Pre-prepared questions provided a structured framework while there was the freedom to explore the responses and interactions with interviewees. The conversation tools of paraphrasing and reflecting to the interviewees

either confirm or elaborate on answers provided. This semi-structured interview process provided reliable qualitative data.

Secondary data collected included documents and photos. This secondary data is important as they corroborated the themes identified. An example of secondary evidence is the report reviewed and gathered during the visit to a business where an interview has taken place. Another example is a photo of carrying out work safely giving further context as to what is done.

3.3.6 Data Collection: Interviews

Data was collected using semi-structured interviews with individual participants of 30 to 45 minutes' duration. A key consideration was not impacting their productivity at work, so sensitivity was required with:

- Timing and availability of the prospective participants.
- Interviewee context where possible permission by their supervisors were needed in order to undertake the interview.
- The possible locations that were suitable for interviewing with few distractions such as a lunchroom, office, boardroom and/or interview view rooms at their locations of work. These locations also provided privacy, where the interviewee felt further freedom to speak freely. These locations also reduced the levels of surrounding sounds and comfort in undertaking the interview and effect upon the audio recording level.
- At any time through the process interviewees could opt out from the research interviews. It was made clear to the possible participants that their opting out had no further effect upon our professional relationship nor effect upon the work I performed as an auditor. It was simply opting out.

In order to gain participant consent and to undertake the interview, the following steps were taken:

Step 1 – I made the request to possible participants in a face-to-face approach to undertake an interview to assist in research I was performing. It was made clear that their interview was to be recorded and further documents sighted, and photos taken will go through a redaction process to protect their voice, keeping anonymity and confidentially of the recording.

Step 2 – Following up whether on the same day of the interview when asking or at a later date, there was the providing of the research disclosure documents to the interviewee. This included: Consent Form for USQ Research Project for participants to fill out and sign; a letter confirming that I was performing the research, and this research had the approval of and would follow the Standards required by Human Research Ethics committee of USQ; a Participant Information Sheet; and, a copy of the interview questions, Question Matrix, in preparation of the interview. Where interest was shown yet, due to business and/or required supervisory permission, these listed documents were forwarded to the participants via email to take to their respective supervisor and on some occasions Boards of Directors to gain permission to participate in the research. Further examples of these documents are included within the appendix of this report.

Step 3 – Acceptance to participate with the return of the Consent Form for USQ Research Project Questionnaire signed and dated.

Step 4 – Complete the interview with the interview audio recorded.

Interviews were recorded initially with a tablet device and standard microphone. Inadequate sound quality led to further testing, where I selected two USB enabled microphones, one for the participant and one for the interviewer, attached to the tablet device.

The audio format that was recorded in .WAV format, that was converted to .MP4 for the transcription services to be undertaken.

Step 5 – The interview audio was transcribed by a professional transcription service commonly used by researchers at the university. Files were uploaded to, and later collected from, an encrypted site platform managed by the transcription service.

Step 6 – Interview transcriptions then went through a redaction process to remove names, business names and any indication as to who was interviewed.

These redacted documents were then presented to the interviewees for their final proof prior to use. These validated redacted documents gave no indication and/or reference to them as individuals in the redacted interview transcripts, documents, and photos. However, these redacted transcripts kept the integrity of the interviewee answers as to what was said. Redacted transcripts were proofed by an objective and impartial third party to check that anonymity was maintained.

Interviews had to coincide with my auditing, which is scheduled on a 6 or 12 monthly basis. From the day of the original invitation today of interview could take from 6 to 12 months when I would see them again. This was especially lengthy where there was need to seek permission from their supervisor and in some cases when permission to participate from the Board of Directors for the business was required.

The semi-structured interviews occurred as a form of conversation using the questions from my questions matrix (See appendix 3). The questions were developed based upon the primary and supplementary research questions listed as headings of the columns. The conceptual lens, as identified in Chapter 1, was then applied as headings for each row. These lenses were: adult learning; apprenticeship learning; and problem-based learning. Questions were then formulated for each cell that provided a list in this questions matrix that assisted with the flow of conversation. Questions were systematically addressed moving through one

column to the next, till all questions were completed. However, at times throughout the interview, the conversation would un-pack the question for the participant where it was unclear to them. At times it was necessary to use a reflection technique of paraphrasing to confirm the intent of their response. When the answer to one question from the question's matrix answered more than one question, I would move to the next unanswered question in the sequence to keep the conversation flowing.

3.3.7 Data Collection: Secondary Data of Documents and Observations

Secondary data collected included documents and observations. Reports and photographs provided more information about the context that the interviewees were a part of and were intended to lend authority to the themes. Reports were gathered a standard format that aligned with the Standards as applied to IMS – quality, safety, and environment Standards. The selection of the photos taken were also made based on ethical considerations and respected the probity of the interviewees. For instance, the office layout, the yard, the worksite, the plant, and equipment that are kept and the construction work that is undertaken, removing mention or indication of the business and its name. These photos depicted safe and/or the unsafe workplaces, environmental considerations such as waste management and the way the business prevents pollution. I applied discretion to keep business references redacted yet, provide grounding points and context, to provide further evidence related to themes drawn from the interviews.

3.4 Summary of Chapter 3 – Research Methodology

This research methodology chapter has identified the position I have relative to the research including my research philosophy. These emphasise my familiarity and association with the research, with the industry and the intricate complexity of prior experiences I have had with IMS and PD. This positions me as an interested, insider researcher in terms of the qualitative data collected.

The rationale for the research design emerges from my position as an insider researcher in the construction industry. This stance aligns with the methodology of Braun and Clark (2013) that places importance on the relationship I have to the data and the qualitative nature of the research. This qualitative methodology focuses on understanding the research context being inductive and I have a relationship to the data. This positions me as an interpretivist qualitative researcher, who understands there are multiple versions of reality when examining the data. Social interactions in a workplace do not exist in and of themselves but are dependent on the context.

Chapter three finally presents the interview process with the ethical considerations of selection for participants, the primary data of the interview and secondary data documents and observations. Anonymity and confidentiality of the data was maintained throughout. A six-step process is presented explaining equipment used, context and relationship with the participants, and the recording and subsequent transcripts collected. Codes, sub themes and themes are identified in the next, Chapter four, findings.

CHAPTER 4. FINDINGS

4.1 Introduction

This chapter four explores research data collected and how it relates to the research question (RQ1): “How does professional development in the construction workplace align with integrated management systems?”; and its two secondary research questions. The first of the secondary questions (RQ2a) is: “How do workers and business owners perceive and value the need for integrated management systems within their workplace?” The second (RQ2b) asks: “How can the intricacies of integrated management systems and professional development be best designed for the worker and the business owner?”

Five themes with sub-themes were identified as patterns emerging from the data as a result of applying thematic analysis. These were: Learning in the workplace about Integrated Management Systems (IMS) is context specific; IMS provides structure for business and informs professional development (PD); Successful implementation of IMS and PD depends on relationships; IMS and PD create a sense of purpose; and IMS and PD drive improvement. This chapter will present findings related to each of the themes, along with their sub-themes. Supplementary data collected by me, in the form of documentation and photographs were used, where available, to support or problematise findings for each of the themes. The conclusion summarises findings from this chapter and includes a thematic synthesis, with the next, chapter five, discussion.

4.2 Overview of Findings

Five themes were identified as a result of analysing the transcript data of recorded interviews. These are listed, and unpacked in greater detail, in Table 1 below. The process to arrive to these five themes from the interviews and transcripts through to themes and sub-themes listed Table 1 took a few steps.

1. The first step was the use of NVivo software to generate a word cloud of the top 50 words to use as an initial focal point for the analysis of transcripts.
2. The next step was a close reading of each transcript. This included creating summaries of individual transcripts, before undertaking any coding for eventual themes.
3. Transcripts were then formally coded, and tentative initial themes identified from across transcripts.
4. Once finished, these were again re-analysed to formally identify the key themes and sub-themes as listed in Table 1.

To undertake the data analysis, two techniques were used to identify coding and themes. The first technique was carried out using software called Liquid Text. All transcripts were loaded into the LiquidText software as PDF's. These transcripts were then coded by key sentences, and paragraphs were highlighted then summarised, with further coded notations made against the transcripts within the software. These coded notations were linked back to the text in the PDFs and further grouped based upon the themes arising from the codes. The annotated notes and the sentences/paragraphs highlighted were then converted to PDFs. Samples are presented below in Figure 1.

A second method used printed versions of the transcripts, which were notated manually. In the first step, a table was created, organising the summarised notations and coding for each participant against the primary research question and the two secondary questions. The second step looked at whole group of notations and codes within the table and identified preliminary themes emerging from that data. The third step refined and reduced the number of themes and identified sub-themes for each theme.

Figure 1 shows examples of documents created in the two methods used with this Thematic Analysis.

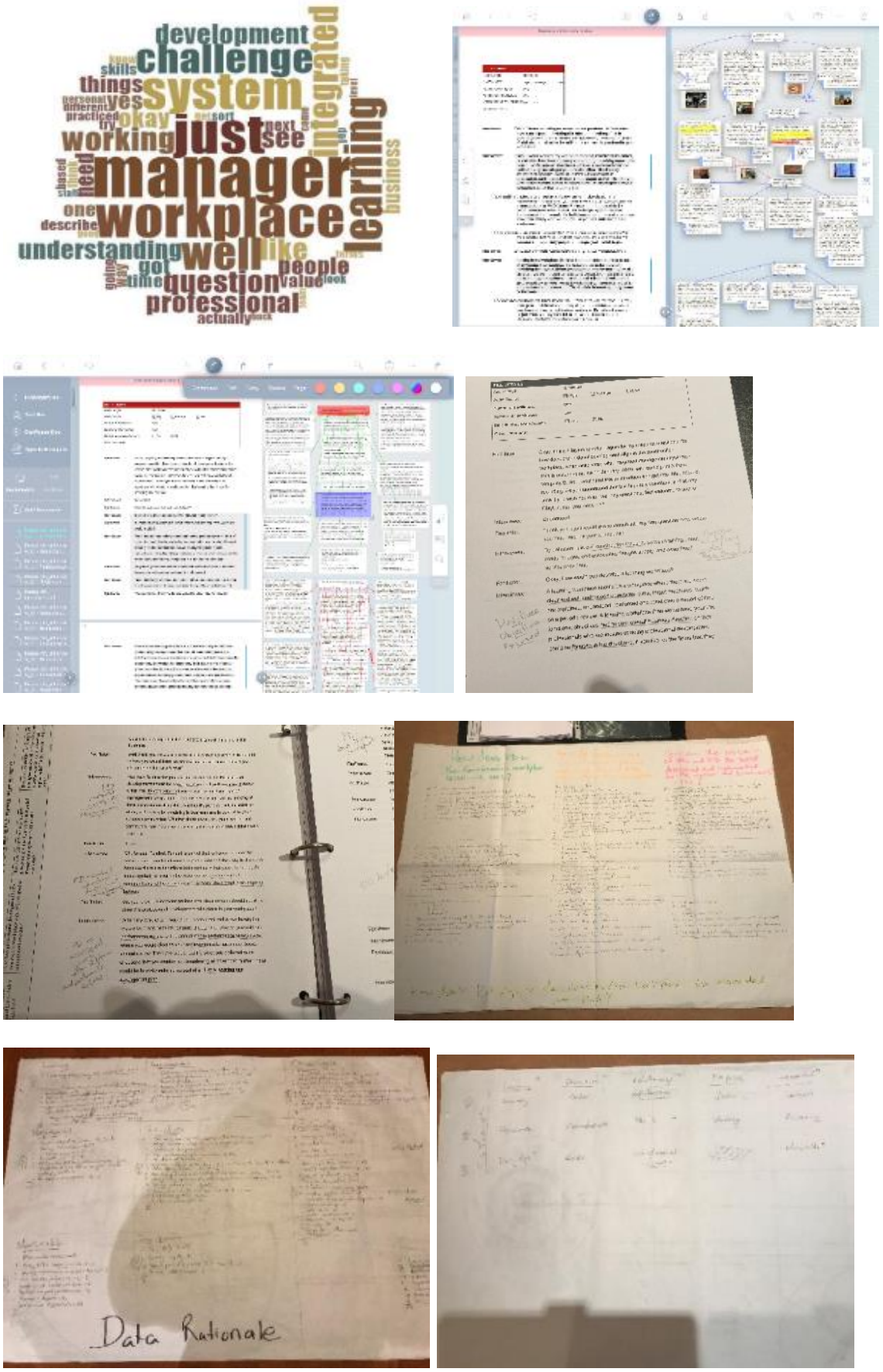

Figure 1. Sample of images captured to demonstrate methodological process.

Secondary, supplemental data was gathered from the participant workplaces. This included lists of documents sighted, and photos gathered in a report format for each participant workplace. These listed documents and photos were then used as supplementary evidence to corroborate the themes identified in Table 1.

Table 1 presents five themes with sub-themes that emerged as a result of applying thematic analysis. The themes of learning, structure, relationships, purpose, and improvement are shown in Table 1 with their associated sub-themes.

Table 1. Themes and sub-themes.

	Learning	**Structure**	**Relationships**	**Purpose**	**Improvement**
Theme	Learning in workplace about IMS is *context specific.*	IMS provides *structure* for the business and informs PD.	Successful implementation of IMS and PD depends on *relationships*.	IMS and PD create a sense of *purpose.*	IMS and PD drive *improvement.*
Sub-theme	*Degrees of formality*	*Order*	*Communication*	*Vision*	*Continual Improvement*
	Place and time	*Connectedness*	*Attributes and skills*	*Mission*	*Measured improvement*
	Daily Operations	*Roles*	*Collaboration*		*Achieving improvement*

4.3 Theme: Learning

Learning in the workplace about IMS is context specific. The first theme focuses on the aspects of IMS-related learning that affect its practice at the construction workplace. Participant interview responses indicated that learning in the workplace about IMS is context specific. Aspects related to this context point to three sub-themes, namely that: One, learning about IMS has differing levels of formality; two learning is situational, relational, and ongoing; and finally learning occurs as part of daily business operations.

4.3.1 Levels of Formality

This sub-theme deals with the varying degrees of formality in which participants experienced workplace learning related to IMS. Participants described how and where

learning takes place and the different levels of formality within their workplace. These levels varied from the informal; mix of formal and informal; semi-formal; and that of highly structured, formal learning.

Informal learning refers to incidental, unplanned learning opportunities**.** For participants, some aspects of workplace learning about IMS were informal. This was reflected in the responses of participants H, I, J, M, N, O. For example, one participant perceived, "… it [workplace learning about IMS] to be an organic experience…" (Participant E).

Semi-formal learning refers to scheduled, day-to-day, professional events and processes that provided an opportunity for learning**.** Participant F referred to semi-formal learning as, "Using the design review as an opportunity to also learn," (Participant F). Semi-formal learning took place at the construction milestone: for example, the design review, where a check is performed and recorded. Semi-formal learning occurred when a mistake or some anomaly was addressed: for example, when the review did not align to certain design parameters or, to client specifications. Hence, semi-formal learning occurred as part of solving the mistake or problem related to a milestone, and to inform others so that this did not recur or occur elsewhere.

Semi-formal learning also took place as part of apprenticeships and cadetships (Participants E, F, I, J, K, M and N), as in this example:

> I had no real qualification … they educate and train me in a completely different skillset so that I could be utilised throughout the business in different ways (Participant E).

Others (participants M and N) explained that being coached and mentored took place with technical specialists for certain projects and as part of the delivery of trades, for

example, yet not limited to carpenter, electricians, and plumbers. This was where guidance about the construction of a building was provided by more experienced and qualified functional leaders to team members. Examples of the types of functional leaders acting as mentors included the construction manager, project engineers and managers, and supervisors. This semi-formal learning was explained as follows: "The project leader is responsible for managing their staff and in doing that in helping them to learn," (Participant F). This type of instruction was also experienced by another participant:

> To be honest, I'd like to think I give as much as I know to others especially if someone new comes on board … others share their learnings just from their experience … [researcher] so you're putting yourself in that peer mentoring way … [Participant] yep (Participant M).

Finally, semi-formal learning took place using checklists, in inductions and in meetings, to inform the worker. For example, "A mature senior manager instructs workers in the workplace … through toolbox talks and through our management meetings" (Participant K).

Formal learning refers to highly structured, sometimes externally facilitated workplace learning opportunities. Two participants also experienced formal workplace learning, as in this first example:

> We either bring agencies in to do group session (sic) so if it's a manager's course that we might be running then we would be bringing that organisation in to do face-to-face training. Alternatively, we would sign up to an online system and the employee would conduct that training themselves in work time (Participant F).

Participant F further described professional development, "As formal learning," where external people come to the workplace to educate and to share information about project

delivery in a formal way. The second participant explained, “We do have assistance from other companies and agencies to assist us with that” (Participant G).

For others (participants A, B, C, F), workplace learning was a mixture of formal and informal. As one participant explained:

> We have professional development discussions with people on an annual basis, that’s a format…but also, there’s catch ups and informal sort of chats about how things are going in the medium term (Participant C).

Another mix of formal and informal occurring at a workplace that was experienced by Participant C who experienced PD that had the formal component as part of reviewing key performance indicators in their annual performance interviews. However, this shifted to an informal approach, where PD becomes “Quite easily a walk around,” where a catch-up at each other’s desk every couple of hours during the day may occur.

4.3.2 Place and Time

In this sub-theme participants emphasised three conditions that particularly related to their PD, where learning took place in multiple locations and over time. An example of multi-locational learning described by one participant is where learning occurred across a series of meetings at differing locations, for example, toolbox meetings and inductions that occurred on multiple sites:

> [The] supervisor’s role is to get out amongst the troops to make sure that what’s been done has been done correctly primarily from a safety perspective … training is done on a site-by-site basis (Participant H).

Participant H related their experience of a multi-locational workplace with several offices scattered across the eastern seaboard of Australia. Another participant N experienced learning about IMS in office management meetings and site management meetings, again in

multiple locations, and carried out by particular individuals on different sites: “We rely on our project managers, and not only our project managers, but our foreman – our general foremen, our sub-foremen and leading hands-on sites” (Participant N).

Another participant described PD about IMS as a process that did not occur as discrete events but rather accumulated over time:

> We’ve taken employees that have journeyed through the years of business and at each level of a new role they take on different challenges. So, the higher they go, they have to be a bit more professional in who they deal with …they need to really develop their skills to handle them for those type of situations … A worker would see their supervising or, their leading hand and bring that challenge or problem to them. If that particular leading hand or supervisor cannot fix the issue quickly or come up with a solution to the problem that would be escalated up the chain of command to the next level of production manager and so forth (Participant O).

When participants were asked the series of questions to describe their workplace, workplace learning and professional development, their answers emphasised the effect of the longevity of career-long learning, for example, “We’ve been in practice for 25 years,” (Participant F). An example emphasising the importance of PD as part of career-long learning over time:

> A lot of very experienced people here who have been with the company over 10 years going all the way up to 30+ years and a lot of people in positions where they’ve worked from the ground level all the way to senior management, including our own director who inherited the company from his father (Participant I).

4.3.3 Daily Activities

The final sub-theme that contributes to the theme of learning in the workplace asserts that learning takes place regularly, on a daily basis, and is a necessary part of business operations. Workers experienced the practice of IMS and PD as part of their daily routine. Participants explained that PD about IMS occurred with different levels of frequency, activity types, attitudes, and habits. In the data, there is a focus on daily operations (Participants A, C, D, H, I, and J). Participants used phrases such as, “Learning every day,” (Participant A) and “Done daily,” (Participants C and J). Participants spoke of IMS and PD as normal parts of business, where they reviewed their performance with, “Day to day checklists,” (Participant D), that included daily diaries and inspections relating to what was learnt on site. Another participant related learning to daily operations by saying, “It is the active involvement,” (Participant H).

4.3.4 Supplemental Evidence

Table 2 shows an overview of documentation, as secondary evidence, which was used as supplementary data to support or challenge findings from interview transcripts with the theme of learning. This table arranges the sub-themes of learning, alongside relevant participants, and referenced documents that were sighted at the participants’ places of work. The last column provides a rationale for the inclusion of the supplementary data.

Table 2. Supplemental evidence, learning theme.

Learning in workplace about IMS is context specific.	**Transcript Quotes**	**For each theme these are corroborating documents**	**Reason for corroboration and comments**
Formality	*Learning can be:* • ***Formal** F, G* • ***Semiformal** A, B, C, E, F, I, J, K, M&N* • ***Informal** E, H, I, J, M, N&O*	***Formal*** *Business Manuals for example:* • *Business Integrated Management System Manual* • *ISO Compliance Handbook* • *IMS Manual* • *Business Procedures Manual* • *Safety Management System Manual* • *Quality Management System Manual* • *Environment Management System Manual* • *Specific Training Manuals that include Safe Work Methods Statements (SWMS) and work instructions/standard operating procedures* *People and Resources & Roles and responsibility (inc. Training Matrix)* ***Semiformal** Management meeting minutes, toolbox talk checklist and records.* ***Informal** email correspondence*	• *Various manuals provide evidence that learning is planned to achieve learning that responds to the IMS, for example, policies and procedures.* • *The Training Matrix records what learning has been undertaken against policies and procedures.* • *The documentation indicates there is more formal learning occurring than was identified in the interviews*
Occurrence	*Learning occurs:* • In **multiple locations**, H, N • In **relationship** with others, B, C, E, F, G, H, L, M, N&O • **Over time** F, I &O	*WHS Operational Control and Environmental Operation Controls for people to learn.* *Applicable completed checklist:* • *Action Forms and Updated Actions Register.* • *Site Safety Risk Assessment and Safe Work Method Statements (SWMS) and Checklists include the Hazard Identification & Risk Management.*	• *Operational documents show that activities that hosted learning experiences were undertaken at multiple locations.* • *Signed documents demonstrate that at the time interviewees said they were learning they were multiple people involved.* • *Various documents provide evidence that activities continue overtime,* • *While documentation shows that work takes place against all three conditions, it does not necessarily corroborate that learning has occurred. However, the actions list and registers reveal gaps in performance that initiate learning to improve subsequent activities, corroborating learning occurrence.*
Daily Operations	Learning takes place **frequently and regularly**, A, D, C, H, I&J.	*Documentation taking place* **frequently and regularly***:* • *As referenced in occurrence (cell above).* • *Emergency Evacuation Drill Form Attendance Register Completed as to the training performed.* • *Induction and training records;* • *Inspections carried out daily with entry into respective forms.* • *Site Safety Risk Assessment and Safe Work Method Statements (SWMS) carried out daily; and* • *Use of daily Diary.*	• *The drill register, and the induction and training records provide clear and dated evidence for the frequency and regularity of formal learning.* • *While the other documentation does not provide hard evidence of learning, they provide evidence of structured mechanisms that drive frequent and regular opportunity to learn and those activities have been planned, undertaken and recorded.*

Documents within the table describe processes and guidelines that provided structures for various approaches for learning: they reference a mix of formal and informal, semi-formal and formal learning opportunities. Documents also provide supplementary evidence of what has been learnt. The processes and guidelines are written in the manuals that describe the workplace management system. Manuals also contain forms and lists that are used to record

evidence that the learning processes are undertaken. Examples of these manuals from participant workplaces presented above included Business Integrated Management System Manual (Participant A), ISO Compliance Handbook (Participant B), IMS Manual (Participant C). Other participant workplaces provided separate, differently titled manuals: for example, Business Quality Manual, Environmental Manual and Safety Manual (Participant D), and so on... The theme of learning is associated with several clauses in each International Standard. In the International Standard for quality, the reference to 'Support' relates to learning. Section 7, specifically 7.1.6 Organisational knowledge, 7.2 Competence, 7.3 Awareness and 7.4 Communication are related to the act of learning. The International Standard for safety, Occupational Health and Safety (OH&S), and Environmental management systems similarly use section 7 clause 7.2 Competence, 7.3 Awareness and 7.4 Communication. This IMS integrates these Standards in such a way that targeted learning is described by the workplace manuals.

There was documentary support for each participant A through to O. where manuals describe and detail knowledge, competence, awareness, and communication relative to their workplace and what they do as a business. These manuals and related documentation particularly support elements of formal learning.

An example of this formal learning was experienced by participant A and was supported by their workplace's business manual, which described the process and then referenced the use of a qualification list, register and matrix. The business manual detailed the specific workplace training that included 5 levels of training required for their workers from the highest, being level 1 for the managing director, level 2 for senior managers, level 3 for driver operators and yard hands, level 4 for administration staff, and level 5 for supplier, subcontractors, and other external providers. Each of these levels was recorded in the

workplace's register that contained a record of training courses and qualifications achieved by each worker in the business.

Supplementary data focused on formal learning. For example, participant B's workplace had an integrated manual and an employee training matrix recording formal learning. A range of manuals provided policies and procedures with further record of achieved qualifications and vocational certificates. Examples of documents included IMS manual and their training matrix (Participant C), a quality manual, work health and safety manual, and an environmental manual including a record of a training matrix (Participant D). An example of multiple manuals (redacted documents) is provided in Figure 2.

Four third-party audit reports identified a failure to ensure training records were inconsistent and not regularly updated and retained (Participant B, G, L and O). Therefore, whilst manuals indicated that learning was supposed to happen, in some instances there was no evidence that formal learning had occurred.

Figure 2. Multiple manuals, documenting IMS policies and procedures.

Supplemental documents that supported sub-theme of formal learning came in many forms that detailed processes, forms, and documented information to demonstrate commitment to learning. Another workplace had a business practice manual and rather than a table/matrix of

qualifications, they kept a comprehensive electronic database of qualifications, competencies and certificates kept of their workers (Participant E). another had an integrated management system manual in addition to an employee handbook. it was in their employee handbook about their business that they had a video resulting in a questionnaire about what was seen, read, and understood (Participant G). They also had a master employee training matrix spreadsheet summarising workers competence and qualifications retained. There was one workplace that had separate quality, safety and environment manuals and an online training dashboard detailing worker qualifications (Participant G). The online learning management system platform had training that was required for completion. This business had learner and trainer guides, learning materials and documented results of completion of training sessions. Examples of these formal learning sessions included topics such as security, safety and understanding business processes relative to their positions. Other online learning examples included procurement, purchasing and vehicle use (Participant G). another had an integrated management systems manual and training matrix (Participant I) and so on. As the above demonstration of documented information shows, most organisations had structured processes and records for formal learning. Each of these documents listed had examples related to the businesses practice related to their process of gathering formative learning achievements.

Figure 3 provides an example of supplemental evidence for the demonstration of the sub-theme, formal learning.

[redacted] Competency Register [redacted]

Plant Competency Table

Legend

NR	C	TR
Not Required	Competent	Training Required

Workers Name	Licence Code							
	LB Front End Loader Backhoe	LBG Bridge & Gantry Crane	LE Excavator	LL Front End Loader	LR Road Roller	LS Skid Steer Loader	LZ Dozer	Telescopic Materials Handler
[redacted]	NR	NR	C	C	C	C	NR	C
	NR	NR	C	NR	NR	C	NR	NR
	C	NR	C	C	C	C	C	NR
	NR	NR	C	NR	NR	C	C	NR
	C	NR	C	NR	C	C	NR	NR
	NR	NR	C	NR	NR	C	NR	NR
	C	NR	C	NR	C	C	NR	NR
	NR	NR	C	C	C	C	C	NR
	NR	NR	C	NR	NR	C	NR	NR
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	NR	NR	C	NR	NR	C	NR	NR
	NR	NR	C	C	NR	C	NR	NR
	NR	NR	C	NR	NR	C	NR	NR
	NR	NR	C	NR	C	C	C	NR
	NR	NR	C	NR	NR	C	NR	NR
	NR	NR	NR	NR	NR	NR	NR	NR
	NR	NR	NR	NR	NR	NR	NR	NR

Figure 3. Example of a competency matrix/table.

The workplaces of each participant (Participants A to O) had similar documented information whether in a register, matrix, table, or schedule of attended courses and qualifications achieved for their workers, this corroborating documentation relates to learning in particular to the sub-theme of formal learning.

Documents also affirm the interview evidence regarding learning and, in particular the sub-theme of occurrence (that learning is multilocational and over time). Site related documents of toolbox talks/meetings, prestart and project meetings corroborated participants' reported experience of learning taking place across multiple locations and over time. That is, learning took place as part of meetings, whether administrative, operational, or management, and took place on a daily, weekly, fortnightly, monthly, quarterly, 6 monthly and/or yearly timeframe.

Across the construction and civil industry there is also the standardised document and related process called a safe work method statement (SWMS) where all workers sign and date that they had read and understood and will commit to carry work out safely and under the

document's directions. Examples of these SWMS related to excavation and truck driving (Participant A), traffic management (Participant F), scaffolding (Participant G). carpentry and joinery (Participant I), and so forth. These SWMS provide a framework for learning to occur as part of daily operations of businesses. The results of these daily operations are further recorded in daily site diaries describing what has been achieved and showing that learning occurred daily.

A redacted example of a daily prestart and daily diary is provided in Figure 4.

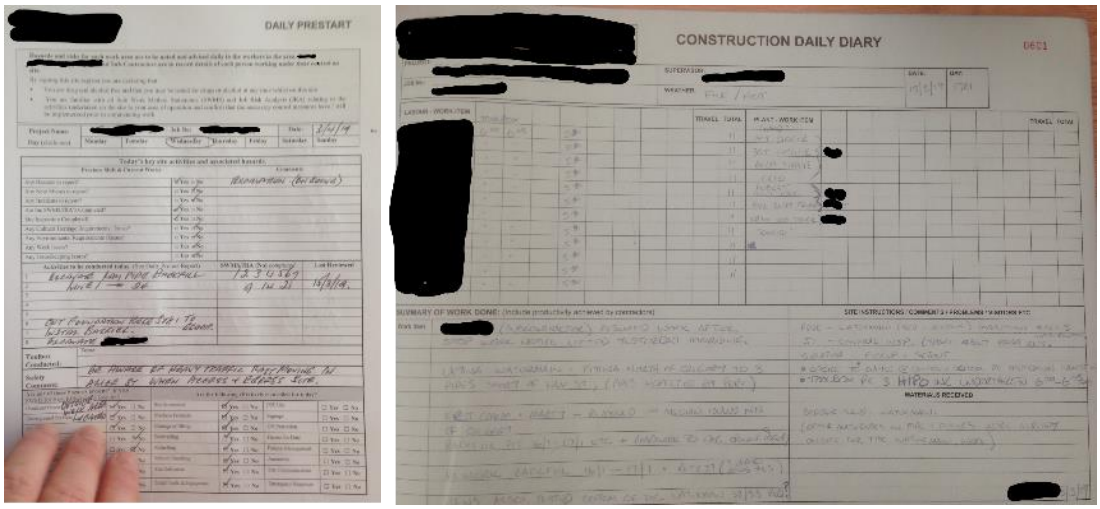


Figure 4. Example of a daily prestart and daily diary document.

In addition to the supplemental documents discussed above, photographs also provide evidence for the theme of learning and its sub-themes in various venues and locations. For the first sub-theme of learning Figure 5 depicts photos of boardroom, classroom, and computers where the sub-theme of formal learning took place.

Some locations provide the opportunity for the sub-themes of formal, informal, and semi-formal learning to take place simultaneously or at different times. These locations include workstations and office environments where structured formal learning can take place. At the computer or in the lunchroom, conversations can happen to solve problems and learn informally, and toolbox or project team gatherings can support learning in a semi-

formal way. These photos display examples of the venues where such flexible combinations of formality with learning might plausibly take place.

Related to the sub-theme of occurrence, Figure 5 photographs depict various situations in which learning may occur, including the multilocational nature of that learning. These photographs also provide a possible location for the various phases and timing of learning episodes.

In terms of daily operational learning as the final sub-theme for learning, these photos in Figure 5 further indicate how various sites may change when tasks are undertaken daily.

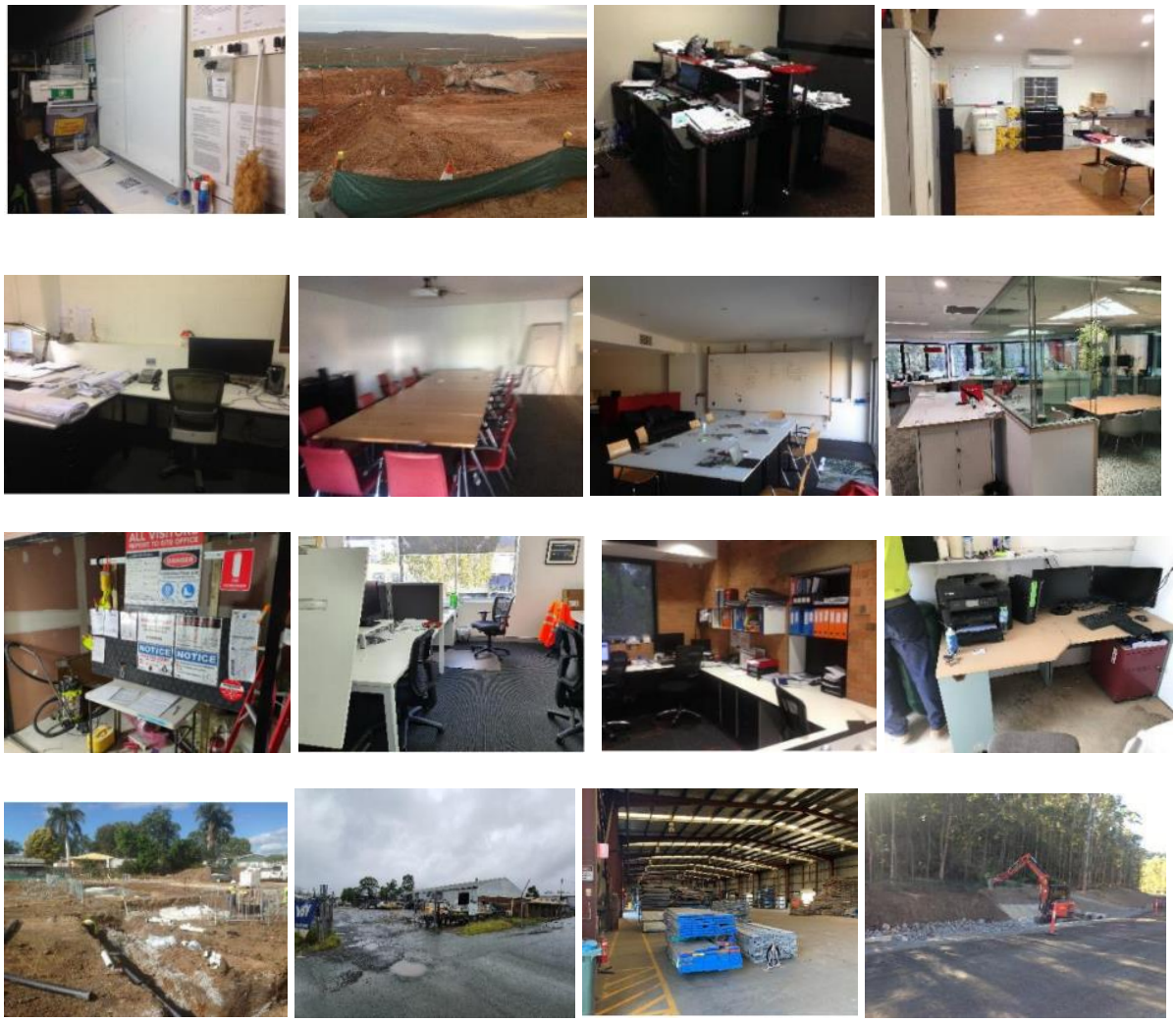


Figure 5. Examples of different locations of learning that can take place.

4.3.5 Summary

In summary when workers were asked about IMS and PD, their responses emphasised the theme of learning is based on context, with three sub-themes namely formality, occurrence, and daily operations. The first sub-theme of learning, formality, suggests that learning occurred in an informal, formal, semi-formal, or a combination of formal and informal ways. The second sub-theme, occurrence, emphasised two conditions associated with learning; that it occurs at multiple locations, and that learning to deliver IMS occurs over time. In the third and final sub-theme, daily operations, participants stated that IMS and PD occurs daily as part of business operations. Supplementary evidence provided further context and support for the theme of learning and its sub-themes.

4.4 Theme: Structure

The second theme related to participants' experience that IMS provided structure for the business, and for business systems that inform PD. Three sub-themes were identified within the overall theme of structure: Firstly, IMS and PD create order from complexity; Secondly, IMS and PD drive connectedness; and, fourthly, that IMS has the impact of clarifying business roles. Roles as they are expressed in this third sub-theme were interpreted by participants as defined roles that have clear authority and responsibilities that are known and communicated within the business.

4.4.1 Order from Complexity

This sub-theme relates to participant perceptions that IMS and related PD impose a level of order within complexity and disorder. One participant responded that IMS and its related PD "[Bring] consistency where there is no longer chaos," (Participant B). Another explained, "It is not cumbersome but brings structure," (Participants C and J). Another example responded that IMS and PD, "Systemises [sic] business," (Participant G). For others,

IMS and PD provided rules, guidelines, and parameters to operate within (Participants D, E, I, and J). As one participant explained:

> … it's more of a checklist approach to be perfectly honest, yeah. At this point it's just we're trying to meet these parameters … created from quality control (Participant D).

This systematic approach in providing order explained further:

> I guess in my understanding, not just throughout this conversation, but from how it's been utilised in the workplace and continuing to try and align my ideas, through processes and business operation alongside it that, effectively, it's a set of rules…regulations that we need to set ourselves. It's a standard that need to continue to operate in to maintain the level of quality that we always look to achieve (Participant E).

One participant, however, order and Standards did not equate to integration:

> We have a, we like to call it integrated management system in the sense of that we integrate aspects like safety, quality, and environment. I don't think we're truly integrated. We maintain separate pieces for each component, but it's all structured in a written way, is made available to every employee through the internet, electronically, for them to have easy access to it. It's revised and referred to often enough in different circumstances…What guidance are we expected to follow, what standard should we be abiding to? It allows consistency of performance regardless of what site that you're in … if everybody refers to the same set of guidelines, then it should be all consistent (Participant J).

Yet, for other participants, IMS and PD created opportunities for connection and integration, providing order.

4.4.2 Connectedness

In this sub-theme participants discussed the role of IMS and PD in ensuring different parts of the business system are connected, providing an integrated operational system. Some participants argued that "Not having an IMS and PD becomes *ad-hoc* and disconnected" (Participant B). That IMS and PD "interlocks everything … that belongs to this as well and *vice-versa*. They support each other" (Participant J). One participant explained that for connectedness to be achieved,

> I'll say, keep the system flexible, simple, as simple and practical as possible. Talk about it often with everyone so that they don't feel that it's something out of reach. Make it really useable, practical, friendly and review it often (Participant J).

This level of connectedness, whether in the process or via people, provided the sense that IMS and PD operate together, ensuring that Standards "can't stand alone; they've got to have that support. I don't believe they can stand alone if they have to." (Participant B). Another said, "not working in silos" (Participant J). This emphasises the sub-them that IMS and PD brings connectedness.

4.4.3 Roles and Reporting Lines

This sub-theme of structure focusses on the importance of roles within the business being clear and understood to successfully enact IMS and related PD. Participants perceived that dealing with IMS required defined roles, that presented clarity as to who had the authority and who was responsible. An example was used with the phrase that when challenges occur there is a requirement for, "Escalating challenges up the line…" (Participant D). For others the reverse was true. When a challenge occurred, their response was to: "Push it down the line" (Participants H, K, N and O). Participants used other expressions related to

roles and reporting lines, such as, “Hierarchy” and “Chain of command,” (Participants E, K, L and O).

Other participants noted that in carrying out IMS related activities, “Roles become clearer,” (Participants D, E, and I). IMS and related PD required details and communication about roles, which gave structure to how people interacted and reported to one another. When asked, “what ideally would you want to learn from and IMS practice system at your workplace”, One participant responded:

> Yeah, well I’d like to see that each person within my organisation has the same response as I just said to you - that they can see the value and merit in it as well, that it’s improved their own way and job description, and their own role and it’s become a little bit more structured (Participant D).

Participants indicated that understanding one’s role and responsibility provided a scaffold for quality processes as well as appropriate interactions between employees. IMS drove the role definition and defined roles further facilitated better IMS. When asked about how issues are addressed, one participant explained how clarity about roles, provided by the IMS, gave a clear path for communication and problem solving:

> Well I guess it stems from the construction site, where protocol is that it’s reported back through various people – such as it there’s a problem on the site related to construction, then it comes back through the foreman, to the project manager and obviously then it’s addressed with the various consultant’s involved, whether it be a structural problem or whether it be a hydraulic problem or an electrical problem, or simple architectural problem … it goes back through the channels of responsibility and whether it be building or whether it be one of the other services trades, and we go back through the various consultants, corrections are made along the way (Participant N).

In general, participants suggested that the IMS requirements assisted them in gaining clarity as to who to talk with to resolve certain problems. IMS also helped them to know others' roles and the structure of the business. That provided them with clarity to determine appropriate PD that enabled them to fulfil their role in the context of the larger team and the business.

Clearly defined organisational roles and reporting structures enable companies to solve construction problems. Having the necessary qualified persons working and communicating through the appropriate channels is important to solve problems. As detailed in this sub-theme, IMS in the workplace clarified both the necessary roles to perform and the IMS provided the structure to better inform others as to their responsibilities, as indicated in this interchange:

> *Interviewer*: What would you actually want to learn about IMS practice at your workplace?
>
> *Participant*: Understanding roles is explained by [the IMS], …can see the value and merit in it [IMS], as well that it's improved their own way and job description, and their own role. It becomes a little bit more structured (Participant D).

4.4.4 Supplementary Evidence

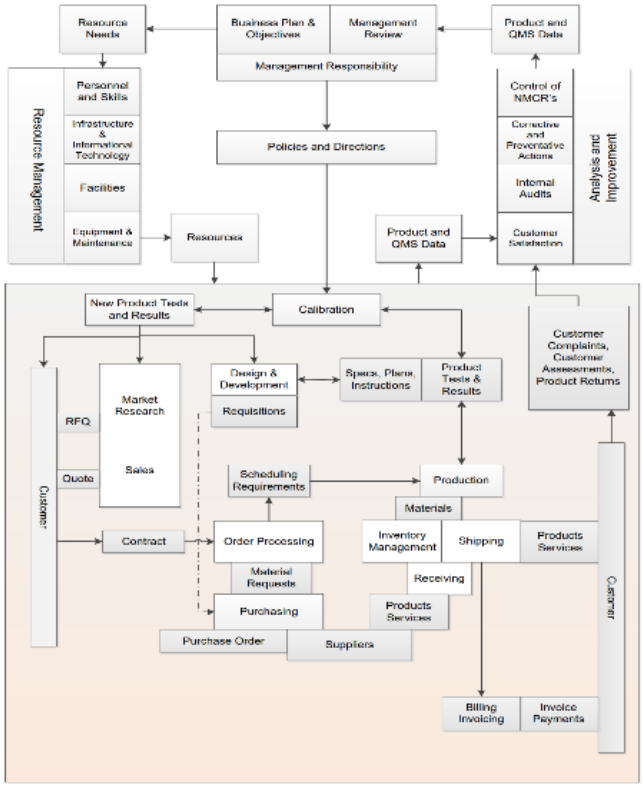
Table 3 shows an overview of documentation, as supplementary evidence, that complements findings from interview transcripts with the theme of structure. This table provides a range of documentary evidence that further supports the sub-themes of order, connectedness, and roles.

Table 3. Supplementary evidence, structure theme.

IMS provides structure for the business and informs PD.	Transcript Quotes	For each theme these are corroborating documents	Reason for corroboration and comments
Order	IMS and PD create order from complexity: B, C, D, E, I, J, G	*The following Manuals for example:* • *Business Integrated Management System Manuals* • *Business Procedures Manual* • *Safety Management System Manual* • *Quality Management System Manual* • *Environment Management System Manual* • *Business Position Description Manual* • *Recruitment Manual*	• *Various manuals provide evidence that order informs the business. It provides steps and systemises clear processes for the business.* • *The documentation indicates order identified in the interviews*
Connectedness	IMS and PD drive connectedness: • *B&J*	• *Business Integrated Management System with the Organisational Chart, Structure and Responsibility* • *Document Control Register* • *Document Management System for storage of records - Spreadsheet of Master Documents and Archive Register* • *Site Safety Risk Assessment and Safe Work Method Statements (SWMS)* • *Project Plans and Project Collection Checklists*	• *Documents, as in the above with manuals, connect processes.* • *Documented management such as registers demonstrate that at the time interviewees connectedness with processes and people.* • *Various documents provide evidence that activities are connected with each other.* • *While documentation shows that work is connected, it corroborates that structure is present.*
Roles	IMS good practice requires defined roles and reporting lines: D, E, H, I, K, L, N, O.	• *Business Procedures Manual with the Organisational Chart* • *Position Description Manual // That's where the positions explain the roles and duties for each located on the organisation chart.* • *Recruitment Manual - As part of the HR recruitment process MS Excel Spreadsheets are utilised for the comparing of competencies against those that are applying for the role, for example samples reviewed of Application Summary Spreadsheets* • *People and Resources & Roles and responsibility (inc. Training Matrix)* • *Business Registration and Matrix // Worksheet - Authority & Responsibilities*	• *The various manuals especially referencing the organisation chart provides structure in understanding roles and their relationships with others,* • *Further documentation provides details as to roles, responsibility and levels of authority within the business that corroborates reporting lines and roles defined for workers.*

As outlined in the Learning theme, each manual provided the context of the business and provided a representation of the interconnectedness of its structure, which addressed key clauses of the International Standards (Clauses of 5.3). At each individual participant's workplace, they had management systems manuals that described the processes for ensuring that systems and structures were in place. This secondary documented evidence from

manuals in participant workplaces aligned with the sub-theme of order. These examples informed workers of the steps to be followed by the business. For example, the Business Procedure Manual for participant A, had a Microsoft Excel Spreadsheet with multiple worksheets, detailing procedures and collecting information for each phase of their work that provided a guide, that proposed an order to inform their business structure. Another example that informed the sub-theme of order was a process map, included as an example in Figure 6 (Participant B). Other examples included: worded procedures where instructions are provided for employees to follow (Participant C, D, F, J, L & M); process tables detailing who is responsible for what, included in Figure 6 (Participant E & N); and flow charts that provides information so that order could be followed (Participant G, I, K & O). These documents provide supplementary evidence for the sub-theme of Order, in participant workplaces as these document structure in terms of order whether in a flowchart of events or that through a combination of roles and responsibilities in a tabular form.



[redacted]

Leadership (HSEQ) Responsibility and Authority Matrix

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Managing Director	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x
Manager	x		x	x	x	x	x	x	x	x	x	x	x		x		x	x
HSEQ Coordinator	x		x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
Supervisors	x		x	x		x	x	x	x	x	x	x	x		x		x	x

Legend

Ref #	Description
1	Taking accountability for the effectiveness of HSEQ
2	Ensuring that policies and objectives are established for HSEQ and are compatible with context and strategic direction
3	Ensuring the integration of HSEQ requirements into all relevant business processes
4	Promoting the use of the process approach and risk based thinking
5	Ensuring that the resources needed for HSEQ are available
6	Communication the importance of effective HSEQ and of conforming to the requirements of HSEQ
7	Ensuring that HSEQ achieves its intended results
8	Engaging, directing and supporting persons to contribute to the effectiveness of HSEQ
9	Promoting continual improvement
10	Supporting other relevant management roles to demonstrate their leadership as it applies to their area of responsibility
11	Ensuring that customer and applicable statutory and regulatory requirements are determined, understood and consistently met
12	Ensuring the risks and opportunities that can affect conformity of products and services and the ability to enhance customer satisfaction are determined and addressed
13	Ensuring the focus on enhancing customer satisfaction is maintained
14	Ensuring that HSEQ conforms with ISO 9001, ISO 14001, AS/NZS 4801 and OHSAS 18001
15	Ensuring that the processes are delivering their intended outputs
16	Reporting on the performance of HSEQ, including safety and environmental performance and on opportunities for improvement to top management
17	Ensuring the promotion of customer focus
18	Ensuring that the integrity of HSEQ is maintained when changes are planned and implemented

Figure 6. Examples of process map (flow chart) and process tables.

The listed manuals in Table 3 detailed organisation charts, whether functional or detailing roles within the business. For example, Figure 7 has two examples of organisation charts (redacted for confidentiality purposes) that represented the organisational structure of the business and detailed the titles of roles for persons to understand how each related to one another.

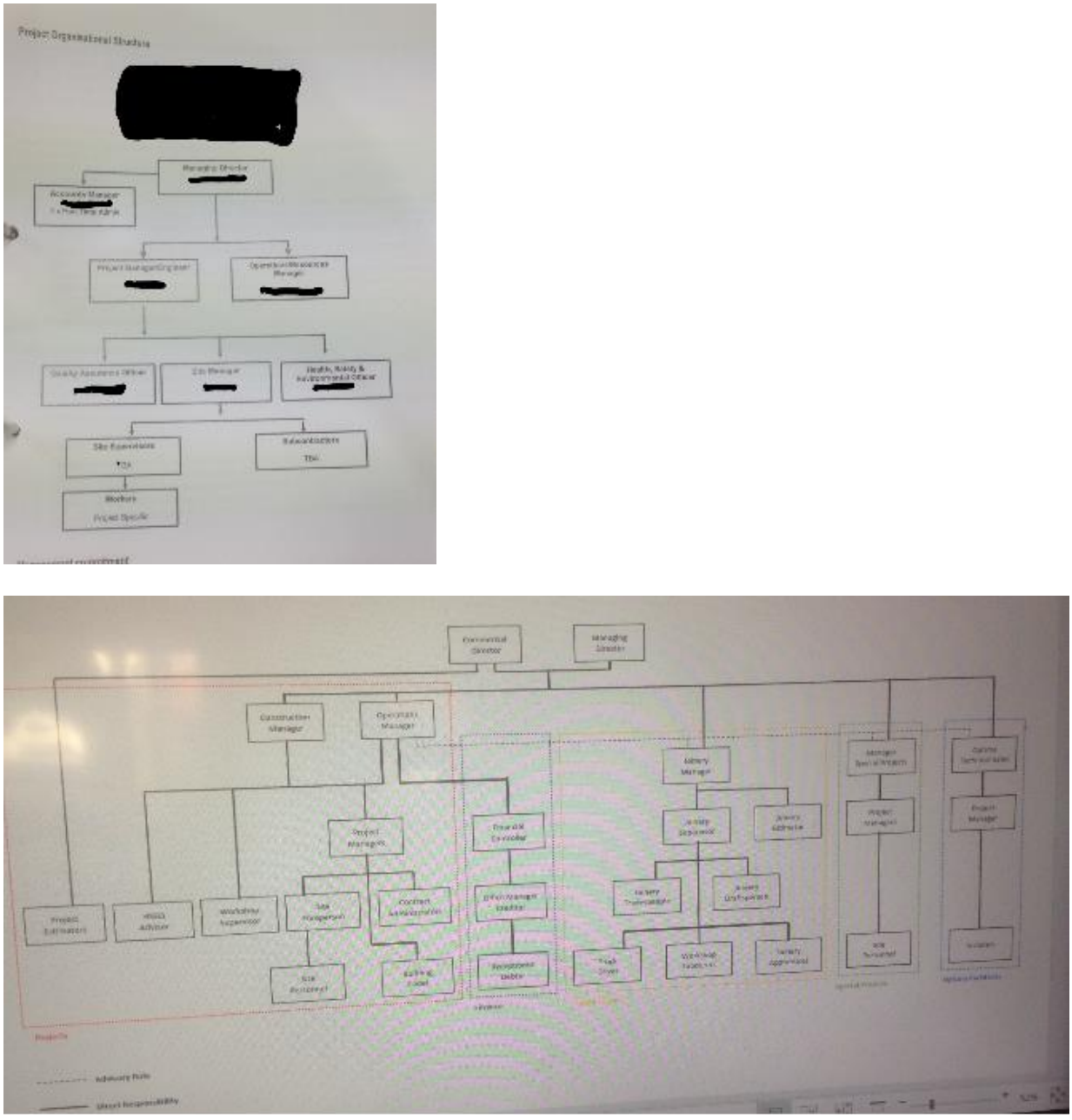


Figure 7. Two examples of organisational charts.

As in the theme of learning, to know what one must do at the place of work, training matrices/tables were kept for the qualifications and competencies of workers. Yet, in addition to these qualifications and competencies, workers' performance and roles were informed through processes, organisational charts, and individual position descriptions (job descriptions). These position descriptions detailed roles, responsibilities and authorities which were provided to individual workers upon their onboarding and induction into the organisation that corroborates the sub-theme of roles within the theme of structure.

In Figure 5, photos from various workplaces were taken, which align with the theme of Structure. Photographs of business infrastructure provided a visual representation of operational features of participant businesses. It provided some context for the theme of Structure, which according to participants, occurred at various areas and functional levels of responsibility. Photos showed the boardroom where management meet, the classroom, individual workstations, images of the field and project sites. All these locations are places where PD on IMS can take place.

4.4.5 Summary

In summary, participants perceived that the relationship between IMS and PD depends on structures that shape their work. For example, documented information outlines accountabilities that are aligned with employees' designated roles. This theme, Structure, included sub-themes of Order, Connectedness, and Roles. Many participants referred to aspects of structure in ways that illustrated how IMS, and related PD interact with each other in the construction workplace. Supplementary evidence also provided further contextualisation and support for this theme.

4.5 Theme: Relationships

Relationships Participant discussion indicated that the success of IMS and PD depends on relationships and that IMS and PD also create the necessity for relationships in

the workplace. Within this theme, three sub-themes emerged. The first sub-theme is communication within relationships. The next sub-theme refers to enabling attributes and skills identified by participants, which are required for these relationships to occur. The last sub-theme is the need for collaboration in the workplace to deliver IMS.

4.5.1 Communication is Important

Communication is important for IMS and learning in the workplace. Participants see communication and relationships as critical. The interviewer asked, "what lessons can be learnt from these workplace challenges?" One participant responded:

> Oh, it's communication … so everyone hears the same message to start with. Bang! Then you can isolate other groups and sort of explain to them how it will fit within their roles and all the rest of it. But as long as everyone hears the same message first, and that resistance is not acceptable, that this needs to be incorporated in it and let's move forward with it. Any other questions? (Participant D).

The same participant sees communication as key to solving problems:

> Well, we identify exactly what the problem is. We – yeah, so that can be a thing, but sometimes the communication from the client to my staff member and then how it's relayed to me could be quite different. So, identifying exactly what the problem is and having that communicated is the key. Then we are a solutions-based company, so it's trying to come up with a solution for the customer quite quickly, acknowledging that he has had some issues of challenges and not shifting blame to anything else. Just really listening to hear exactly what everything is (Participant D).

Another participant also identified the need for listening as a form of support for work colleagues:

> So, we have a bit of a challenge at the moment around resourcing and that has led to one staff member feeling quite stressed. So, it's a lot about listening because

> sometimes people just need to express that they are concerned rather than needing anybody to solve a problem for them. But actually, just listen to that. It's a very collegiate [sic] office so in the end somebody else will say that's okay I'll come over the weekend and I'll assist and I'm confident we will pull together and get it done. Then we have to go back and understand exactly why it happened in the first place. (Interviewer) Yeah, so what you're saying communication is essential. (Participant) Absolutely! (Participant F).

Participants also believed that IMS and related PD create the opportunity to share ideas and information. For example, by an organisational leader "coming to a Staff meeting to make sure that everybody understands," (Participant F). One participant explained the particular importance of communication from organisational leaders:

> It's probably just reassuring them [workers] that we are on this journey. That the upper management do learn, passing it through the line managers back into the team. So, communication is probably the key there and through obviously multiple communication outlets there, via email, noticeboards, everything like that, and showing them the importance of combining the whole integrated management system (Participant O).

4.5.2 Attributes and Skills

Attributes and skills enable IMS implementation and workplace learning. Participants reported that relationships do not just happen, but those specific skills are needed to support them, especially for teamwork. Communication (Participants E, L and O) was an important enabler of relationships. One participant described a set of specific skills to be acquired and mastered. "I need to vocalise concepts, I need to hear them, I quite literally need to hear them from start to finish to conceptualise them" (Participant E). Another participant emphasised the skill of asking questions including the need to be confident and not to be afraid to ask

questions (Participant E). Participants also highlighted basic communication skills from the level of reading and writing, being able to “listen and ask” through to the need to “negotiate” (Participant F, G, M and O).

In addition to communication skills, Participants emphasised a range of other, higher order and affective skills:

> I think you’d need – what do they call it – research skills; being able to formulate a set of questions to check legitimacy ... I guess it’s critical thinking... the skills to formulate strong questions and then I guess people skills as well. Because there’s a right and wrong way to ask a question – not even just asking a question but even approaching an issue. You could come across as like a pretty confrontational way. Or you can approach it in a way that drives development and improvement. That could simply come down to the tone of your voice you use or the words you use and the questions you ask which then links back to the construction of critical questions (Participant L).

Another participant (Participant O) perceived that there was a requirement to problem-solve as part of working in a team:

> But, at the end of the day, we want … them to actually be better problem-solving, or their skills they learn each day (Participant O).

A final participant noted the need for “life skills” in order to learn with others in a workplace (Participant G). Collaboration was a particular enabling attribute mentioned by participants.

4.5.3 Collaboration

There is the need for collaboration at the workplace when dealing with IMS and PD According to participants, relationships are supported by collaboration and teamwork activities that are inclusive and, respectful. Collaboration was mentioned frequently by participants with direct connections made between collaboration, IMS and related PD in the

workplace. Participant references to this idea included the concept of a "powerful team" (Participant A and O), whereas other participants focused on IMS and PD activities, which "include everyone," (Participants B, G and I). Some argued that IMS requires relationships where individuals cannot act alone and where "no silos occur," (Participant B). One participant explains the benefits of collaboration:

> Knowing quite well that everything - there could be certain issues along the way, but a collaborative approach with the team that we've got, we usually come up with a solution (Participant O).

For many participants, IMS brings the ability to manage staff, have staff meetings, work together, network and involve workers (Participants A, E, H, I, J, K, M, N and O). One participant explained:

> I would go to her, and we would try and hash out and flesh out the ideas and discuss them so that I can get varied opinions to make sure that my understanding is a little bit more consolidated and well-rounded (Participant E).

Another noted where teamwork and further collaboration occur:

> The need for, I guess, sort of focused toolbox talks and stuff like that, where the safety department or the quality department can put together a story to go out to the troops (Participant H).

Finally, two further quotes provide an indication where the toolbox talks, and the like provide the basis of interaction of the workers to function as teams so to collaborate to undertake the task at hand:

> Sometimes they talk about an integrated system through our toolbox talks and when they just have pre-starts and things like that. They do sometimes go through checklists and things like that to make sure that everything's going to be covered and we've got everything that's required (Participant K).

> I think mainly we rely on our management meetings, which we hold on to a regular basis. Obviously, there are emergency type meetings that arise from time to time because of particular problems that might arise on any one worksite (Participant N).

Another participant had this to say about the team dynamic:

> What lessons have been learnt from having and IMS? A collaborative approach. With the team we can usually come up with a solution that does prevent these things from happening again (Participant O).

According to participants, collaboration brings workers together to help, seek ideas and learn from each other (Participants C, I and M). It creates "buy-in from others," (Participants E and I). IMS and PD promotes, "Partnering and accepting other opinions," (Participant E). It was said that collaboration enables others to be included and involved, emphasising it is about "empowering others," (Participant M).

Many participants (B, E, F, G, H, N and O) also focused on the way that learning about IMS is facilitated through shared experiences, such as peer mentoring and peer learning. As one participant explained:

> Sharing knowledge when there's information that comes through whether … a lot of sharing with staff that they've discovered something that they think somebody else would be interested in," (Participant E).

Another explained that "A lot of the learning is on the job particularly for the more junior staff who are learning in a more mentor/mentee sort of relationship," (Participant F). Others (Participants C, L and M) describe learning in workplace as a part of their relationships, and something that is embedded in "catch ups and informal sort of chats," (Participant C). Peer-mentoring and learning is provided by way of feedback, for example, "others share their learnings just from their experience with the clients we visit," (Participant M). When asked about dealing with workplace challenges in implementing IMS, one participant responded:

> I would think reach out. Don't try to do it alone. Try and get other people involved that have had similar issues or concerns with those IMSs and is a benefit in the long run. It may feel that it's a lot of work at the time and you're trying to get it up and running. … I think that the main lesson is don't try to solve the problem yourself. Use your team, get involved obviously and do suggest changes (Participant O).

4.5.4 Supplementary Evidence

Table 4 shows an overview of documentation, as secondary evidence, that corroborates and supports findings from interview transcripts with the theme of relationships. This table provides a range of documentary evidence that details the sub-themes of communication, attributes and skills, and collaboration.

Table 4. Supplementary evidence, relationship theme.

Successful implementation of IMS and PD depends on relationships.	**Transcript Quotes**	**For each theme these are corroborating documents**	**Reason for corroboration and comments**
Communication	Communication is important for IMS and learning in the workplace: D, F&O	*The following Manuals for example:* • *Business Integrated Management System Manuals* • *Business Procedures Manual* • *Safety Management System Manual* • *Quality Management System Manual* • *Environment Management System Manual* • *Business Position Description Manual* • *Recruitment Manual* *Meetings for example yet not limited to Toolbox meetings and Job Meetings.* *Management Review Procedure when taking Management Meeting notes* • *Communications measure that are appropriate to the nature, context and content of the relevant issue and will be achieved through management led communications, toolbox meetings, face-to-face discussions, e-mail systems, notice boards, signage and audio-visual media.* • *Whiteboard use* • *Request from Customer Subcontractor's Statement Quote Purchase Order* • *Typical Contracts exist for various periods.* • *The review of customer complaints and satisfaction* • *Customer satisfaction feedback*	• *Various manuals provide evidence that communication is to occur, methods, and whether it is recorded.* • *The documentation indicates and corroborates that communication occurs as identified in the interviews*
Attributes and skills	Attributes and skills enable IMS implementation and workplace learning: E, F, G, L, M, O	• *Site Safety Risk Assessment and Safe Work Method Statements (SWMS)* • *Various Manuals as detailed above.* • *Position Description Manual* • *Recruitment Manual - As part of the HR recruitment process MS Excel Spreadsheets are utilised for the comparing of competencies against those that are applying for the role, for example samples reviewed of Application Summary Spreadsheets* • *People and Resources & Roles and responsibility (inc. Training Matrix) Business Registration and Matrix // Worksheet - Authority & Responsibilities*	• *Documents, as in the above with manuals, connect processes with the attributes and roles required to undertake activities.* • *Documented management such as recruitment requirements, position descriptions demonstrate that at the time interviewees connectedness with attributes and skills needed to perform a task.* • *While documentation is present for certain competencies there is limited documentation to corroborates those attributes and skills are captured.*

Successful implementation of IMS and PD depends on relationships.	**Transcript Quotes**	**For each theme these are corroborating documents**	**Reason for corroboration and comments**
Collaboration	The need for collaboration at the workplace when dealing with IMS and PD. A, B, C, E, F, G, H, I, K, L, M, N&O.	• *Business Procedures Manual with the Organisational Chart* • *Meetings for example yet not limited to Toolbox meetings and Job Meetings.* • *Management Review Procedure when taking Management Meeting notes* • *Toolbox Meeting Minutes process and forms for completion* • *Communications measure that are appropriate to the nature, context and content of the relevant issue and will be achieved through management led communications, toolbox meetings, face-to-face discussions, e-mail systems, notice boards, signage and audio-visual media.* • *Whiteboard use* • *Request from Customer Subcontractor's Statement Quote Purchase Order* • *Typical Contracts exist for various periods.* • *The review of customer complaints and satisfaction* • *Customer satisfaction feedback* • *Business Registration and Matrix // Worksheet - Authority & Responsibilities*	• *The various manuals especially referencing the organisation chart provides structure in understanding roles and their relationships with others,* • *Further documentation provides details as to collaboration within the business that corroborates the theme.*

As with the themes of Learning and Structure, this theme of relationship and its sub-themes were also reflected in documentation. For participant workplace manuals outlined in Table 4. Communication contexts, roles and processes, related to the Communication sub-theme of relationships, were detailed in clause 7.4 communication in each International Standard of quality, OH&S and environment within these manuals. Participant workplace manuals explain, 'the who, the what, the how, the when, to whom to communicate." For example, an overview is taken from one manual, Figure 8.

What will be communicated	Who will communicate	When to communicate	With whom to communicate	How to communicate
Externally Reportable Incidents	Managing Director	Maximum within 24 hours of incident	Department of Justice and Attorney-General (WHSQ) Department of Environment and Heritage Protection	As per agency requirements
Media Releases	Managing Director	As required	Media outlet	Verbal
Incidents/Investigations	Managing Director	Upon completion of investigation	All personnel	Toolbox Talk
Audit Findings	HSEQ Coordinator	Upon completion of audit report	Relevant Manager	Audit Report (Exit meeting)
Inspection Findings	HSEQ Coordinator	Upon completion of inspection checklist	Relevant Manager	Inspection Checklist (Exit meeting)
Policy Statements	Managing Director	Inductions and updates	All personnel	Induction Toolbox Talk Noticeboard
Policy Statements	Managing Director	As required	External Parties	Tender Requests Website
Objectives and Targets	Managing Director	Inductions and updates	All personnel	Induction Toolbox Talk
Importance of HSEQ (contribution to the effectiveness of the system, including the benefits of improved performance and the implications of not conforming to system requirements)	HSEQ Coordinator	Inductions and updates	All personnel	Induction Toolbox Talk
Business Risk Register (Including significant environmental aspects)	HSEQ Coordinator	Inductions and updates	All personnel	Induction Toolbox Talk
Legal Register and External Documents Register	HSEQ Coordinator	Inductions and updates	All personnel	Induction Toolbox Talk
Business Manual	HSEQ Coordinator	Inductions and updates	All personnel	Induction Toolbox Talk
Warehouse Manual	HSEQ Coordinator	Inductions and updates	Warehouse personnel	Induction Toolbox Talk
Office Manual	HSEQ Coordinator	Inductions and updates	Office personnel	Induction Toolbox Talk

Figure 8. Examples of communication process taken from a workplace manual.

Other manuals presented a format of meetings and linking procedures and forms required to undertake those meetings for example Figure 9.

The company has ad-hoc meetings to support the consultation processes:

Forum	Attended by
Projects Meeting (Weekly)	Directors and Projects Department Team
Project Handover Meeting (as required)	Estimators and assigned project team
Management Meeting (monthly)	Directors and Department Managers
Toolbox Talks (As Required)	ALL

Associated Documents

PRO_004 Consultation and Communication

Figure 9. Example of meetings taken from a workplace manual.

Similarly, other examples of communication processes are detailed within participant workplace manuals (Participant A to O). These represent communication within the varied and many forums where either an agenda or meeting minutes are taken. Or, in other meetings where conversations about results, actions and timeframes take place, and emails are

forwarded as a follow up with other workers and team leaders. Other media used for this type of communication included noticeboards, social media and video conferencing calls. Recordings of such calls are of primary importance for relationships in the workplace. These, along with manuals and documented evidence support this sub-theme of relationship and are outlined above in Table 4.

The sub-theme of attributes and skills that enable IMS implementation and workplace learning not as apparent when considering how the sub-theme for formality of learning and the sub-theme roles for structure. However, there is limited secondary evidence about required attributes and skills, apart from communication roles, processes, and protocols. However, workplace correspondence, meeting minutes and project deliverables as construction and civil projects provided some evidence that offers some contextualisation for the sub-theme of attributes and skills. Overall, however, there was limited secondary evidence that directly supported the sub-theme of attributes and skills.

There was a similar story for the sub-theme of collaboration, which was evidenced in manuals where the process of communication was detailed, via he outputs of the meeting as minutes, and through recordings of toolbox discussions. Collaboration, like communication, is an intangible process and the best evidence found for it came through statements from interviews and minutes of meetings. Nonetheless, as with the sub-theme of attributes and skills, available supplementary evidence is focused only upon the outputs. For example, documents, such as meeting and toolbox meeting minutes, provide evidence of the outcomes of meetings, forums, and collaborative action, but cannot show how such outcomes were achieved. further, third party audit reports revealed that not all meetings followed the necessary agenda and practiced what was written within the procedures (Participants, J, L, M and O). Figure 4, above, provides visual context for the range of locations where workers

met, and where relationships were built: in boardrooms, classrooms, around workstations and work sites.

4.5.5 Summary

In summary, workers agreed that IMS and PD unify relationships that evolve as part of working as a team. Participant responses about relationships indicated that they saw communication and collaboration as necessary to implement IMS. Conversely, their comments strongly suggest that IMS itself provides the framework for PD. Participants also referred to a range of attributes and skills required to facilitate communicative and collaborative processes. Supplementary evidence supported sub-themes of relationships and collaboration. However, there was less secondary evidence from workplaces that focused on communication attribute and skill development. Nonetheless, the need for collaboration was emphasised by documented communication roles, protocols, and processes.

4.6 Theme: Purpose

Purpose provides direction for alignment. Participants in the study indicated that IMS and PD provided a sense of purpose and direction for themselves and their workplaces. Within this theme, participant comments highlighted the sub-themes of vision and mission.

4.6.1 Vision.

This sub-theme of vision relates to participants' perception that IMS and related PD helped to identify a purpose that unified effort and increased commitment. They also equated it with a sense of striving and innovation towards a shared vision. When detailing the importance of purpose that IMS and PD, participants referred to this as, "purpose driven," (Participants A, C and L). When referring to vision, one participant explained:

> Yeah, you've just got to bear with it. It'll certainly pay dividends towards the end. But you've got to work it for your business, there's no use having it in place just for the sake of having it in place. That won't bear you any fruit. You've got to continue it all

> the way through and adapt it to suit and keep continually streamlining it and continually changing it as it hurdles get thrown your way (Participant C).

Two participants argued that IMS and related PD provided, "Direction," (Participants A and I). Another participant explained that "… [The issue with] adopting an integrated management system is they mightn't see the benefit in the short term, but they certainly will in the long term," (Participant I). Other participants explained that IMS and PD helped to develop, "Understanding to strive for goals," (Participants E and K).

4.6.2 Mission.

The sub-theme of mission can be expressed as having a strategy to execute the vision. This can also be referred to as objectives and/or targets. The mission can be further defined as something that is, specific, measurable, achievable, realistic and timely, (SMART). Participants perceived that IMS, and PD provided a mission, which can be used as a lens through which to address challenges, solve problems and work to achieve certain business objectives.

> ... a workplace where there are some clear and well-understood objectives, aims, target measures, which are explained, understood, reinforced and reset over a period of time, so a periodic review … tied to the overall business direction so that professionals who are looking at doing professional development could be focused in the directions, if you like, or the fields that they want to be developed in, to suit and to align with the aim of the business (Participant A).

One participant stated the need for, "clear and well-understood objectives, aims, target measures, which are explained, understood, reinforced and reset over a period of time…" (Participant A). Participant A related this linkage between objectives and targets to support the overall strategy of the business. A more pragmatic statement about IMS was expressed as, "Making a checklist to strive for goals," (Participants D and I). This form of checklist use,

related to actionable items linked to an objective to be achieved in line with the vision of the business.

4.6.3 Supplementary Evidence

Table 5 shows an overview of documentation, as secondary evidence, that corroborates and supports findings from interview transcripts with the theme of purpose. This table provides a range of documentary evidence that further supports the sub-themes of vision and mission.

Table 5. Supplementary Evidence

IMS and PD create a sense of purpose.	**Transcript Quotes**	**For each theme these are corroborating documents**	**Reason for corroboration and comments**
Vision	IMS and related PD contribute to organisational vision. A, C, E, G, I, K&L	*The following Manuals for example:* • *Business Integrated Management System Manuals* • *Business Procedures Manual* • *Safety Management System Manual* • *Quality Management System Manual* • *Environment Management System Manual* *Business Plan Documentation*	• *Various manuals provide evidence where vision informs about the purpose and direction of the business.* • *The documentation provides evidence to corroborate that which was identified in the interviews*
Mission	IMS and PD create the need for a mission and purpose. A, D&I	The following Policies that link to the vision: • OHS Policy • Environmental policy • Quality policy Business strategy documents that contain vision, mission and values, SWOT analysis and financial costing and forecasting Business reporting to interested parties such as board of management and stakeholders Business Registers - Project Worksheet Risk Registers Management Review Procedure then Management Meeting with notes as to the status of various objectives and targets Objectives & Targets Register Project Plans - that have start and completion dates including the methodology to carry out construction works. Project completion status reports and monthly progress claims	• *Documents, as in the above with manuals, connect mission with vision.* • *Documented policies provide a framework for the communication of objectives.* • *Various documents provide evidence that activities are analysed and reported to internal and external interested parties. These documents further provide the methods to undertake when collecting, analysing and evaluating status of key milestones.* • *While documentation shows that work is measured by objectives and targets, it further corroborates the interview transcripts.*

Detail written in the above manuals provides supplementary evidence related to the theme of purpose. The Standards clauses 4 Context and 6.2 Objectives and planning to achieve them were written in the workplace manuals of participants. These varied manuals detailed context,

describing the business and how the businesses determine, implement, and monitor their objectives and targets.

There was also supplementary evidence for the sub-theme of vision and mission. Workplaces had written detail about their vision and mission in their manuals (Participants A to O), however, additional documents supported the sub-themes of vision and mission with written strategic documents, for example, corporate business profiles and plans (Participants F, I, J, K, N & O).

Policy documentation from participant workplaces (Participants A to O) provided frameworks of objectives and targets. It was within corresponding documented lists and registers, that they had detailed their objectives and targets. Measurements of objectives and targets were noted within operational and management review meetings minutes and workplace minutes, which tabularised the progress against objectives and targets. An example is provided in Figure 10.

Overall Quality Goal:	**To ensure that all products and services meet specified requirements and are delivered in timely manner.**
Overall Quality Objective:	1. To ensure that the quality management system remains effective, compliant and supports the overall quality goal. 2. To maintain organizational knowledge
Objectives, Targets and Target Dates:	

Objective #	Target	Target Date
1 To monitor effectiveness and compliance	100% implementation of the 2017 HSEQ Activities Calendar	December 2017
2 To maintain organizational knowledge	Succession Plan to be implemented Link to Policy (3. Everyone understanding how to do their job and doing it right first time. Link to Business Risk Register (Organisational knowledge being lost)	December 2017

Quality Program

Targets	What will be done	Resources required and who is responsible	When will it be completed	How the results will be evaluated
100% implementation of the 2017 Activities Calendar	• Develop an Activities Calendar for 2016 based upon risk and that covers all areas of the business • Carry out monthly activities as per the Calendar	Resources: Office Staff, Field Staff Responsibility: HSEQ Coordinator	• Monthly activities to be carried out in the month scheduled • 100% implementation of Calendar (December 2017)	• Quarterly Report • Annual Report
Succession Plan to be established and implemented	• Identify skill sets and knowledge of current employees • Develop Succession Plan • Implement Succession Plan	Resources: Administration Responsibility: Managing Director	• Implementation of succession Plan – December 2017	• Quarterly Report • Annual Report • Management Review Meeting

Figure 10. An example of monitoring objectives and targets.

4.6.4 Summary

In summary, workers highlighted the importance of purpose for unifying action in the workplace and creating a sense of striving and commitment to achieve business objectives. They paid particular attention to the role of a clear and documented purpose. Workplaces documented purpose in the form of vision, mission, objectives and targets, and meeting minutes that showed how these purpose sub-themes were applied to unify action. Supplemental documents corroborated the evidence for the theme of purpose and its sub-themes.

4.7 Theme: Improvement

Participants in this study perceived IMS and related PD as drivers for improvement. This theme reflected participants' perception of progress toward improved outcomes, as well as how such improvements were achieved. Within this theme three sub-themes emerged: continuous improvement; measured improvements; and achieving improvements.

4.7.1 Continuous Improvement

In this sub-theme participants (Participants C, F, G, J, L and O) saw IMS worked together with PD to drive the process of continuous improvement and evolution. One participant explained,

> To keep improving the business and taking it forward ... You've got to continue it all the way through and adapt it to suit and keep continually streamlining it and continually changing it as the hurdles get thrown at you (Participant C).

Another participant explained the same in that.

> It [IMS and related PD] should be about improving, you know constantly improving what we're doing and bringing new people into that system so again we're not starting from scratch," (Participant F).

Another participant echoed this statement explaining that,

> From the organisation, if they're pushing that as part of their position requirements that these people have continual improvement then obviously the business overall will improve, (Participant G).

Continuous improvement was also described as "a process of evolution," (Participant D) and a process where we "Continually improve from each other," (Participants B, G and O).

4.7.2 Measuring Improvement

Participants emphasised the importance of IMS and related PD as vehicles for monitoring and reporting performance, keeping things on track, or measuring improvement. Participants explained that IMS "Has measurement and parameters," (Participants D and G). These parameters are milestones for improvement to be measured. Whatever the status of completion for a project or building construction, there are milestones to achieve with the final measure being practical completion. This practical completion is where the completed construction is finalised and handed to the client in an official capacity. Or, from an organisational macro level of operations, improvement is conceived as reaching certain objectives and targets to support the overall strategic direction of the business: for example, the reduction of incidents and injuries and reduction of nonconformity from the delivery of products and services.

Specific elements of IMS-based monitoring and reporting included, "Performance appraisals" (Participant M), where a worker was assessed annually against their position description in relation to their role. and on their performance against their responsibilities and function in the business. Engineers and certain subconsultants are expected to accumulate several hours of continual professional development annually to retain their licence to operate. One participant reflected on the form of the PD in their workplace:

> Yeah, our organisation, it's a systemised weekly update which is a questionnaire around thoughts, feelings, emotions on certain subjects. It's a quick two-minute or

> three-minute questionnaire and it's up to the manager to assess has this person answered positively or not. If they haven't then they put in strategies in place to have better conversations in the morning before work and those sorts of things … It's really the performance and I guess the review processes in place through our people systems and overall achievements. It's only the integrated management system that assists with the measurement of all of those items (Participant G).

Another participant also perceived that IMS, and related PD provided the foundation for a "Measurable review," (Participant A), while another explained that to improve IMS they, "Monitor and report," (Participant K) performance outcomes. This was completed using a formal document presented to the staff and top management in certain forums such as "toolbox talks", management meetings and board meetings.

4.7.3 Performance Reviewing

This sub-theme occurred where IMS and related PD were seen as a process of performance reviewing where learning from actions and not repeating mistakes, as well as achieving business outcomes. Some spoke about having achievable outcomes, stemming from IMS and related PD, "Having [Key performance indicators] KPIs and keeping on track," (Participant C). This process of having KPIs helps to assess performance and set goals to achieve further improvements of workers. Another participant referred to the process of, "Reflecting on past performance and moving forward," (Participant I). According to two participants, keeping track of improvements ensures that, "Issues don't repeat themselves" (Participants M and N). This is echoed by another participant who asserted that, "to practice and not improve is wasteful," (Participant O).

Participants perceived that IMS improves their organisation's outcomes (Participants G, J and L). As one participant explained:

> An integrated management system is, I guess, the overarching structure of the core forms, policies, procedures, and manuals that assist the organisation with better management to assure its risk and obviously maintaining its improvement (Participant G).

When asked to describe related PD, one participant emphasised the importance of PD improving performance in both current and future work:

> Professional development, to me, is maybe something a bit more, specific to the actual job that you're performing, or to any potential role that you would eventually, or be given the opportunity to take within the organisation. Something that allows you to evolve in formal aspects of your career, whether it is for future use within this organisation or something that you can use if you ever decide to go to other companies (Participant J).

This is echoed by another individual, but from the point of view of incidental or situated PD that is embedded in regular work activities:

> In terms of doing project work there is the ability to – lessons learned at the end of the project that will then help you on future projects and things like that…and opportunity to pursue personal development … is an ongoing thing (Participant L).

Finally, PD on IMS helped participants identify and address knowledge gaps:

> I imagine it's not static – it's a growing organism. It's probably got room for improvement as well…so I guess an item of improving and becoming more effective is understanding your gaps. Then professional development is all about becoming better, which to become better you have to identify your gaps – your gaps of knowledge (Participant L).

4.7.4 Supplementary Evidence

Table 6 provides an overview of documentation, as secondary evidence, that supplements findings from interview transcripts related to the theme of improvement. This table provides a range of documentary evidence that further supports the sub-themes of continuous, measured and achieved improvement.

Table 6. Supplementary evidence, improvement theme.

IMS and PD drive improvement.	Transcript Quotes	For each theme these are corroborating documents	Reason for corroboration and comments
Continual Improvement	Continual improvement, IMS and PD: B, C, D, F, G, J, L&O	The following Manuals for example: • Business Integrated Management System Manuals • Business Procedures Manual • Safety Management System Manual • Quality Management System Manual • Environment Management System Manual Procedures includes Non-conformity, Corrective and Prevention Action Procedure; Continual Improvement Procedure; and Incident, Investigation, Rehabilitation, return to Work Procedure. Management Review Procedure then Management Meeting with notes noting improvement and business performance on Non-conformity, Corrective and Prevention Action Procedure; Continual Improvement Procedure; and Incident, Investigation, Rehabilitation, Audit results	• *Various manuals provide evidence that continual improvement is to occur, methods, and how it is recorded and reported.* • *The documentation indicates and corroborates that continual improvement occurs as identified in the interviews*
Measured improvement	Measured improvement for IMS and PD: A, D, G, K&O	Management Review Procedure then Management Meeting with notes noting improvement and business performance on Non-conformity, Corrective and Prevention Action Procedure; Continual Improvement Procedure; and Incident, Investigation, Rehabilitation, Audit results Recruitment Manual - As part of the HR recruitment process MS Excel Spreadsheets are utilised for the comparing of competencies against those that are applying for the role, for example samples reviewed of Application Summary Spreadsheets Business Registers and Matrix Actions Register and complete Action Forms. Incident and corrective action reports Applicable completed checklist; Action Form if relevant; Updated Actions Register if relevant. Performance reviews are to be carried out yearly on the template Performance Review and Career Development Plan – KPI's are directly relatable to the objectives and targets taken from the Personnel Positions Descriptions Accounting packages used with the last year financial audit of the system. Reconciliation is carried out on the first week of the month against the previous month record. Vendor performance reports Emergency Evacuation Drill Form Attendance Register Completed as to the training carried out yearly. Testing and tagging of Electrical Equipment Electrical Equipment	• *Documents, as in the above with manuals, connect processes with the measuring improvement.* • *Documented information demonstrates measurement and reporting of improvement align with the interviewees.* • *While documentation shows that work is measured and records improvement, it corroborates that improvement is present.*
Achieving improvement	IMS and related PD drive achieving improvements in performance: C, G, J, I, L, M, N&O	Management Review Procedure then Management Meeting with notes noting improvement and business performance on Non-conformity, Corrective and Prevention Action Procedure; Continual Improvement Procedure; and Incident, Investigation, Rehabilitation, Audit results.	• *The various manuals especially referencing improvement, details and tells who is involved having the status detailing what is achieved.* • *Further documentation provides details achievement of improvement within the business that corroborates the theme.*

There is some support in the supplementary documentation for the theme of improvement. There was evidence within workplace manuals, including specific sections that described the process of continual improvement in accordance with the requirements of the Standards, clause 10. These detail of how workplaces could improve the suitability, adequacy and effectiveness of implemented management systems (Participants A to O) were written into these manuals.

The sub-theme of continuous improvement was evident in the documentation of internal audits undertaken at all workplaces. The processes were documented in the manuals (in accordance with the Standards clause 9.2) explaining the procedure and forms used to measure and report improvements (Participants A to O). Further, Key Performance Indicators (KPI) were used for workplaces, and reports generated to be presented in the workplaces' production, operational and management meetings. Production, operational and management review meetings, minute and tabularised the status of planned improvements. (Participants A to O). Additionally, meeting minutes and correspondence addressed business key performances indicators and business improvement objectives were monitored. Organisational lists and registers as listed in Table 7 recorded nonconformity with Standards, and articulated corrective and preventative actions for improvement provided supplementary evidence to support participant accounts for the sub-theme of measured and achieved improvement. A further example supported the theme of improvement was a participant workplace having an online database for the capture of incident, injury and nonconformity with the required corrective and preventative actions (Participant O). These lists and registers tracked incident status and what was achieved in relation to it. Hence, this documented evidence corroborates the theme and sub-theme for improvement.

4.7.5 Summary

In summary, workers perceived that IMS, and PD enabled a continual and shared improvement process, practiced in the workplace. Participants explained that the process of improvements in knowledge as a professional and that of doing tasks more effectively and efficiently were continual and progressive. They believed the ideal was one where they were not making the same mistakes as before. Participants concluded that achieved improvement readied the business for better outcomes with the next project. Supplementary evidence from organisational lists and registers, as well as online databases, was apparent and supported the theme of improvement and its sub-themes with the documented processes and the records of improvement in various registers for example, the corrective action improvement register, amongst others.

4.8 Summary for Chapter 4 - Findings

This chapter four, findings, presented the themes that emerged from interviews with participants, A through to O. Five themes were identified that related to participant experiences of the alignment of IMS and PD as situated in their construction workplace. Each theme was divided into a number of sub themes. These were outlined in Table 1 of this chapter. Themes were supported by supplemental documentary data, such as manuals containing processes and procedures, and corresponding evidence documenting those processes and procedures implemented, and results achieved. While, in general, supplementary data provided further context to support primary interview data, there was one notable exception. Participants perceived that there was a requirement for particularly enabling attributes and skills related to processes of communication and collaboration. However, there is limited evidence other than documented outcomes of correspondence, meeting minutes and toolbox records were found to support this sub-theme.

The first of the themes was that of learning. Participant statements about learning in the workplace suggested three sub-themes. The first sub-theme of learning formality reflected participants' experience that learning occurs in informal, formal semi-formal ways and a combination of formal and informal. The second sub-theme, occurrence, emphasised two conditions associated with learning; that it occurred at multiple locations and that learning occurred over time. In the third sub-theme, daily activities, participants stated that learning occurred daily, as part of a range of regular business operations.

The second theme related to structure. This referred to a reciprocal relationship where IMS and PD depended on structures that shape the work but, conversely, also provided structures for required work. This theme included three sub-themes of, order, connectedness, and roles, that can also be known as drivers or dimensions of structure.

The third theme was that of relationship. This theme included sub-themes of communication, as well as the attributes and skills required to facilitate these relationships as part of undertaking tasks and solving problems. The final sub-theme was collaboration, which was conceptualised by participants as a necessary vehicle for IMS and PD to occur.

The fourth theme was that of purpose. Two sub-themes supported purposes, the first, vision, was explained by participants as striving and having commitment to achieve business purpose. The second sub-theme, mission, was expressed by participants as aims, targets, and objectives.

The fifth theme was that of improvement. This had three sub-themes of continuous improvement, measured improvement, and performance review processes practiced in the workplace. This third sub-theme had the focus on achieved improvement, related to participant accounts of the role of achievement in readying the business for better outcomes.

In taking an overview of the themes and the sub-themes, participants believed that IMS provides structure through order, connectedness, and clear roles. Participant feedback

suggests that structure itself was shaped by a unifying purpose in the form of vision and mission. That purpose was achieved through relationships that require communication, collaboration and their related attributes and skills. Continual improvement was also necessary to achieve the purpose and that improvement occurred continually through measurement and actual achievement of improvements. All of these themes required learning, as professional development, for their success. This learning occurred in diverse ways: based on differing levels of formality, in different places and times and, importantly, as part of daily operations that are shaped by the IMS.

Overall, participants appeared to be of the view that IMS was working to drive workplace effectiveness and PD was effective in enabling workers to deliver the IMS. In addition, IMS was seen to enable and drive PD. In the next, chapter five the above findings will be discussed, including any methodological considerations, and implications for practice.

CHAPTER 5. DISCUSSION

Chapter 4 outlined findings related to 15 participants who were involved in the interview process and gave differing perspectives on their experiences of PD and IMS in their workplaces. Thematic analysis of the interview data elicited five themes and their related sub-themes. Next, secondary data was used to corroborate or complement the five themes and their sub-themes. The five themes identified were: learning in the workplace about IMS is context specific, IMS provides structure for the business and informs PD, the theme of relationship building, the theme of purpose, and the theme of improvement. These themes provide insight into participants' experiences and perceptions of PD and IMS in their workplaces.

In Chapter 5, I discuss the research findings related to the overarching research question: How does professional development in the construction workplace align with integrated management systems. Further, points of discussion will be explored arising from what participants said and why this is important in relationship with the primary research question. This chapter will then discuss the five key claims, namely, 1). Accounting for the context of individual businesses is an important factor in the success of PD for IMS. 2) IMS itself provides a useful structure for businesses. 3) Relationships enhance PD and IMS delivery and workers' skills for communication and collaboration. 4) Purpose provides the business direction and mission that drive alignment between PD and IMS. 5). A culture of continual improvement that measures performance informs PD to align with IMS delivery. Arising from the secondary questions of this research, a discussion of the implications of practice for the construction industry will follow, and finally, this chapter will explore the methodological limitations and proposes future work.

5.1 General Overview

The initial, potential problem I outlined in Chapter One, was based on the perception that there had been a de-professionalisation of worker responsibilities to deliver integrated management systems (IMS). I argued that this de-professionalisation potentially might lead to a lack of professional development (PD), which, by extension, could lead to inadequate individual competency in the delivery of IMS. My assumption was that the systematic de-professionalisation of PD has an impact on IMS: that poor practice of IMS would result in less quality, a greater risk in safety and increases in environmental pollution. From my personal professional experience, I had observed that when PD and IMS were not aligned or have not occurred, mistakes and incidents were more likely to occur.

The literature review in Chapter Two concluded that professional development in the construction workplace needed to be considered as an andragogical practice related to the core principles of adult learning (Knowles, Holton & Swanson, 2005, p. 67). The chapter also proposed that learning in the workplace with PD needed to take into consideration Kolb's theoretical position that workplace learning ought to be transformational (Kolb, 1984). The chapter also reviewed the relevance of the workplace learning of Billet (2001) to the research problem. He explained that,

> The curriculum for learning is founded upon the contribution and circumstances afforded by the workplace … Learning best comes from integrated experiences where workplace and formal learning are complementary (Billet, 2001, pp. 6-7).

Billett's (2001) work echoes the traditional apprenticeship model, which foregrounds relational learning, where people learn from one another (Barab & Hay, 2001; Collins, Brown & Newman, 1989). This model of learning, coupled with on-the-job practices, such as being mentored by a master tradesman, predicts that these activities lead to the student becoming a master over time. Chapter Two revealed that, while research had been performed in the field

of PD in the construction industry, limited or no research had been done specifically on the alignment of PD with IMS in the construction workplace that I found. Tarí et al. (2012) especailly identified that there was a lacuna, an unfilled gap

5.2 Summary Answers to the Research Questions

The primary research question (RQ1) asked: How does PD in the construction workplace align with IMS? To clarify and refresh what was written in chapter 2, this question does not ask how "well" the PD align, rather, its focus is on examining the mechanisms (the components) that drive alignment; the "how" of what is facilitating successful alignment between the two elements, PD and IMS. The data from participant findings revealed what is important to the successful alignment of PD and IMS.

The first of the two secondary research questions (RQ2a) focused on participants' perceptions of the value of having an IMS at their workplace. This asked: How does the worker and business owner perceive and value the need for integrated management systems within their workplace?

The Research Question and the first of the Secondary Research questions elicited very similar information and will be summarised together, as below.

Firstly, that businesses provided the context for PD and IMS to exist. Each business reflects a unique context that determines what is described in the IMS and how it is implemented. When an IMS shaped to the context of the business also informs PD, then IMS, PD and the needs of the business align. In particular, participants perceived and valued the function of an IMS in helping them perform their roles, as the IMS documents provided a record of specific business attributes and context.

Secondly, the structure provided by the IMS helps to create order from complexities of the business by providing clarity for employees undertaking PD. Specifically, the IMS clarifies the structure for business systems, describing interconnections, roles, and

responsibilities. IMS was perceived by participants as valuable because it provided a structure that creates order from complexity. IMS is also valued because it drives connectedness of workers and processes and creates clarity about workers' roles and reporting lines.

Thirdly, relationships enhance PD processes and outcomes, and therefore improve IMS delivery. Alignment of IMS and PD depends on workers having necessary skills and attributes for relationships based on communication and collaboration. Participants perceived and valued the role IMS played in shaping conditions for effective relationships.

Fourthly, purpose drives alignment between PD and IMS. The direction and mission of the business informs IMS, and related PD. Participants perceived that the common direction provided by the articulation of a clear purpose, ensures both PD and IMS are designed to deliver outcomes that align with that purpose. Participants valued IMS because it documents the common purpose and focus that unifies effort and guides decision-making to deliver the defined vision of the business.

Finally, a culture of improvement drives alignment between IMS and PD. The role of the IMS targets the collection of performance data informing PD required to deliver the IMS. Participants perceived this targeted data assisted in identifying priority areas to improve, and so, in building of a culture of continual improvement towards long-term success for delivering the business vision and its good reputation. Participants valued performance as it is measured, continual, and based on the IMS.

The answer to the primary research question and the first of the secondary research questions, can be summarised as follows: for alignment to occur, five key mechanisms described in these findings should be operating well. Each of these five mechanisms has a two-way relationship with IMS and related PD. They are both facilitators of the success of IMS and related PD but should also be influenced by IMS and related PD. Participants

perceived that the presence of the five mechanisms enabled and drove degrees of alignment in successfully implementing IMS and its related PD. Participants valued the role the IMS played in enabling for context, structure, relationships, purpose and improvement to help IMS and PD to align for business success.

The following is the elaboration of the points in answering the primary and first of the secondary research questions.

5.3 Key Claim 1: Context Shapes Everything

Designing to context improves alignment of PD and IMS.

5.3.1 Design to Context

Based on the findings of this study, individual context must shape the design of each business' integrated management system (IMS), and subsequently, its professional development (PD) to ensure the effective delivery of IMS.

The business owner, the PD provider, staff and any other relevant parties who have valuable insight (which are the interested parties) into the context of the business, can help design an IMS to meet the business purpose and vision. A well-informed IMS can then form the basis of PD that provides workers with the competencies for everyday activities to deliver the IMS, which in turn, delivers the business purpose and vision.

Because each business is unique, each business provides a unique context for IMS and PD to occur. Each business context then determines the way PD is delivered, particularly, the level of formality, the place and time of delivery and opportunities for it to occur on a daily basis. In this research context had these links when examining the relationship of PD with the practice of IMS.

This research revealed a strong appreciation of the role an IMS provided to shape and deliver useful PD. In contrast, research found that in construction workplaces there were weaknesses in PD delivery through the practice of project management (Madter, Brookes,

Bower, & Hagan, 2012), Madter et al. (2012) identified four themes arising from their study on PD in the construction workplace that can also identify the weaknesses of how PD generally occurred. These included: firstly, that career planning was accidental or secondary; secondly, that PD varied dependent on how offerings were distributed according to the stage of the product development lifecycle; thirdly, many businesses were overly and exclusively reliant on the annual performance review to identify development needs; and finally, there was inadequate assessment of continual professional development (CPD) interventions. The conclusion drawn was that there were problems in the approach to CPD:

> In overall terms, despite the presence in the organisations investigated of well-established [Project Management] PM CPD programs, the experience of organisations appears to be one in which neither general construction nor engineering construction organisations are adopting a systematic approach to PM CPD" (Madter et al., 2012).

Madter et al's (2012) research found that career planning happened accidentally. Their research made no mention of the existence of any overarching instrument, such as an IMS, to align business performance and PD. In their research, they found an over-dependence on performance reviews which drove learning that was retrospective, and that assessment of PD was narrow, being only from a participant's view of their own situation. Four weaknesses in PD were identified by Madter et al, (2012) namely, that PD was narrow, ad hoc, retrospective and based on individual performance reviews. All of these weaknesses can be explained by a focus on the individual worker rather than on the worker's role in the context of the business. Whereas, the opposite can be said where context is taken into account, that is, context enables PD to be more broadly defined, more systematic and integrated into the business. The strength of including context into design of PD and IMS is that it can be planned, forward looking and strategic in nature.

In contrast, this research focused on construction workplaces that had an IMS, and where PD was firmly guided by each business's IMS. The participants from this research felt the IMS was developed to address the unique context of each business and so provided direction that overcame those potential problems of being accidental and adhoc. In fact, the finding was the interested parties' understanding and application of IMS relative to the context of the business that alignment of IMS and PD so that business objectives can be achieved.

Other research highlights the importance for workplace learning to explicitly address aspects of business context. Kwofie, Aigbavboa and Mpambela's (2018) research explored how improving Continuous Professional Development (CPD), compliance among construction professionals found that flexible, integrated approaches were beneficial only were occurred as part of a purposeful (strategic?) program with a clear focus and delivery framework. Kwofie et al. (2018) asserted that at first there was a low level of CPD uptake because it was unstructured and inflexible. However, where there was a purposeful, yet flexible approach that was sensitive to context the participants found themselves in, the researchers saw a higher uptake of CPD. New CPD practices were introduced to created more purposeful and systematic delivery. They key was in understanding the context, that is, participants and their needs. By improving CPD design through understanding context, a formal program of PD was created, which still allowed for flexibility within its delivery framework. CPD was delivered adaptively to participants' and workplaces' emerging conditions and needs. The result was a greater uptake of CPD. Examples of this approach included:

> Flexible e-learning platforms, standardisation of CPD model and formats by professional institutions, inclusion of CPD in tertiary curriculum to easily understand its importance and encouraging practices [Architectural Studios] to have frequent in-

house training sessions sharing experiences as the most significant strategies that are likely to improve CPD uptake and compliance (Kwofie, Aigbavboa, & Mpambela, 2018).

This research demonstrated how having an IMS informed by context, enables businesses to strike a balance between the need for sensitivity to individual business context, the need for PD strategies for IMS to be clearly articulated, and for there to be a clear framework for that PD that incorporates consideration of business context. Context shapes, even causes purpose, and affects opportunities, requirements and limitations, where choices are made. Context may affect the assumptions, beliefs, and aspiration of workers in what they bring to work and PD.

5.3.2 Levels of Formality

This subsidiary claim for PD and IMS must account for differing levels of formality in its delivery. That is, PD for IMS is delivered according to different levels of formality: formal, informal, semiformal, or a mix of formal and informal. This can be seen as both a positive and a negative. For example, Madter et al's (2012) research group experienced PD as *ad hoc*. By contrast, participants in the present research experienced PD purposeful and relatively integrated, because of the focus on IMS. However, this purposefulness did not prevent there being different levels of formality, based on the particular the context of the business. Kwofie et al. (2018) reported that businesses researched had strategies that provided clear direction and integrated CPD within a clear framework for its implementation. They observed that what distinguishes CPD from other forms of learning is that it is self-motivated, self-directed and self-monitored, which supports both formal and informal methods of learning (Raidén & Dainty, 2006). Participants described a number of practices that support these behaviours, namely, during project delivery and milestone review, conversation enabled drawing out of lessons learnt and new knowledge and skills gained. Similarly, in daily interactions between workers, supervisors and peers where, through

solving problems together, new knowledge and skills are developed. These informal practices were supported with more formal learning such as accredited training, etc.

In conclusion, this research found that understanding the context of a business enables design of PD that is adapted to each unique business. Kwofie found that learning is enhanced by including different levels of formality. However, without a clear focus, purpose and framework for delivery, PD can become ad hoc (Madter et al. 2012). In this research, it was found that when IMS is informed by the unique context of a business, it provides necessary knowledge and understanding to allow for different levels of formality in learning. The advantage of different levels of formality is that multiple learning opportunities within the business can by harnessed and learning can be delivered in a planned and flexible approach.

5.3.3 Place and Time

Learning is profoundly influenced by the participants context in which takes place. The individual business further brings contexts that determine this place, time and mode that PD is delivered. The participants of this study worked across multiple sites, such as temporary construction sites and their premises, reflecting the geographical spread across the Australian continent. One study identified that, to overcome the challenge of providing PD across multiple sites, blended learning was found to be beneficial and practical (Wall & Ahmed, 2008; Hofmann J, 2018). Blended learning considers the application of new technologies, hosted on a Learning Management System (LMS), using e-learning tools with the combination of face-to-face and technology-based learning. In their research that applied blended learning, Wall & Ahmed (2008) reached the conclusion: Blended learning framework proposed may be both formal and informal, technology or people based and either independent or genial. The balance will ultimately be defined by the preferred learning style of the individual participants and the interaction of the instructor and the participants.

The implementation of blended learning overcame geographical differences and situations. In their study of formal and informal learning in the workplace they concluded that, “We can consider ‘the workplace’ to be a physical location and shared meanings, ideas, behaviours and attitudes”, (Manuti et al., 2015). Thus, workplaces are not only another venue for learning, but a blended approach also provides a complex array of learning opportunities on a daily basis. Hoffman (2011) discussed the need for blended learning to focus upon the business goal and the needs of workplace challenge (Hoffman, 2011). Blended learning should be planned for learners who may access and complete learning from different locations. For this reason, it may require organization knowledge to be kept in a central, accessible data storage location. Blended learning should provide opportunities for consistent application, as this approach was found to be more effective for learners to achieve desired outcomes.

For example, it was found that sitting at different locations and having knowledge kept in electronic databases enabled the emergence of cross-organisational knowledge. Also, where learning was consistently applied at work was found to be enhance learning (Wetherill, Rezgui, Lima, & Zarli, 2002). The research for this thesis found that a blended approach was used in most participating workplaces. This enables a consistent training across the multiple sites and time zones, which ensures PD can be more effective, relevant and responsive, and can be used to generate shared knowledge through blended learning approaches, regardless of time and place.

5.3.4 Day-to-day Activities

Day to day activities provide PD and IMS the opportunity to be embedded into this context-specific reality of daily operations. Participant experiences revealed that daily business activity influenced the alignment of PD with IMS. Further, in providing PD, it is important to exploit learning opportunities as they arise in everyday business. Each business

associated with interviewed participants tended to associate incidences of professional learning with formal qualifications. However, participants also strongly valued the learning that occurred outside of the qualification-related activities and professional learning processes. However, opportunities for this day-to-day learning were determined by individual business context and may result in inconsistent PD opportunities for employees. Nonetheless, some opportunities were consistent across workplaces.

For example, participants highlighted apprenticeships and cadetships as important examples of PD that offered opportunities for daily learning and included instances of both instruction and mentoring. The apprenticeship model is an example of learning, which occurs on a daily basis, and also comes in a mix of levels of formality. These features are reflected in secondary research, which affirms that in apprenticeships, the learner undergoes formal, accredited training as well as mentoring, directed by the supervisor, as with participants in this study, apprentices undergo instruction during daily learning activities, which are very much determined by the context of work challenges (Barab & Hay, 2001; Collins, Brown & Newman, 1989).

Yet, mentoring was also associated with less formal learning arrangements in the workplace. For example, one individual participant, who had no professional qualification, received daily mentoring that enabled them to complete their daily tasks while achieving their required competencies. Other participants described several less formal learning approaches, which occurred as part of daily work. For example, when reviewing and learning from project milestones, and when working in teams to solve problems, in meetings, and in performance reviews. Participants highlighted how learning emerged from general discussions that occurred in daily meetings, which enabled problems to be discussed and solutions developed, resulting in learning of high relevance to their work context. Participants described this kind of daily learning as an ‘organic experience’.

IMS enables greater use of daily learning opportunities. It is worth noting that IMS prescribes frequent meetings to facilitate peer-to-peer learning through workers delivering formal presentations, where they share with one another, what they have learnt, giving examples and solutions. This is an example of how a PD can be responsive to the workplace context where a worker's formal technical learning is applied and enhanced through these presentations. The research indicated businesses of the participants also capture employee achievements to demonstrate and reinforce IMS competencies and knowledge required for the provision of their products and services. Manuti et al. (2015) conclude that workplace learning can be tailored to the workplace as, "There is no 'one-size fits-all' approach to workplace learning". Similarly, in his study on Development Engineers' Conceptions of Learning at Work, Collin (2002) found that, "Learning is seen as a natural aspect of everyday work and work itself is seen as a rich source of learning", (Collin, 2002). Collin (2002) argues that individuals develop skills as part of carrying out their daily work duties.

Because the IMS shapes how workers operate daily, it may also significantly shape opportunities for daily learning. The management system processes outlined in the IMS includes workers reporting to, and being directed by, their supervisors. Daily operations require the repetition of tasks and working collaboratively, which provide a valuable opportunity for learning. Daily operations are shaped by the IMS which, also provides workers with guidelines for carrying out tasks correctly to achieve quality outcomes, safely, so workers return home without incident. Daily operations also present triggers for employees to consider the impact that tasks have, for example, on waste management. This reflects participants' experiences of learning in everyday situations. An IMS includes mechanisms for being accountable to achieve daily targets and collect data on all important aspects of the business. In doing this, a worker is undergoing PD through receiving valuable feedback that enables a continually improving understanding of the business, their work and

responsibilities, while improving their skills to achieve required Standards. Participants related how they adapt and innovate in their workplace as a result of this daily feedback.

While participants acknowledged the useful role of formal training that provides theory for practice, they also emphasised the importance of learning that occurs on a daily basis, because it provides immediate feedback for short learning cycles and more rapid PD than an annual performance review. This view is supported by research from Madter et al. (2012) who claimed that many businesses were overly and exclusively reliant on the annual performance review to identify development needs; and that there was inadequate assessment of continual professional development (CPD) interventions. . Kolb's (1984) asserted that real learning requires both transforming theory into real world experience, and in turn, generating new context specific knowledge from that personal real-world experience. Learning is driven by the questions and problems we encounter from real world experience. Knowles et al, (2005) theory on adult learning describes learning is driven by context and need. Billett (2001) cautions that there are clear limitations to learning in the workplace as part of everyday work. He explains that, "This is more obvious when access to appropriate guidance and support is lacking" (Billett, 2001 p7). While learning through work is inevitable, the concern is whether this kind of learning will result in the development of professional expertise. The IMS ensures that appropriate guidance and support is given through negotiated design of PD, its feedback and accountability mechanisms. Daily routines provide a context, that creates and drives the ongoing involvement of workers, colleagues and supervisors to their PD and the improvements of IMS.

Daily work assists with understanding context as a factor in IMS design, which in turn determines and improves PD. In this way, recognition of routine of work serves to better align IMS and PD. Participants highlighted the importance of learning happening on a daily basis. It might otherwise be implied that learning is a matter of formal accredited training,

however, the IMS ensures that the many daily opportunities that arise for PD to occur, at all levels of formality, are important to maximise the benefits of PD in order to deliver business success.

5.3.5 Perception and Value of IMS

IMS documents present the context that helps the business worker and owner to determine what and how learning can usefully happen in each unique workplace. Focusing on IMS and required PD can enable a business to enhance the value of its operation and its people to deliver improved processes, products and services. Here, value is interpreted as a personal value in learning and, in turn, increasing one's awareness, knowledge, and competence in a way that benefits the business.

Participants in the study ascribed value to the multiple, informal, and formal PD opportunities for improvement. However, participants also highlighted the operational and, therefore, monetary benefit of IMS and related competencies. The following full response summarises participant perceptions:

> What value do I see having an IMS? Value – again multi levels of values if you like. The company stays as an operating company, it makes lots of money, and today and tomorrow into the future. So, it's an ongoing situation. So, again, as I've said, making money and just staying in *context* with your existing customers and future customers, even though you don't know them yet, you will. There is an economic or a profit connection with value. There is the value to your industry and your practice. So, you grow your professional reputation, if you like, as a provider. You become recognised as being, if not the leader, then certainly a recognised, well-informed player within your industry… in the case of the IMS should be about supporting your reputation – professional reputation status, your company's [agency's financial] profit revenue status … Value to me is of course in terms of managing your staff so that from a staff

> perspective, not only do they stay with you and want to develop with you as a team, you also grow your industry HR reputation, so you become a – perceived as an employer of choice from employees that you don't yet know. They want to work with you. They then approach you, rather than you have to go and approach them (Participant A).

Generally, the participants responded that having an IMS was of value because it increased worker knowledge of the business to understand the operations and systems, to apply procedures, instructions, and checklists of the IMS to complete the tasks assigned to them. A documented IMS provides clarity and shared understanding, direction, and responsibilities. It also reinforces via the three Standards, quality, safety and environment, a focus for integrated understanding of the organization's context. Indeed, each standard requires of the IMS to:

> Determine external and internal issues that are relevant to its purpose and its strategic direction, and that affect its ability to achieve its intended results… [outcomes]… of the [quality, safety, environmental and quality] management systems" (ISO 9001:2015, page 1; ISO 45001:2018, page 8; &, ISO 14001:2015, page 7).

Therefore, having the IMS for the workplace provides value by requiring workers to determine, implement, and maintain the necessary processes to achieve the intended outcome, whether they are an architect, engineer, contractor or tradesperson. The IMS adds value by requiring workers to understand the context of the business and provides the worker and business owner with the documents necessary to operate and grow.

5.3.6 Summary

In summary, every business has a particular context and every business's IMS will reflect that context. Consequently, PD drawn from the businesses' IMS will also need to be responsive to the business context. Out of this context, PD will also vary in levels of

formality, and according to time, place and mode of delivery. In addition, learning takes place daily and according to the changing needs of the business. Where these mechanisms are working well, workers increase their knowledge, to understand and negotiate construction workplace challenges. Where PD occurs daily there is more opportunity for it to be transformational and adaptive. Additionally, workers perceived the value of having an IMS, in that it encouraged PD to be responsive to the business context. Through workers involvement in the design and implementation of the IMS, their competence improved, enabling them, in turn, to better contribute to continual improvement of the IMS.

5.4 Key Claim 2: IMS provides Structure

IMS provides structure to deliver business to better align PD to IMS.

5.4.1 Structure Informs Alignment

This key claim states that the structure provided by the IMS clarifies roles, operating rules, guidelines, parameters etc. that allow for well-targeted PD. This structure informs, enables and strengthen aligning with PD. Just under half of participants reported that structure provided an important foundation for operating rules, guidelines, and parameters for IMS. Participant testimonies also highlighted the importance of articulating a clear role and associated responsibilities in order to better inform the development of key IMS related capabilities.

Jaakkola and Hallin, (2017) (as cited in Mintzberg 1979) defines structure as, “the sum total of the ways in which [the organization] divides its labor into distinct tasks and then achieves coordination among them” (Jaakkola and Hallin, 2017, p. 282). Participants expressed that they found the IMS as valuable because it documents the policies, procedures and its instructions defining roles and responsibilities via the businesses structure.

Ashton's (2004) research discusses the impact employee knowledge of organisational structure and practices have on learning in the workplace. Ashton drew the following conclusion:

> … organisational decisions made about the design of jobs, and the movement of employees through them, provided senior managers and some engineers with knowledge, in breadth and depth, about the organisation and its production system. (Ashton, 2004, p51).

It is this breadth and depth in knowledge of the organisation that provides the understanding to shape structure, which, in turn, in describing roles and reporting relationships guides people as to who they should relate to and the pathways to communicate. Ashton (2004) details how this knowledge of the business and its structures inform organisational decisions about PD and IMS. This is emphasized by Billet (2001) who argues that structuring workplace learning can lead participants to understand and pursue greater potential in their roles (Billet, 2001, p104).

Participants valued how the IMS clearly identified organisational structure, particularly through describing relationships and roles. They felt that clarifying roles and responsibilities, levels of authority, reporting and communication gave clear direction for PD needs. Having little or no structure for relational roles does the inverse, where there is little to no sharing of knowledge, not informing, but disabling and weakening PD. Several researchers identified the importance of structure to inform PD. Ashton (2004) asserts, "the structure of the organisation has a major impact on the experience of learning and crucially, the level and depth of the skills acquired by the employee", (Ashton, 2004, p51). Chen and Huang (2007) study (as cited in Hunter's 2002) found that relationships between task and authority are an essential characteristic of the organisational structure that strengthens the way people work. Jaakkola and Hallin (2018) in their research, identify how the four

common characteristics of specialisation, standardisation, formalisation, and centralization for organisation structure, inform workers about their PD.

The research above focused on organisations with formal structure, figure 7. However, other researchers emphasised the value of less formality and more flexibility. In Kaufmann, Borry and DeHart-Davis' (2019, p. 236) research on organisational structure and red tape, focused on centralization and hierarchy with understanding structure, though, drew the attention to how decentralisation can "positively affect employee, motivation, employee loyalty and organisation performance". Chen and Huang (2007) also provided a point of view where, "firms need to design their structure as less formalized, more decentralised, and more integrated to provide employees a great deal of autonomy and make them feel honored to participate in their work" (Chen and Huang, 2007, pp.114-115). This decentralised structure with its integrated nature can promote further PD by adding value and participation with each worker to occur because it promotes relationships and further knowledge Kaufmann et al. (2019) and Chen et al. (2007) argue that decentralization promotes the relationships between workers. However, in Monteiro, Hopkins and Frutuoso e Melo (2020) research looking into the dangers of decentralisation, explain that this dispersion of decision-making autonomy can become a risk in authority and operational control.

As a final caution, Monteiro et al. (2020) reveal real dangers of decentralisation when examining three case studies involving safety management systems. They found decentralisation may have advantages for PD and performance, however, in environments where safety is a key focus, decentralisation can reduce the ability to manage risks and allow a 'defective safety culture'.

Talapatra, Santos, Uddin, and Carvalho (2019) literature reivew provides evidence to support for this need of structure by the benefit of providing, "better definition of

management responsibilities and authority",(Talapatra, Santos, Uddin, & Carvalho, (2019), p. 89)

The organisational structure, represented as a chart in the IMS, Figure 7, provides knowledge and clarity about the structure of relationships and functions of a business. It shows clear lines of communication hence, informing and strengthening PD, creating accountabilities. Yet, where there are more decentralised structures, allow for flexibility in roles and responsibilities for various reasons, enhance positive employee motivation and freedom to act. Without such charts, figure 7, that illustrate these roles and relationship, and even red tape, there can be confusion and ambiguity of roles. It can be argued that there is a time and place for varying levels of roles, responsibility, and authorities regardless, IMS informs, enables, and supports PD to. protect and provide security, minimising risk to the business whether in quality, safety, and environment management systems.

5.4.2 Organizational Structures Roles and Responsibilities

Effective alignment of PD and IMs requires clearly documented organisational structures including roles and responsibilities. This is where businesses with policies, procedures, and role statements can more easily implement IMS. These documents provide workers with clear guidance to understand their role in delivering business processes. Specifically, to align PD with IMS requirements in a particular business, it is important to know how workers are expected to interact with business processes. It is in the IMS documentation of functional/positional organisational charts, like figure 7, that best represent and provide clear roles and responsibilities of worker. Participants of this study provided statements where IMS documentation detail how one's role will compliment another's role.

The research of Jaakola and Hallin (2017) described how organisational structure, like figure 7, can be analysed in terms of four characteristics, where the third of formalisation is presented where, for example, clearly documented organisational procedures for content of

the work as well as its administration is written down (Jaakola and Hallin, 2017, pp 282-283). Hence, with IMS, as with Jaakola and Hallin, documented information that is presented with clear information about the system and its structure, has outcomes where there is better innovation and creativity. Ashton (2004) further emphasized the need for clear hierarchy and controls, as to better inform all workers as to their roles and responsibilities. Ashton presented that the flow of information and knowledge is necessary and important to ensure there is ready access to knowledge for all workers' learning.

A well-documented structure, provided by an IMS, supports order and connectedness between people and process that enables alignment between PD and IMS. Effective alignment is dependent on how well the IMS is documented and made clear for the workers to know their roles and responsibilities. This knowledge helps identify gaps in skill that can be targeted by PD to better deliver the IMS.

5.4.3 Order from Complexity

IMS generates order from complexity. This was where participants valued that organisational structure provided by the IMS created order from complexity by the way it drives connectedness of workers and processes, and the clarity and knowledge of roles and lines of reporting. IMS means more to the participants than just certification; it provides a structure and process for improving collective work to keep improving business outcomes. The knowledge that the IMS is based on international Standards, with guidelines and parameters to form an effective business model, this gave participants confidence and motivation to continually improve their own organisational structures within the business operations. It is determined that Participants understood that organisational structure provides consistency rather than chaos and it was no longer cumbersome but structured. Participants made strong points in valuing the IMS as it interlocks everything, where not having an IMS becomes ad hoc and disconnected.

The original motivation for this research was based on an assumption that IMS and PD were poorly aligned, yet this research has revealed a perception by participants that the IMS plays a strong role in shaping PD that is relevant and appropriate to improve IMS implementation, very much by providing structure that creates order from complexity, drives connectedness between workers and functions and clearly defined roles and responsibilities. PD and IMS align through clearly defined organisational structure, that addresses the requirements of Standards within the IMS. Structure enables relational information to be shared and understood.

Having a structured IMS provides a connected workplace; connecting people and tasks, Ashton (2004), when comparing the works of Eraut (2000), Beckett and Hauger (2001), and Billett (2001) drew the conclusion, when looking levels of learning in the context of the workplace, that relationships are crucial for knowledge sharing. Bernardo (2014) sees management systems based upon the Plan-Do-Check-Act, known as the PDCA or continuous improvement model, provides a model based on empirical studies that is highly structured. The IMS, with the components of safety, environment and quality Standards, stresses the importance of the way IMS connects with the business.

5.4.4 Summary

This claim of structure can be summarised by how the IMS describes the business, its complexities and interconnections, that can inform appropriate and targeted PD. The IMS provides the importance of roles, and responsibilities, and how they interact with the IMS providing PD. Structure provides the ‘glue’ holding the systems of quality, safety and environmental management systems. Bernardo (2014) refers to the importance of having a framework, using integrated methodologies, that provide structures and connection for the business to operate and for workers to learn. Participants valued the structure provided by the IMS that brought order to chaos. “Workplace learning experiences need to be structured to

develop the capacity in workers", (Billet, 2001, p. 7). He stated that structure provides how the worker can learn and grow in understanding systems. PD is the process by which the workers develop competence to deliver their roles, identified clearly through structure, by learning new skills and growing in knowledge. It is the intersection and alignment that structure has within the IMS that impacts the practice of PD.

The IMS is valued by participants because it encourages connectedness, shared knowledge of processes and interactions. It is the documentation of these aspects in the IMS that gives structure that is communicated and can be understood by all workers. This leads to the next important point of valuing relationships where IMS is seen as 'priceless' by participants in facilitating communication and collaboration that enables both effective implementation of the IMS and enhances PD that enables that implementation. The connection between structure and relationships is that clearly defined roles and reporting lines are made apparent and valued for relationships and communication in PD to occur.

5.5 Key Claim 3: Relationships are Essential

Relationships, communication, and collaboration are not distinct, but intimately related with each other. No single one of these aspects can stand separately from the others.

5.5.1 Relationships, Communication, and Collaboration

Alignment of IMS and PD depends on workers having relationships based on communication and collaboration. It is this key claim states how relationships are integral to the alignment of IMS having PD. That alignment takes place through the communication and collaboration that build relationships. This relationship is between two or more people, whether on the same or different functional level of the business. Communication is, whether oral or written, is the medium in which the relationship is contained.

Participants emphasised the importance of collaboration in the workplace. The Standard within the IMS requires collaboration in the form of consultation and participation

in management systems. It requires, “seeking views before making decision”, and having participation as, “involvement in decision making”, (ISO45001:2018, clause 3.4 & 3.5); decisions which the workers will subsequently implement, together.

Collaboration is also defined as:

> Collaboration … is an activity in which a shared task is achievable only when the collective resources of a team are assembled. Contributions to the work are coordinated through communications and the sharing of information and knowledge, (Bouchlaghem, 2012).

In this research collaboration is a combination of the standard and the definition presented as here is defined as working together to achieve a goal.In discussing this claim, the reader will see that the concepts of relationship, communication and collaboration are interdependent. When present, they enable each other, while all three together enhance PD and work execution.

Communication and collaboration are important where success is built upon relationships. Billett (2001) explains the importance of relationship is to learn. The relationship is a shared experience and is also an inherently integrated experience for all workers. Billett (2001) explains the nature of integration as where learning of theory and practice of theory occurs together. This integrated experience comes from workers having a relationship in the workplace, with a more experienced worker, the master, relates the theoretical to the work challenge to the learner. The learner as well, would have undertaken the theory from the classroom experience and is now situated at the workplace challenge. The master and leaner are at the workplace challenge where the theory can then be practiced solving the challenge. The work-based components, the learnt theory and the practice of theory, complement each other solving the workplace challenge, like that of an apprentice or cadetship situation. The relationship grows between the master-learner experience, in an

active interaction and problem-solving manner. Based on Billett's (2001) definition of an integrated workplace learning experience, learning experiences are these integrated theoretical real-world, workplace components. The simple fact of there being a worker relationship, means that it is inherently integrated. This shared and integrated experience, the workplace creates a learning environment where workers communicate and build their relationships through this social interaction.

By following social constructivism concepts, learners are constructing their knowledge through interacting with others (Atwater, 1996). In later research, Barab (2001) focuses on the importance of learning through participation. Barab's (2001) work suggests that for PD to occur, it must meet the needs and expectations of workers where relationships, and interpersonal communication occur. Lave and Wenger's (1991) used the terminology of "communities of practice". The community of practice is where learning skills are developed by participating with others and learning together. Lave's (1997) notion was that "understanding" is "practice".

Thijssen (2014), building upon research, saw that the complexity created by the interaction of knowledge management and social learning at work, requires learning to be a continuous process of sharing with one another (Atwood,1996; Lave, 1997; Barab 2001; & Billett, 2001). When sharing did not occur or, there was limited communication because of situation or prejudice, these acts of social exclusion may limit knowledge and social learning at the workplace. Thijssen (2014) noted that where social exclusion existed, corresponding levels of low learning and low sharing of knowledge existed as well. This supported the observation made by Thijssen (2014), that participant relationships are critical to learning and that they depend on communication and levels of collaboration at work. Interestingly, the OH&S standard emphasises that there is, "the need to determine and remove obstacles or barriers to participation and minimize those that cannot be removed" (ISO 45001:2018,

clause 5.4.c) Examples of obstacles and barriers, according to the standard, could include language and literacy barriers, reprisals or threats of reprisals and policies or practices that discourage or penalize worker participation. In these occassions, the importance of social inclusion and building of relationships is acknowledged as necessary in workplaces. That is, the level and quality of the relationship through communication and collaboration, enables the alignment of PD and IMS.

The level of relationship, through communication and collaboration, was important to participants. Participants generally saw the importance of communication within work relationships being key to solving work-related problems (Participants A, B & G). The participants suggested that it was about managing staff, addressing problems within the group, and having skills to communicate and negotiate (Participants A, C, G J, K, E & O). It was further highlighted by the participants, the quality of their relationships was dependent on how often they would communicate with one another to achieve the tasks and activities set (Participants C, D, G, J, K.)

It is understood that “Communication has both content and relational aspects” (Horan, Chory, Craw & Jones, 2021, p.1). Participants suggested that where there is poor or limited communication, PD will have a lessor impact on workplace learning. This can be conversely seen that where communication occurs with the freedom to express opinion without the fear of reprisal, greater content of communication is revealed where relationship becomes stronger. This promotion of both communication and collaboration, for example making the organisational chart known, the methods of communication clearer, and further content of what is communicated is shared, relationships a re/built. This co-existence of communication and collaboration with relationships is needed, and has been rigorously debated and theorised (Lery, Haight & Roscoe 2020; Eldor, 2020; & Horan et al., 2021). It is important because

communication and collaboration are inter-dependent, where each is necessary to the other. To align PD and IMS, these relationships should address both content and relational aspects.

Participants challenged a hidden assumption that the only relationships that matters at work are role-based ones. Horan et al. (2021), researched the role of more personal relationships at work and how they support work and workplace learning. Kram and Isabella (1985) (as cited in Horan et al., 2021, p. 8) claimed that "peer relationships supported the "personal or professional growth" … and there were three types of workplace peers: informational, collegial, and special peer". What was marked as different, was that in the older mentor-mentee relationship based on the hierarchical nature, peer relationships performed career enhancing functions – role-based relationships. Horan et al. (2021) suggested they could determine what type of peer relations occurred from the levels of communication - from high levels of solidarity to simply sharing information. There was though little mention of more personal relationships in the workplace from participants. Only one participant raised the importance of friendship.

> This workplace here, I describe it as a friendly workplace, in the sense that everybody is, first of all, it's set up on an open space, so it allows for people to communicate regularly, openly, spontaneously… I describe it as an open environment, very communicative, friendly overall, where everybody knows for the most part what everybody else is doing … It's just friendly enough to allow conversations to just happen, (Participant J).

This participant suggests that friendship is more about the friendly nature of engaging in relationships at work. This contrasts with research that identified personal relationships, even friendships, as an important contributor to an effective learning workplace.

> Because of friendship's important role in organizational processes, insights into effective friendship maintenance are important for practitioners … practitioners

> should consider the extent to which employees' tasks are interdependent and help employees develop constructive and polite methods for maintaining their friendships in varying contexts. Managers, trainers, and other organizational communication professionals can use the present findings to help employees understand the dynamic nature of personal/work boundaries and how they communicatively transform or maintain those boundaries in ways perceived as polite and considerate of their co-worker (Sais et al., 2012, p. 263).

The friendly nature and friendships, raises the question, for me as the researcher, as to what this is about in these construction workplaces, that fails to capitalise on the benefits of friendly relationships. This friendly relationship is important where communication and collaboration is essential and how it is delivered through the various means ensuring respectful and polite methods to build friendly relationships, working towards a common goal. For example:

> … what lessons can be learnt? So, disjointed, disconnect is one if you don't do professional development and IMS well. The flipside is also very, very true. If there is an IMS and professional development is embedded and focused, it becomes very powerful organisation, full stop. A very powerful team, (Participant A).

Another,

> A great deal of success we have as a civil construction entity is a result of relationships that have been maintained and fostered by our director, (Participant C).

Further, another relates, "I think what it always comes back to is the sense of unity that we have between employees", (Participant E). Other participants suggested the need for working with teams by asking and involving others (Participants A, C, E, H, I, J, M & O).

It is this need to share, solve problems and challenges, where the level of the relationship is proportionate to the amount of communication that occurs, as to how well the

problem is solved. This level of friendship in the team forms of relationships in which people communicate, strengthen the alignment of PD and IMS.

Whether a trade apprenticeship or office cadetship, workplace relationships are critical factors in achieving appropriate alignment of PD with identifying learner needs and IMS requirements. Participant accounts refer to relational learning moments that occur as part of carrying out design, management, administration, and construction, tasks. These learning moments Billett (2001) refers to as critical incidents building. This building comes from active reflections, communicating and collaborating, from the team learning in or from the moment promoting active participation. Most of the positions of the participant interviewees were managers and directors of business, that saw relationship building within the context of, "Managing Staff having meetings and getting buy-in from others" (Participants A, E, F, M, N & O). Participants referred to the attributes and benefits of team building as, empowering others, being respectful, involving others, being relational and building unity (Participants A, B, E, I, M, N, O). Businesses wishing to achieve effective alignment of PD might purposefully leverage workplace relationships to ensure success of PD and IMS in workplace learning.

Subsidiary Claim 3.1 The quality of relationships corresponds to the levels of skills with communication in the practice of PD.

Participant accounts emphasized the importance of enabling interpersonal attributes and skills with communication (Participants C, G, J, K & M). Indeed, they reported that relationships do not just happen rather, specific skills are necessary. They referred to attributes for communication that are essential: to hear, listen and act as part of carrying out required activities, enabling workers to undertake tasks efficiently, effectively, and safely. Participants highlighted the ability to 'listen, ask and negotiate' with others as critical to successful teamwork and problem-solving activities. In particular one relates:

> A learning workplace, to me, is a place where you come in, and when you walk out, you feel that you did learn something. You feel that you are walking out with one extra little bit of knowledge that day. So, something that is not, say, intimidating, a workplace that allows you to ask questions, that allows you to talk to different people, even if they are across departments or whatnot (Participant J).

Another,

> Yes, and the other skill would be to listen actually, listen and take in what's asked or communicated to you as the leader sot that you absorb what they are trying to get across. You may even paraphrase it back so you can get clear to them that you've understood what they've said before you come up with your way forward, I suppose (Participant M).

Given the nature of asking, listening, and negotiating as part of communication as a form of PD, it is perhaps surprising that secondary evidence uncovered few or no documentary evidence of competency with these skills other than outcomes such as meeting minutes, emails, and other correspondence. Neither did their documentary evidence show that people had achieved these attributes and skills. According to Billet (2001) professional learning is based on informed practices that emerge from the workplace. Such informed practices are a shared experience. Participants in this study made frequent references to teaching by others in their workplaces. These accounts also addressed the importance of communication from their organisational leaders. Smith (2006) raises the importance of communication and doing this well by knowing the audience, listening rather than just talking and above all, taking time to communicate. Where change and improvement occur Smith (2006) uses an approach he refers to as the 4E's: engaging, empathising, educating, and enlisting. Enlisting is where the honest, open and two-way communication gains support from the listener. In further research into communication skills McEwan and Guerrero (2010)

(as cited in Buhrmester, Furman, Wittenberg, and Reis, 1988) identified five communication skills that:

> Related to competently engaging in peer relationships: interaction initiation skills (i.e., knowing how to introduce oneself and to strike up a conversation), negative assertion skills (i.e., the ability to assert personal rights and displeasure), self-disclosure skills (i.e., the ability to share personal information in an appropriate manner), emotional support skills (i.e., skills in sensitivity and being able to support and comfort others), and conflict management skills (e.g., being able to control negative feelings and behaviours and to constructively manage conflict). (McEwan and Guerrero, 2010, p. 447).

The importance of communication and how the team works was important to the participants. Participants saw how necessary these attributes and skills are to combine to present a powerful team, when focused on PD and IMS. An example of this is where partnering and accepting other opinions when participating with PD and IMS (Participants S & E). Another example related by the participants was where engaging with these communication skills results in include everyone and involves workers engaging each other, networking, and preventing silos (Participants B, H, I, J & O). Whether in staff meetings, working together, and involved with other workers, the attributes, and skills necessary are essential. The various competencies in engaging with these attributes and skills with each other will result in varying degrees of success with PD and IMS.

This claim brings to attention the need of attributes and skills to communicate, that enhances the efforts and outcomes of collaboration with PD and IMS. Relationships, built on communication and collaboration, with the necessary attributes and skills, enhance PD, and can improve IMS delivery.

5.5.2 Perception and Value of Relationships

Discussed above, relationships, communication and collaboration via interpersonal attributes and skills are key enablers of PD for IMS in participant workplaces. Having an IMS, provides a lever for communication to occur and recur so that continual relationships can happen which is valuable for a business.

The IMS Standards outline principles of practice that describe how effective communication can occur. Whether communication is internal, between workers or, where communication occurs externally to interested parties. Each of the Standards in clause 7.4 details:

1. On what to communicate.
2. When to communicate.
3. With whom to communicate.
4. How to communicate; and
5. Who communicates?

These five determinants for communication are to be practiced at each functional level of the businesses (Madichie, 2014 & Munsung, & Satish 2013). The method for determining these functional levels is based on a model adapted from the military and applied to strategic, operational, and tactical levels within the business (Stoner, Collins, Yetton ,1985, pp. 308-210). Levels include strategists within the executive leadership team, while operational matters are the responsibility of middle management and project managers. Tactical responses are carried out by lower levels managers and workers, who carry out the tasks. Having these 5 determinates and knowing where workers fit within the functional levels of the business brings value to understanding and positioning oneself in IMS having PD carried out by the relevant line manager who looks after the function within the business. Accordingly with these Standards with clause 7.4, it is important to ensure that the

communication that takes place as part of worker collaboration with appropriate fellow workers, in a user-friendly, audience-appropriate way. Stoner et al. (1985) sees the value of functional lines of communication with business setup, where the focus is on the fostering expertise and presents career paths. Interestingly, Stoner et al. (1985) identifies within functional setup, it has fewer interpersonal and management skills required, whereas this research has discovered that interpersonal skills are seen as important, necessary and highly valued.

Participant accounts affirmed that they value instances where the executive and top leadership communicate and collaborate effectively and efficiently with their workers at all levels. For instance, participants A, F, I, J, N, and O notably related the value of managing staff, having staff meetings and networking. For instance,

> Interviewer: … What lessons can be learnt from these workplace challenges? In just a short …
>
> Interviewee D: Oh, it's communication.
>
> Interviewer: It's communication, is it?
>
> Interviewee D: Yeah, it is communication. Its communication so that everyone hears the same message to start with, bang, and then you can isolate other groups and sort of explain to then how it will fit within their roles and all the rest of it. But as long as everyone hears the same message first and that resistance of it is not acceptable, that this needs to be incorporated and let's move forward with it - any questions … making sure that everyone not only hears but listens to that message (Participant D).

These skills and attributes are needed in the workplace, and enable learning, as well as the achievement of workplace outcomes and resolution of workplace challenges. Participants valued and needed their peers and leaders to communicate. Communication promotes working together, understanding, and knowing how to meet each other's needs and

expectations. The three Standards of quality, safety and the environment, in clause 4.2, details the necessity of understanding the needs and expectations of interested parties. The safety standard emphasizes the necessity for organisations to meet the needs and expectations of workers. It is the practice of PD in the workplace these needs, and expectations are communicated and offered as a rationale for workers to acquire the necessary attributes and skills to communicate and perform daily work activities. Developing such attributes and skills requires a culture of continuous improvement and performance measurement, supported by processes of self-assessment, peer-assessment, and effective leadership from IMS representatives and business owners. An example of this can be seen in the benefits were having a continuous quality improvement (CQI) process practiced with success in moving families forward out of homelessness (Lery, Haight, & Roscoe, 2020). The researcher's method was using a CQI framework which is explained as, "an approach to implementation and evaluation demands rigor and specific skills … details as plan, do, study, and act … being evidence based", (Lery, Haight, & Roscoe, 2020, pp. 5112-5113). Similarly, a CQI was practiced for telephone CPR in Japan where it is concluded, "a CQI project is essential to improve the outcome of telephone-CPR", (Tanaka, Taniguchi, Wato., Yoshida & Inaba, 2012, p. 1240). It was in each case, there was significant improvement in using the similar framework as found in the quality standard of Plan-Do-Check-Review, then repeating these steps over and over, continuously improving. This is a valued process from the participants and will be discussed later.

The IMS Standards describe a 'needs assessment' that ensures workers have, or identified the need to have PD in developing the necessary skills whether it be in the technical skills or the soft skills of listen, negotiate, and ask questions in a way that is cooperative and leads to collaboration. The consultation and participation of workers necessitates various policies and practices that are documented as part of the documented

IMS. These promote worker relationships for example a documented anti-harassment and anti-bullying polices, equal opportunity policies, and so on. This is valued and is important for businesses, since a few participants raised concerns about asking questions, and argued that workers should not have to be fearful about retribution or harsh correction in doing so. For example, one participant raised, “I’ve never been afraid or have never been made to feel unwelcome to ask questions” (Participant E). Another, “… if you have a specific problem, especially here, like if you have an issue with, … I know I can go to … he has lots of experience. So I go and ask” (Participant L).

5.5.3 Summary

Having workplace relationships that are friendly, where communication and collaboration can take place by effectively applying the skills and attributes of communication, helps to face challenges. Having rules, measurements, guidelines, and parameters help to continuously improve in communication is valued and is important. Having a relationship and asking questions without fear of retribution, learning and growing can improve PD and in turn strengthen the IMS. Relationships are valued and are necessary for effective PD and IMS at the workplace. It is from having relationships in the workplace, continued growth of the individual and business occurs. Relationships are inevitable however will vary in each workplace. It is in these workplaces that relationships are valued and can better align PD in the workplace when associate with IMS.

5.6 Key Claim 4: Purpose

Purpose gives a sense of direction, vision and mission, to enable an alignment between PD and IMS.

5.6.1 Purpose Drives Alignment

The findings of this study suggest that alignment between PD and IMS is driven by a sense of purpose. Specifically, participants explained how their workplaces’ IMS, and related

PD created a sense of direction for them as workers. In addition, some participants claimed that having an IMS gave direct purpose to their PD activities (Participants A, C, D, J, K & L). Others explained that having the IMS further helped to provide vision and direction, facilitated understanding, and supported them to strive for goals (Participants E, D, I and K). Having a sense of purpose is reflected in the Standards for quality, safety, and environment referring to the phrase, 'strategic direction'. This is important because it supports the current consensus when having an IMS both the individual and business have this understanding of strategic direction, a sense of shared vision (Lima, Filion, Dalfovo, & Urbanavicius, 2013; Eldor 2020 & Senge, 2008). The father and theorist of the learning organisation, Senge (1990), puts it simply, in a pragmatic approach where, "the practice of shared vision involves the skills to unearthing shared pictures of the future that foster genuine commitment and enrollment rather than compliance" (page 9). This shared vision, having this strategic direction communicated within the business and team, is perceived an intrinsic motivator for participants as it enables them to work towards a common outcome. Participant responses highlighted the importance of a sense of purpose, and to have set goals and objectives. With these in place, workers could address challenges with confidence. In addition, goal-related checklists could be used as part of checks, acts of verification and validation processes. The response of these professionals reflected the commitment and enrolment to carry out the desired actions communicated by the shared vision to construct bridges, buildings, tunnels, and other works.

A shared vision is where everyone within a business environment shares a common purpose and direction. Workers engage with this vision as part of collaborative work activities to achieve desired outcomes. A shared vision is can also be used as a deliberate driver of collective engagement. According to Eldor (2020, p. 179), collective engagement is, "the strategic role of management and shared goals in generating engagement and the

strategic collective nature of shared vision", (Eldor, 2020, p. 179). Eldor (2020) adds: "collective engagement involves psychological processes occurring within employees as they interpret meaning to the collective motivational atmosphere in which they perform" (p. 181). This is where personal vision becomes shared and acted upon. Put another way:

> Though many practitioners and academics alike have argued the creation of a vision, be it at the individual, team, or organizational level, shared vision motivates people to action and inspires them to reach beyond their current state, (Boyatzis, Rochford & Taylor, 2015, p.1)

Another example, Boyatzis et al. (2015) identified two motivators for vision, these being promotion focus and prevention focus.

> An individual with a promotion focus will be motivated to approach the desired end state based on concerns with "advancement, growth, and accomplishment." Conversely, a person with a prevention focus will be motivated to approach the desired end state based on concerns with "protection, safety, and responsibility" and avoid risks and danger. Individuals with a promotion focus experience pleasure and pain because of the presence or absence of positive outcomes while individuals with a prevention focus experience pleasure and pain as a result of the presence or absence of negative outcomes, (Boyatzis, Rochford & Taylor, 2015, p.2).

This distinction between different motivators is reflected in the account of Participant E, who was described their personal goal as wanting to become better at what they were doing as a pathway to a qualification. They sought direction from their director about best what? to attain. Participant L related that they commenced as a junior engineer and as part of their PD was to be exposed to IMS and they could relate to another in the same business that had been promoted. Another talked about pathway to promotion:

> Well, traditionally we've taken employees that have just journeyed through the model years to the business and each level of new role they take on different challenges. So, the higher level they go, they have to be a bit more professional in who they deal with, with their customers in the different organisation that they are dealing with and they need to really develop their skills to handle them for those type of situations, (Participant O).

It is possible to argue that participant experiences reflected both a promotion and prevention motivation focus. For example, participants perceived that advancement, and growth took place when they were motivated to achieve a shared vision in their workplace. A promotion focus was also evident where the advancement of a business was also a source of growth and accomplishment for workers. Conversely, participant accounts suggest that adherence to IMS, arguably driven by a preventive focus, was also a source of motivation, and IMS aim to minimize risks to quality, safety and environmental hazards and aspects. Each of these promotion and prevention focuses motivated participants so that shared vision was enacted. Based on participant accounts from this study, individual workers, were more motivated towards self-improvement where there was a shared vision, with clear goals to work towards.

Talapatra, Santos, Uddin, and Carvalho (2019) literature review provides evidence to support for this benefit of purpse by providing, "multiple systems with the same goals",(Talapatra, Santos, Uddin, & Carvalho, (2019), p. 89)

Billet's (2001) research on workplace learning echoes the experiences of participants in this study. He explains that in the learning workplace, shared experiences should be integrated both professionally and individually so to reach mutually agreed outcomes. The shared experiences highlighted by participants, emphasises the importance of sharing vision and reaching mutually agreed outcomes. Business processes, IMS and related PD are mutually reinforcing, where shared vision is enacted, the worker becomes immersed

regularly in learning experiences that enhance competencies to carry out this work. What is also occurring at the same time is this measuring and re-calibrating business vision and direction that comes from this learning about IMS and PD through meetings, correspondence and face-to-face occasions for improvement.

5.6.2 Vision and Mission

The vision and mission of the business informs IMS and PD. It is this subsidiary claim supports the key claim where having knowledge of the direction, vision and mission, of the business, can directly inform the IMS and further build the awareness for PD to occur. When participants were asked, “how do you best describe your workplace?” responses were specific, for example:

> It is civil construction focused, so we’re talking about roads, bridges, and associated designs supply and associated providers (Participant A).

Another,

> We are a design and construction company within our design team and construction management team in the office. Then on site we have site management personnel, and we then manage contractors and other people on site to produce construction work, (Participant C).

Further participants shared, “So we are a design practice and we have about 28 staff, (Participant F). We are well-established. I would say minor construction company, specializing in mainly fit out. We also have a joinery factory. Very low turnover of staff (Participant I). Additionally:

> We are focused on underground engineering particularly in consulting and the client/contractor representation on the site. We do not actually do the construction, but we do anything from reports, calculations, the actual design, drawings. Then a lot of

> jobs will be onsite doing monitoring, things like that to help the client out, (Participant L).
>
> My workplace would be more office based now in the manufacturing industry. We've got multiple workplaces. Obviously, a factory environment is a workplace for our staff that are doing the manufacturing, but we've also got the workplace for the office-based sales and admin staff (Participant O).

In each of these responses, they describe what was carried out, and they explained their direction and mission in what they are to achieve as a business. The conveyed their own understanding of what they do, contributing to the business as to what is carried out. For example, civil construction, designers and contractors, underground engineers, and manufacturers. Each participant informs and begins describing their context. They then explained what they contribute. Each participant understood what their business does and will do. Rather than saying 'I' there is the collective saying "we". However, participant O leads with what he does yet, ends talking about the staff and what they do as a business. It is the term 'we" in their description, is a strong understanding of the shared vision for the business. It is about the collective direction of what the businesses represents. In explaining their workplaces and what the business does, this explains the scope of what their IMS as applied to their business.

The quality, safety and environment Standards detail the necessity for understanding the scope of the business (Clause 4). The Standards explain the need for considering and determining factors effecting purpose and intended outcomes. There are further factors that need to be determined by the business concerning scope and it is in documenting these details that form the basis of the IMS documented information which is then expanded into policies and procedures. This was evident in the secondary documented information sighted as part of the data collection.

The responses of the participants further inform what professionals participate in the business scope, for instance designers, contractors, engineers, and manufacturers. Additionally, there are the support personnel such as administration, human resources, and the like, that make up the business size with the numbers of workers. The primary resource of workers, each standard is clear and consistent in clause 5, were its discusses the need for leadership and worker participation in engaging, directing and supporting persons to contribute to the effectiveness of the management system requirements. Further referred in clause 7.1 of the Standards, requires business to determine and provide the resource needed for the establishment, implementation, maintenance, and continual improvement of the management system. These references made of the Standards are further documented and actioned via various formalities of meetings and can inform the IMS as to details contained and needed for PD. Further research demonstrates how managers end executives need to engage and communicate shared vision that gives a collective sense of purpose, (Eldor, 2020, p. 202 & Boyatzis et al., 2015, p. 10) This subsidiary claim demonstrates that direction and mission of the business can informs IMS and PD. This claim details the need and requirement of having a shared vision to reach a desired outcome of the business to better engage PD. Each participant from each businesses, have an applied IMS hence, participants explained that challenging staff is important for the continued stiving for goals to maintain purpose and direction in alignment with business's shared strategic direction.

5.6.3 Perception and Value of Purpose

IMS was valued by participants because it provides a useful foundational information for scoping PD that drives improvement to deliver the business vision – strategic direction. Based on the experience of participants in this research, the IMS fosters the long-term success of the business and improves the reputation of the business. The value of having strategic direction can be broken down into performance measures that can be measured

through meetings and individual PD by informing the working and makes them reflect upon the performance. It is with the strategic direction and the measure of its success that directs, then informs workers. The measure of performance can then be recalibrated, informing further strategic direction. It is with these performance measures that further inform the worker how they may interact with others that have similar performance measures.

Participants valued the fact that IMS provides this strategic direction giving purpose. One describes:

> Yep, at my place of work. That was that self-managed teams, which contrast to together places which did not have self-managed teams, and there was no IMS, so no management system. The other words that would come into place would be ad-hoc or ramshackle. (Participant A).

Participant A reflects that having no IMS, no management of teams, everything resulting from this becomes inconsistent having no purpose and does not link together. He goes on to say:

> The flipside is also very, very true. If there is an IMS and professional development is embedded and focused, it becomes a very powerful organisation, full stop. A very powerful tea. (Participant A).

Another, values having an IMS, as it provides direction:

> You need all your qualifications to prove what you are doing and what you stand for. Also, to keep improving the business and taking it forward. But also, too, new people coming on board, that they understand the process of what you are doing and that's a recent comment that we have had, that it's very clear to him what he needs to do and very easy for him to work through. With the new staff member having worked at a few big names, he did not know where to start and stop. So having that system all in place and knowing what to do has really help him, (Participant C).

Another, relates how having an IMS, tells what one is to follow and how it is a shared vision and experience:

> To me, it goes back to consistency, so every will know what the expectation is, in the sense of, what are we expected to follow. What guidance are we expected to follow, what standard should we be abiding to. It allows consistency of performance regardless of the site that you're in, regardless of the client that you've working for, regardless of your seniority, regardless of your role. If everybody refers to the same set of guidelines, then it should be consistent, (Participant J)

Having this share vision, purpose, this strategic direction for the business has a positive knock-on effect to the way they enact the IMS, particularly if there is good alignment.

In a research looking at corporate social responsibility (CSR) having strategy saw how this affects and improves the organisational commitment (Rodrigo, Aqueveque, & Duran, 2019, p. 467). It is within this research that has a similar outcome, having IMS with a strategy generates and affects a positive organisation commitment, as related by the participants, providing purpose to the business.

In further research, it suggests:

> That manager should strive to engage their workforce by pursuing a shared vision that bounds employees to a common purpose and strategic direction. An effective shared vision that promotes a collective sense of purpose unifies employees as a singular workforce intent on collectively investing its full capacity in a broad range of service-oriented performances and behaviours. Moreover, managers should acknowledge the crucial role they play in strategically identifying market conditions and effectively utilizing these strategic signals through shared vision for managing, cultivating, and maximizing the value-creation capabilities of their engaged workforce, (Eldor, 202, p. 202)

It can be identified that there is value of having purpose that is shared to others. In having an IMS, where a business that communicates and shares its strategic direction with their workers, can better align PD with IMS. By sharing vision, there is the value of business that has positive organisational commitment and engaging with workers can better align PD to IMS.

5.6.4 Summary

It is understood in this key claim, participants related how having an IMS provides purpose by having a direction, vision, and mission. The Standards reference this as strategic direction. Having shared strategic direction, improvement can be made with IMS and PD to increase awareness and competencies of workers, that further motivates and promotes engagement with each other to complete desired outcomes. Contributing variables that strengthen shared strategic direction is this promotion and preventive focus that can better inform IMS's alignment with PD. This focus motivates workers to carry out actions that relate to the shared strategic direction as a collective. Participants demonstrated in the subsidiary claim that understanding their business's vision and mission, IMS can better align PD. Participants related their value and importance, how having purpose improves organisational commitment and engagement with others. Participants valued IMS because it documents the common purpose and focus that unifies effort and guides decision-making to deliver the defined strategic direction (vision and mission) of the business.

5.7 Key Claim 5: Continuous Improvement

This is where a culture of continuous improvement drives an alignment between PD and IMS.

5.7.1 Culture of Continuous Improvement

It is important for improvement where a dynamic workplace exists, a culture of continuous improvement and continuous learning provides an effective alignment between

PD and IMS. Participants related how a culture of continual improvement and learning is about the process of evolution for the individual and business, where issues or problems are addressed and solved in such a way where they do not recur. Participants gave their perspectives that as individuals in their organisations, they are always growing and always learning (Participants B,C,D, E, F, G, J, L & O). For example, “a practice that is not wasteful” (Participant O). This culture of continuous improvement across businesses and organisations is widely accepted, acknowledge and inherently a part of a company’s DNA that has management systems (Backlund & Sundqvist, 2018). This is described as continuous improvement (CI) that is, “more holistic, systematic and strategic in its nature”, (Buckland & Sundqvist, 2018, p. 1307). This definition fits well with participants that said it relates to the wider culture and practice of improvement processes. CI promotes process to become more efficient and effective. CI is advocated for and is seen as a necessary way to move forward and over the decades this has been integral (Stoner et al. 1985; Cole, 2005; Backlund & Sundqvist, 2018).

CI is a key requirement for organisations with an IMS and continues to be practiced by the participants and the businesses they work in. The Standard of quality, safety, and environment, each have section 10.1 that focuses on improvement. For example, the safety standard states:

> The organisation shall determine opportunities for improvement and implement necessary actions to achieve the intended out comes of its OH&S management systems (ISO 45001, 2018, p. 11).

The environment standard focusses on the necessary actions to achieve outcomes of its environment management system to reduce pollution (ISO 14001:2015, page 18). In the quality standard equally emphasises, “necessary actions to meet customer requirements and enhance customer satisfaction” (ISO 9001; 2015, page 18). In each standard, these sections

explain that, “the organisation shall continually improve the suitability, adequacy and effectiveness of the … [safety, environment and quality] management systems” (ISO 45001:2018, page 23, ISO 14001:2015, page 18 & ISO 9001:2015, page 19). Each standard with section 10 tell of the intent for improvement is to prevent nonconformity (problems) by evaluating whether there is a need for action to eliminate, so that this nonconformity (problems) do not recur or occur elsewhere. This is important because participants responded explaining you do not want issues to repeat themselves (Participants M & N). A certified company, improvement is not a voluntary component of operation, it is required. It is quantifiable and reflected upon through the process of reporting, investigation and taking action to manage improvements that may occur from incident, injury, illness and nonconformity. There needs to be a genuine commitment and enrollment for improvement for a learning company for growing and maturing.

Talapatra, Santos, Uddin, and Carvalho (2019) literature review provides evidence to support for this benefit of improvement by providing, “Provide better alignment of strategic, tactical and operational policies and objectives …to improve productivity and organization efficiency.”,(Talapatra, Santos, Uddin, & Carvalho, (2019), p. 89)

Billet (2001) makes the point that if individuals are not learning as part of their everyday work and contributing to the workplace with what they learned, the workplace would not be a pleasant place to be and there would be no improvement. Participants reflected that improvement did occur and dependent as to the severity, they were happy to talk about the importance of improvement and what was learnt so that follow up action took place. Billet (2001) describes, in real-life situations that require resolution, are continually promoting improvement in the construction workplace. A learning organisation enables workers to resolve problems and prevent these from recurring.

Senge (1990) defines a learning organisation as one that is continually expanding its capacity to create its future, by promoting both adaptive learning and generative learning. Adaptive learning is about survival, where generative learning refers to learning that enhances the capacity to create. Adaptive and generative learning approaches contribute the practice of continuous improvement, which the IMS Standards describes as innovation. The survival process becomes about the process of collecting information about what has occurred, providing the opportunity to analyze, evaluate, assess, minimise, and prevent risks from occurring again. What has been learned, both adaptively and generatively, is documented and communicated to others, appropriately. The process of continuous improvement maintains a business and promotes a learning organisation.

Hill's (2019) research shows how the developing a learning organisation helps to improve the capacity to thrive and continuously transform. Hill's (2019) research explored the learning organisation via a case study that focused on a student learning community of students and teachers in England. This became important because Hill saw this link between a learning organisation taking the approach of continuous improvement.

In my study, participants related the process of continuously improving in terms of, 'not wanting to start from scratch … being a process of evolution … continually improving each other'. Continuous improvement, like with Andersen (1982) and Glaser (1990), the theory and approach to learning in the workplace, centers about proceduralisation and composition (as cited by Billett, 2001). Proceduralisation becomes about the actions of continual improvement, as defined by the standard. Where composition is about lessons learnt are taken from the experience of the process which is then shared with others.

The learning organisation is consistent and complements the improvement of the business, where PD and IMS should ideally, and continually inform each other to drive improvement. How, this occurs is not only focusing upon the problems and simply resolving

them, but also important to set preventive measures so as not to reoccur. The learning organisation is adaptive and generative with its learning that occurs fostering a culture of improvement which drives the alignment between PD and the IMS.

5.7.2 Perception and Value of Improvement

Participants valued IMS and related PD because these were driving processes for continuous improvement. As one participant explained about the IMS, “it’s improving the business and taking it forward” (Participant C). Generally, the participants responded that IMS is synonymous with the principle of continuous improvement, where participants also related how the tracking of achievement via objectives over time improved and can better align PD and IMS. Participants valued that IMS, and PD related to the improvements of the organisation outcomes. For example:

> I think the whole point of an integrated management is continuously improving the organisation’s outcomes. There’ll always be challenges in business but firstly understanding we’ve already been here before so an integrated management system keeps a record of anything that’s happened previously so that you can obviously determine any future decisions based on what you’ve done in a recorded way rather than just randomly off the cuff trying to understand what did we do last time, (Participant G).

The IMS was further valued where it, “makes it really usable, practical, friendly, to review it often”, (Participant J). Another valued the system as there is always room for improvement and knowing there is always something more to learn:

> I would like to learn how – well develop my learning of the IMS more thoroughly but then also learn how to make the IMS itself more effective and efficient. Because I imagine it’s not static – it’s a growing organism. It’s probably got room for improvement as well, (Participant L).

Participants related how a system is constantly growing and improving. Whether by looking back as to what you have done and then looking forward. The safety standard gives examples of improvement as, “Corrective action, continual improvement, breakthrough of change, innovation and re-organisation” (ISO 45001:2018 page 38). Review, whether via meetings, audits, and continued inspections is continually looking at the workplace, working through problem-solving and putting in measures to prevent the issue, incident, injury, illness or ill-health from occurring again.

Various methods, approaches and tools have been developed and used when monitoring improvement and promoting continuous improvement within businesses. Each of these are a ‘movement’ of themselves yet, come from a mathematic and statistical basis of remarkable mathematicians. Most notably the Deming Model. The creator, Professor William Edwards Deming, left two main approaches of his thinking that are iterative in nature: the plan-do-check-act (PDCA) and the plan-do-study-act (PDSA) approaches.

Each of these methods are valued by certain industries from manufacturing, construction, and engineering. Each of these are readily available through searching the WWW. The first one is the Kanban approach. The goal of Kanban is to identify then work toward fixing potential bottlenecks in processes. Another is innovative prototyping or also known as design thinking process. In innovating prototyping, this is a cyclical iterative process, like the Deming Model, where the process includes understanding (empathise & define)-explore (ideate & prototype)-materialize (test & implement), this process then repeats. Another approach is the use of Six Sigma that uses the DMAIC and DMAV method, where each acronym is a step of activity. For example: D – define the goals; M – Measure critical components of the process and the product capabilities; A – Analyse the data and develop various designs for the process, eventually picking the best one; D – Design and test

details of the process; then finally, V – Verify the design by running simulations and a pilot program and then handing over the process to the client.

Amongst these processes, a branch of thinking also looks at the root cause analysis. This is where a root cause analysis delves deeper beyond the symptoms of the problem to the 'why' of the defect, nonconformance, incident, injury, or illness. The Five Whys ask 'why' iteratively to get to the root cause, by breaking down the issue into the causation of the problem. Other methods are known as the Critical to Quality (CTQ) Tree approach, the Failure Mode and Effects Analysis (FMEA), the Pareto Analysis, the Fault Tree Analysis (FTA), Current Reality Tree (CRT), Fishbone or Ishikawa or cause-and-effect diagrams, the Kepner-Tregoe Technique, Rapid Problem Resolution (RPR) Problem Diagnosis.

Another, prolifically used method in the civil and construction industry, valued by the professional, is the Incident Cause Analysis Method (ICAM). Founded on the work of Professor James Reason who studied human error who examined the layers of contributing factors to various problems and issues. The first are the organisational factors that contribute to the problem. The second is task and environmental conditions of where the problem occurred. Thirdly is individual and team actions that contributed to the problem. Then finally, absent, and failed defenses are examined. ICAM not only looks at the 'grass-root level' of what has occurred, it also goes 'up-the-line' of the organisation to executive and director levels, where trained and qualified ICAM assessors are sought and that are respected professionals within the industry that carry out these assessments.

This list is not complete as there are other methodologies being used and can be used in combination with each other for continual improvement practices. Certain businesses, depending on their resources, use consultants that would use the method/s they are strongest and most familiar with.

Lenné, Salmon, Liu, and Trotter (2012) research focused on a systems approach to accident causation in mining called the Human Factors Analysis and Classification System (HFACS) It was with HFACS that they saw the contributing factors of skills, violations, issues of physical environment and organisational processes reducing efficiencies. Other contributing factors that could help predict the presence of failures found, “planned inappropriate operations and team resource management; inadequate supervision and team resource management; and organisational climate and inadequate supervision” (p. 111).

Whilst statistical analysis methods can pinpoint factors and causations of problems, it is with the combination of methods such as ICAM and HFACS that can bring together learnings that build peoples knowledge, contributing to the learning organisation. These practices contribute to continual improvement in a reactive and proactive way. This culture of improvement drive alignment of PD and IMS.

5.7.3 Summary

The perception and value of improvement creates a culture for performance that can better align PD and IMS. Participants within this research valued this culture of improvement. Culture of improvement drives alignment between IMS and PD. Furthermore, participant accounts suggest that continuous improvement should not only focus on the individual, but also the learning individual and organisation, where together, alignment of PD and IMS will vary. The culture of continual improvement and the learning organisation is adaptive and generative in learning to survive and grow. The culture of learning incorporates the IMS where proceduralisation and compositional learning with continuous improvement occurs. Participants valued improvement as it creates a culture of performance that can be achieved by various ways. The various ways include methodologies that incorporate the use of mathematical and statistical models, complimented by considering human factors that contribute to problems. Investigating and examining problems, using the results of

mathematics, statistics, and human factors, contribute to learning to reduce the risk of problems from reoccurring. PD can then be better aligned to IMS having a culture of continuous improvement.

5.8 Implications of the research

The second of the secondary research question R2b focus on the implications of the research. This question asked: how can professional development for integrated management systems be best designed and implemented for the worker and the business owner?

The first implication, related to the design and implementation of PD systems for IMS where learning opportunities would be improved by ensuring they can be tailored to fit the context of a particular business. Every business has its own unique context, which provides varying opportunities for IMS and PD to be designed and delivered. Based on participant accounts, PD provided for one workplace, as compared with another, may vary in its level of formality, where and when the PD might be provided, and the cadence of delivery.

The second implication of IMS, provides an ordered view of the business by documenting its structure. The implications for practice with the business is the requirement to document and have clear directions and procedures to communicate and share information about the structure of the business to workers who have varying degrees of authority and responsibilities. This documented structure enables workers to understand their roles and responsibilities, and their connections with each other to undertake their workplace tasks. There is a benefit to having a clearly documented structure for role clarity to assist in identifying the PD needed for each individual worker, which enables them to successfully deliver the products and services that the business provides.

The third implication relates to the design and implementation of PD for IMS where PD is enhanced when it is done in relationship with others. Therefore, PD for IMS should also explicitly address the development of key attributes, such as interpersonal,

communication and problem-solving skills. Participant accounts suggested that these were important enablers of effective relationships, workplace communications and collaboration for increased performance. Effective PD for IMS should aim to enhance the workers' ability to perform, learn and have effective workplace relationships.

The fourth implication relates to the finding that, according to participant accounts, the purpose and direction provided by the IMS, has the potential to motivate and grow the passion of workers and business owners. IMS's direction guided by PD can serve as a driver for workers and business owner(s) to learn and perform, to achieve the business vision. This implication for practice is to ensure that purpose and direction, outlined in the IMS and PD, are communicated in such a way that they inspire the worker and owner(s) to move onto the next challenge and improve the business, having purpose to reach and aspire toward a goal purpose.

The fifth and final implication is based on participant perceptions that PD and IMS are enhanced as part of the development of a wider culture of continuous improvement. The implication for practice is to ensure that there is a process for improvement in businesses that fosters continual growth, learning and innovation.

The next sections develop and discusses in greater detail the implications for practice of findings for PD and IMS relating to these above five summarised implications.

5.8.1 Understand Context

My research findings revealed that it is important that each business and its context is factored into the IMS and related PD, while also meeting the requirements of the quality, safety, and environmental Standards. To tailor PD for IMS, there is a need to understand the context of the business. To understand this context of the business, the design of the IMS to the business becomes for the business, fit-for-purpose, fit-for-safety and environmentally sustains the workplace, preventing pollution.

Participants, when ask to describe their place of work, described their work relative to them and to others in the business, reflecting their situation and profession. This was specific to them and the business. Sighting secondary documentation such as policies, procedures, manuals, and records, this was about their business and with whom and how it operated. It was specific to the needs of the business revealed, what they did, its business identity, their plans and their schedules to meet their interested parties needs and expectations. Examining records of skills and competencies in various documented forms, it was about those in the workplace and the people that participated in the interview process with their opportunities for PD. Each business that participated was unique.

Where PD existed, this further related to the business's uniquely designed IMS and its context. In examining participant feedback, they also understood the people involved performing their tasks. Position descriptions informed by the IMS and communicated to the individual worker helps not only the worker, but also the supervisor/manager to guide and help with the opportunities in performing PD specific to the workplace and to the person performing the task.

Understanding position and how this is tailored to fit in with the business is first communicated at the induction of the individual. Information provided at the induction included information as to how the business operates and how its workers work together to achieve the businesses deliverables. This induction provides a roadmap for PD and how the worker navigates PD tailored to the work he/she undertakes as part of their daily routine. Inducting workers into the context of the business, as described by the IMS, an orientation information pack included documents such as their contract of agreement, position description, and appropriate standard policies and procedures relative to the business. Three key pieces of information are presented at induction of: information of daily work routine, introduction to the organisation and what the worker will contribute, and guidance of polices,

rules and possible benefits (Stoner et al., 1998). In reviewing the secondary evidence, this information has remained very much the same over the years. When the workers begin to understand how their role related within the context of the business and with other workers' roles, appropriately tailored PD can be designed with the worker over time, with certain modes of delivery for the worker to professionally develop within their role.

The implication as to how PD systems for IMS is best design and implemented for the work and business owner is that IMS describes and prescribes what the worker does relative to the business's context. This implies those that who undertake the design and development of PD and IMS for a business must know and have the awareness and knowledge about the context of the business and how it operates.

5.8.2 Clarify Organisational Structure

The use of IMS to understand the organisational structure of the business, provides clarity as to how workers connect with one-another in the workplace. Understanding organisational structure can also help to determine the necessary skills required in the workplace enabling workers to understand and perform their roles and responsibilities. This reveals that businesses can enhance the developmental potential of their current IMS practices by understanding organisational structure. Clarity and understanding organisational structure, provides how information is communicated with workers. The documented information of the IMS, detail the organisational structure of operations for the business to better understand how workers interact with one another.

Participants related how knowing their role and structure of the business, bought a sense of how they fitted within the business. This gave the understanding of how to escalate certain challenges up the line to the relative supervisors and managers. And, then how to push it down the line to get the work done. Participants reflected that having hierarchy and chain of command, organisational structure systemizes the business.

Documented information of the IMS examined from the secondary documented data collected included organisational charts, flow diagrams, written directions and checklists to understand the structure and how workers related. Figure 7 provides two examples of the various levels of connection with one another and Table 3 detailed clear procedures to communicate and share information with workers who had responsibilities and authorities within their business.

Examining worker's roles, responsibility, and their authorities appropriate to their functional level of position, via the organisation chart and position descriptions within the business can begin to determine what the worker knows and needs to know to perform their work. Participant responses and secondary documented evidence collected, indicated that the worker's skills are documented as they develop. This included their qualifications, competencies, and history of experience. Documented skills, competencies and qualifications could be used to compare with their tasks individuals were asked to perform and identify potential skill gaps to inform future PD opportunities. Recording certain attributes and skills, necessary for the performance and completion the activities will help organisations to determine the developmental needs of the worker creating further learning opportunities with their PD.

Galvan (2019) explains the importance of organisational structure and concludes that, "an organizational structure is based on the segmentation of activities to achieve the execution of previously planned activities, where the functions, obligations, and authority of the members are determined, based on feedback from all the areas related to each of the specific and general objectives of the organization", (page 4). As with Stoner, et al. (1985) and Galvan (2019) structures can be best represented as simple, functional, divisional and in a matrix. Knowing structure gives stability and reliability to the actions of its members. Having an organisation chart helps to remove and avoid duplication of work, directing actions

relative to the worker in the assigned position and the various relationships they have amongst the businesses detail structure.

The implication of knowing structure can better position the worker knowing how they fit in to the business and having role clarity as to who and how they relate to one another. PD for IMS can be best designed and implemented for the worker and the business owner knowing what the structure of the business looks or is to look like. PD and IMS design require to understand how workers relate to one another and what roles, responsibilities and authorities' workers have in the business.

5.8.3 Foster Relationships

Findings from this study suggest that relationships and communication were a critical enabler for IMS and related PD. Without communication, relationships cannot exist. And learning is fundamentally social in nature. As Billett presents his view, "Guided learning [that] is based on interpersonal interactions, engendering positive collaborative relations is important", (Billett, 2001, p.182). Having necessary attributes and skills to relate to people and solve problems collaboratively arguably deepens the relationship with fellow workers. It is how and where these relationships are built, that has an implication of practice for businesses.

Participants perceived that required communication skills related to the act of listing and asking. They also pointed out communication skills needed for negotiation to exist and be nurtured over time. These attributes and skills of communication for the worker is to know when, how, what, with whom of the worker communicates with are necessary. The standard for OH&S is explicit when addressing communication to consider diversity of communication such as gender, language, cultural, literacy and disability (ISO 45001:2018, Clause 7.4.1)

Ammentorp, Bigi, Silverman, Sator, Gillen, Ryan, Martin, (2021) in their study of healthcare workers, drew the practical conclusions that in communication training, "Interventions should not be limited to the empowerment of individuals but should include organisational and process development", (Page 359). Though this research was carried out in another field of industry, similarities may be applied where there is the need to be emphatic, connect and empower those with whom you are speaking to in the workplace. Yet, other skills are required and acquired through experience and time. Ammentorp et al. (2021) noted that communication and its development in people is needed.

In another research project focused on clinical communication, there response when examining communication said, "communication cannot be atomised into skills" (Salmon, & Young, 2011, p. 218). What Salmon and Young (2011) are saying, is that codifying communication into skills whether from one research viewpoint to another, is often a complex subject to cover as it considers so many sciences. Though there are the guidelines from the Standards to follow, there are other notable and worthwhile courses to be done, in upskilling one's ability to communicate, and develop relationships, are complex. This research invites further research to occur when exploring communication amongst professionals. This is a wide subject to cover that includes understanding self, psychology, organisational behavior and the dynamics of authority and power in the workplace yet, more research of communication is needed in the construction workplace Further research is invited to design and develop document ways to capture the needs of attributes and skills of communication in the construction workplace.

The implications of practice focused on the responses of the participants gave perspectives that there is the need for upskilling and further competency required. Participants raised the need for conversation and negotiation skills for collaboration, especially with the art of asking, listening, and responding. Participants related that practicing

PD and IMS, relationships are important. Effective PD for IMS should aim to enhance the workers' ability to perform, learn, and have effective and friendly workplace relationships.

5.8.4 Understand Purpose

Business purpose of vision and mission contribute to PD and IMS by providing direction. Guided by the IMS to perform PD, continually improving, has the potential to motivate and grow the passion of workers and business owner(s). Therefore, there is the need to learn and share the vision and purpose to workers. As Ryan and Kruithof observe, "if you don't know where you are going, you'll probably finish up somewhere else" (Ryall & Kruithof, 2001, p. 24). "It may be as vague as a dream or as precise as a business plan, but this vision must exist and it must be sufficiently compelling to act as a focus for sustained human effort", (Limerick, Cunnington & Crowther, 1998, p 159). The implication for practice is up to how the business use vision, mission, and purpose as part of PD for IMS to ensure that workers remain motivated.

Harder (2017) explains that where personal mission, vision, and purpose is unclear and where one has no clear direction, one can live if a state of aimlessness, feeling barren and bare. To have a business purpose, a vision and mission, given to a worker and not to be asked about one of their own may seem contradictory. Indeed, Harder explains that having a dual vision is important if there is to be an engaged workforce. Billet (2001) explains another way where engagement comes from goal-directed work activities with learning and direction, supported by direct guidance. However, Harder (2017) explains that organisations ought to take initial steps to give equal importance to employees in articulating an organisational vision, mission and purpose. This requires asking the questions: what is your vision, what is our vision and how can we weave the two together?

The vision does not necessarily need to be given to all yet, appropriate to the role and responsibility within the business, all workers need a purpose. Consideration must be taken

where and when sharing with workers of functional levels within the business. These functional levels are relative to the position people have, based upon their business's organisation chart. It is necessary to tell what the worker needs to know, not necessarily what they want to know, to perform their work confidently. This organisation chart, as seen with the secondary evidence reviewed, figure 7, provides an example where a clear determination as to people who are responsible and have clear accountabilities to the vision and mission strategically. Billett (2001), rather than focusing on the strategic direction of a business, focused on the actual work activity where he termed these as goal-directed work activities that are provided to workers to perform a task.

Dependant on the size of the business and its purpose, it is important to communicate the status of the mission and vision, sharing how workers contribute to the business strategically. PD and IMS can be best designed and implemented for the worker and business owner in how the business implements and maintains its purpose through its mission and vision. The sharing of purpose for the business, the worker keeps busy and continually motivated to perform their work. In turn, the continued sharing of the purpose for the business brings success.

5.8.5 Measure Continual Improvement

Measures to continually improve through learning and generating business-specific knowledge are essential to align PD and IMS. The result of the findings from my research revealed that participants valued the use of the IMS in that it promotes continual improvement of the business. This is important, as continual improvement require activities to be measured, achieved, and continuously improved. The implication of practice is how does the worker and business owner(s) ensure that PD and IMS, connect with each other, informing how learning occurs for continuous improvement.

In Karkalikova (2018) research into integrated management systems as a tool for achieving continuous improvement in performance. It was identified that IMS provided the means in which organisations can implement a structure approach to achieve predetermined goals. They concluded:

> Corporate culture plays an important role in the success of the implementation of integrated management systems as tools for achieving continuous improvements in an organisation´s performance. To achieve this success, it is necessary to create the appropriate conditions to motivate and support teamwork and communication, (Karkalikova, 2018, pp.89-90).

Lenne, Salmon, Liu and Trotter (2012) also examined a system approach to accident causation and found recurrent issues in their study as to why there was such a high-level incident occurring. Using the methodology of HFACS for continuous improvement, it was found that these came from inadequate instructions from supervisors, lack of job supervision and the acceptance of inappropriate practices. It also highlighted other issues for further assessment, where improvement was made to supervisors' roles, written guidelines, further training and assessment in place for supervisors and encouragement of communication. In this example, the identification of an issue gave further measures to improve a process. Lenne et al. (2012) were able to further assess skill-based behaviors and put in place countermeasures for further continuous improvement. The research of Lenne et al (2012) tracked the continuous improvements made, where it also revealed the actions made to prevent the issue from re-occurring and placed measures for business-specific knowledge to communicate and to learn.

There are parallels between Karkalikova (2018), and Lenne et al. (2012). Karkalikova (2018) highlights how improvement is made by achieving predetermined goals, where Lenne

et al. (2012) research showed what can be learnt by examining issues by identified root causes and placed measures to prevent it from re-occurring.

How improvement is documented and reported can better inform the worker and business owner(s) by generating business-specific knowledge. This business-specific knowledge of what is learnt can be acquired by measuring its achievements and recalibration of its purpose through its vision and mission. It also comes from the lessons learnt from problem-solving such challenges of nonconformances, incidents, injures and ill health to not occur again. Amongst these occasions of problem solving, lesson can be learnt and are transferable to the next problem and to another, hopefully perpetuating improvement in the business.

PD and IMS can be best designed and implemented for the worker and business owner(s) with continuous improvement. This involves a focus on how the business documents and communicates their strategic direction and its continuous improvement process to reduce challenges from re-occurring or occurring elsewhere. This includes producing business documents that are clear and practical for measuring performance, which are communicated in such a way that reduces confusion and can be embraced by others. This in turn provides a clear the way to move forward and to improve.

The present research had the focus on businesses that had management systems. Further research could investigate businesses that do not have IMS. Examples of these businesses would be those that do not require IMS certification in contractual agreements. This would be a laudable suggestion for further research.

5.9 Methodological Implications

5.9.1 Thematic Methodology

This research applied the qualitative, thematic analysis approach proposed by Braun and Clark (2012). This first implication of methodological approach when researching 15

interviews was the position I had in the research, that resulted in lengthy transcripts and large amounts of data collected. The position had an ontological frame of reference positioning me as an insider, participating in such a way of having a friendly, semi-structured conversation. This was because of knowing my interviewees and having insider information about their IMS and PD system. And, because of having been their external auditor for compliance against the Standards. This resulted with interviews that ranged from 20 to 40 minutes hence, lengthy transcripts transpired from these interactions with the participants overwhelming me with data.

The second implication of the methodologic approach I learnt, was the need to maintain my distance from the data. The epistemological position I had that was informed by my interpretivist approach, was based upon my involvement in the construction industry and working as an auditor of IMS. And carrying out this research, I had a deep familiarisation of the data that I was researching. The first implication and lesson learnt of acting like insider gave me a good grounding to those that I interviewed. Another implication had a downside that I may not have distanced myself enough from the data.

Acting as an insider, I may have consciously, or sub-conscientiously forced my expectations upon the interviewees as to how they were to answer the questions raised. The participants knew me as their external auditor being familiar with their business, knowing their systems and documented information being used. There were however measures I tried to put in place to somewhat distance myself from the data by carrying these interviews out after I had completed my auditing work. Where a small break in between work and before the interview took place. I made sure that they knew that this research was carried out in my own time. This was to ensure they understood that this was not part of my role as an auditor yet, as the student researcher. I gave them the option to opt out of the research at any time, having no

consequence on my friendship and my role as an auditor with their business. Those that did opt out, I continue to audit.

An upside as to this familiarisation being an insider, allowed me to code the data as viewed from the participant's perspective because of the subjective nature I had with the data having previously worked in the position my interviewees were also in. Hence, there was the familiarisation of themes when undertaking the thematic approach of coding and categorising themes that came from the data. This way I could understand what participants were saying in the interviews. This provided patterns and themes that emerged from the data that helped answered the research questions. A downside of this familiarisation could have been that I may had imposed my own interpretation on others lived experiences. To overcome this familiarization and deal with this experience, I had waited till I had all of the transcripts completed then anonymised each transcript using A to O to remove this familiarisation. An implication of this positioning and methodological approach to the future research would be the positioning of other researchers not to be so familiar with the participants.

5.9.2 Data Collecting

My point of concern is that the timing and routine of the setting up the interviews took longer than expected as I was working full-time as an auditor. The prospective participants I was recruiting came from those I audited. Thus, interviews were delayed due to fact I would see these participants six or twelve monthly. Hence, the interview itself would have to wait till the next time I was with them. This was further complicated by the need for approval from business managers, which provided the authority to interview.

There are lessons learnt from this research experience that can better prepare myself and others in future research. The first lesson learnt is the familiarisation being an insider with the subject of the research and the participants being interviewed. The insider experience, there are advantages to be friendly and understand the differing perspective of

those to be interviewed and the subjective understanding of the data being collected. However, there are negatives of over familiarisation where controls are necessary to distance oneself. A second lesson to be learnt is to possibly consider the cohort of possible participants outside that of work context that I am in. Planning future research, it would be of benefit to receive earlier ethical clearance to commence the invitation process earlier. Ultimately, careful consideration of interview timelines is needed to carry out this type as I was unaware of this at the time as being a fulltime worker.

A limitation can be identified with the selecting of participants. The participants involved were owners and workers, where it could be perceived that each of these groups may have distinct drivers and motivations with IMS and the PD. Due to the size of the research sample, where both owners and workers were involved dependent on the business' size and context, implications of further research may benefit the examination drawing upon these unique distinctions of motivations. Additionally, providing a longitudinal quantifiable professional development baseline of participants could be of benefit.

5.10 Assessing Alignment between PD and IMS

In considering the findings and discussions of the research resulted in 5 overarching themes and their associated sub-themes from 15 interviews, the following figures 11 and 12, are concepts. These concepts may assist in how the themes and sub-themes relate to one another. The themes relating to PD and their alignment to IMS will vary. The extremes from one business to another, understanding the degrees of alignment will also vary in ways to understand: The business/organisational context; their organisational structure; the degree of various relationships within the business; who in the business understand their strategic direction and purpose; and what mechanisms are in place for improvement. Figures 11 and 12 represent the differing intricacies and the degree of alignment when considering PD and IMS.

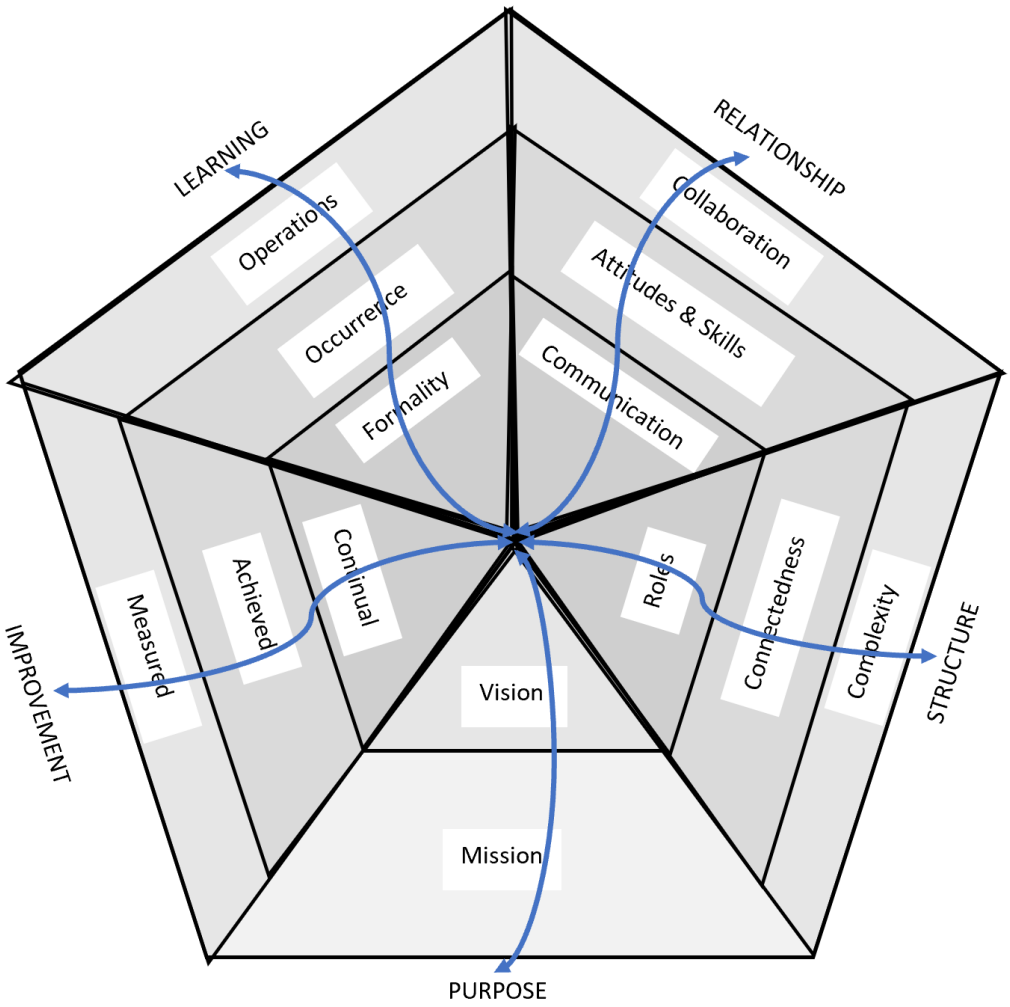


Figure 11. A diagram of themes associated with one another.

Figure 11 represents the theme and sub-theme and how they may relate and inter-relate with one another. Figure 11 demonstrate the levels and how each may align. Each related triangle of the theme, with is subtheme, relates with the other triangles that make up this pentagram figure. The depiction of the pentagram as a symbol has significance where there is a relationship of interrelated parts. For example yet not limited to the pentagram can represent: the relationships of the head, arms and feet, the five physical senses of sight, hearing, touch, taste and smell; and, the use of the sheriff's badge for law and order. It has also been used in completeness for its use as a five-pointed star. This figure represents the inter-relatedness and relationship of the themes and subthemes. It is then, whether it is working from the center out

or, from the perimeter to the central point, each are influencing the other. These are not done in isolation with another yet, they work together. When researching and gathering information about the alignment of PD and IMS of a business, questions and discussion can be asked from the central point as a suggestion beginning. Firstly, the question and discussion will be about context – What and how do the levels of formality operate in their , what and when do activities occur and, what are the daily activities of workers and how does the business operates. The focus would then turn to the next being about the organisational structure of the business. This is where questions would be asked about how roles and responsibilities are defined and practiced by the business. The next series of questions then can be focused on the levels of relationships that exist and, how and who communicates, and how collaboration may occur. Next to be asked are questions about the purpose of the business and how this is documented, implemented, and communicated by use of vision and mission of the business. Asking lastly, are questions about how does the business monitor and measure improvement, and what is happening with their growth as a business.

Moving from the outside towards the center, of Figure 11, rotating in a clockwise direction asking further questions can discover their level of implementation a business that can better inform how aligned their PD and IMS is. These questions can then indicate the levels of alignment between each.

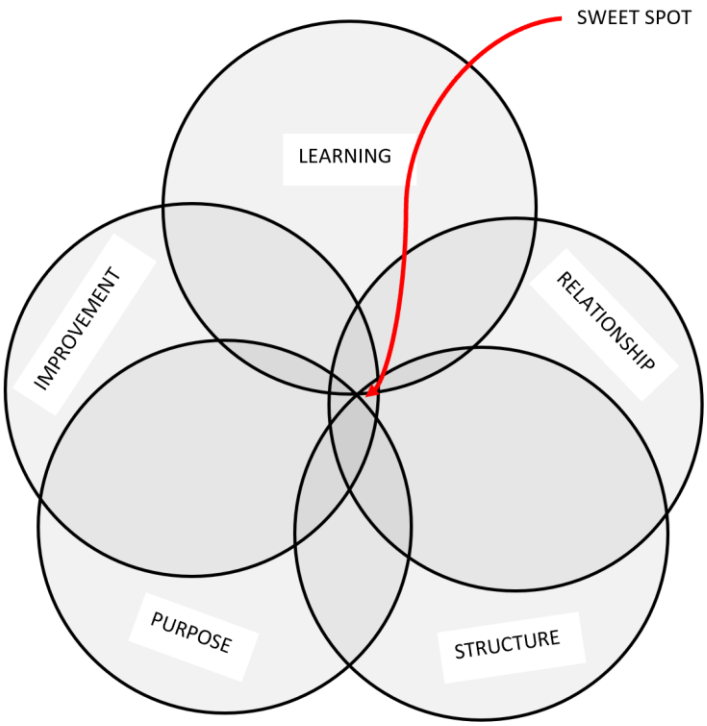


Figure 12. Concept of alignment from the themes.

In Figure 12, this represents how each theme may interact with one another having this 'sweet spot' of rather close alignment in the center. Each theme, when bought together represented as a circular system may overlap having portions related to each theme. In the fifteen interviews, there was a combination of themes in each however, each of the fifteen had their own emphasis of the themes. Ideally, when all working in concert with one another, this 'sweet spot' as the ideal point, cross together, which generates the synchronicity with of the five themes. The levels of interaction with each other, after questioning and gathering information on each, can provide an indication as to how far, or close, PD and IMS are aligned. In identifying this out of alignment process and practice, there can be further questions, or if not methods, introduced to bring a level of alignment that is acceptable for further improvement of PD and IMS. Alignment and their degrees of alignment can be represented in such a way to measure how far from the sweet spot PD and IMS is occurring.

Once known, practice and improvement from that known point with specific learning outcomes can then become a focus for further success.

5.11 Conclusion

The professional observation from seeing the deprofessionalisation of practice with PD and IMS was a personal motivation for this research. This personal involvement raised the research question: How does professional development (PD) align in the construction workplace when associated with integrated management systems (IMS)? This primary question focused on ‘IMS’ as it relates to complying and operating in accordance with International Standards for quality (ISO 9001:2015), safety (ISO 45001:2018, and environment (ISO 14001:2015). The IMS Standards detail the needed for compliance of business to implement and integrate. the management systems throughout the operations to strategic levels of the business. The present research investigated PD that occurs in the construction workplace.

The findings of the research discovered 5 key themes of context, structure, relationships, purpose, and continual improvement in addition to sub-themes of their own. These themes raised important concerns of how the worker learns, PD in the workplace, and how they interact with the IMS. This research shows that alignment of PD and IMS is not simple. It is complex, which needs to take into account the context, structure, relationships of the business, having purpose that interacts with the practice of continuous improvement.

The implication of practice relates to the design and shape of PD and IMS needing to take into account context and the organisational structure with relationships in the business. These relationships enhance or may diminish the success of PD and IMS, where purpose and continual improvement is necessary. PD must consider the contributing facets of workplace practice and learning rather than simply focused on technical improvement of process. The concern of formality, the levels of relationships that are affected by communication,

collaboration with the ways people interact with another in the workplace. Further research is needed to investigate the informalities of PD in the workplace and how it relates to IMS.

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CHAPTER 7. APPENDICES

7.1 Table of Appendices

Appendix 1: Consent Form for USQ Research Project Questionnaire

University of Southern Queensland

Consent Form for USQ Research Project Questionnaire

Project Details

Title of Project:	How does professional development align in the construction workplace when associated with integrated management systems?
Human Research Ethics Approval Number:	H18REA119

Research Team Contact Details

Principal Investigator Details

Mr Clayton Lawrence
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Statement of Consent

By signing below, you are indicating that you:

- Have read and understood the information document regarding this project.
- Have had any questions answered to your satisfaction.
- Understand that if you have any additional questions you can contact the research team.
- Understand that you are free to withdraw at any time, without comment or penalty.
- Understand that you can contact the University of Southern Queensland Ethics Coordinator on (07) 4631 2690 or email ethics@usq.edu.au if you do have any concern or complaint about the ethical conduct of this project.
- Are over 18 years of age.
- Agree to participate in the project.

Participant Name	
Participant Signature	
Date	

Please return this sheet to a Research Team member prior to undertaking the questionnaire.

Appendix 2: Participant Information for USQ Research Project Questionnaire

University of Southern Queensland

Participant Information for USQ Research Project Questionnaire

Project Details

Title of Project:	How does professional development align in the construction workplace when associated with integrated management systems?
Human Research Ethics Approval Number:	H18REA119

Research Team Contact Details

Principal Investigator Details

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Description

This project is being undertaken as part of Doctor of Education.

Currently there exists within the construction industry workplace a problematic issue with a lack of professional development against the needs of an integrated management system. This problem relates to the phenomenon of learning in the workplace where there is a gap with the knowledge, awareness and competency for professional development for individuals interacting with integrated management systems. The Integrated management system is made up of quality, safety and environmental management practices. This is where management systems integrate best practice and international standards for the management of the quality delivery and service of product; the enhancement of safety with the product and service being delivered; and, the reduction of waste on the environment. I have experienced this personally throughout my working life and being personally driven through this research to develop theories asking the key question: how does professional development in the construction workplace align with integrated management systems?

Participation

Your participation will involve completion of an interview that will take approximately 40 – 60 minutes of your time.

Questions will include:
How do you, the worker perceive and value the need for integrated management systems within their workplace?
How can professional development for integrated management systems be best designed and implemented for the worker and the business owner?

Your participation in this project is entirely voluntary. If you do not wish to take part, you are not obliged to. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. Please note, that if you wish to withdraw from the project after you have submitted your responses, the Research Team are unable to remove your data from the project (unless identifiable information has been collected). If you do wish to withdraw from this project, please contact the Research Team (contact details at the top of this form).

Your decision whether you take part, do not take part, or to take part and then withdraw, will in no way impact your current or future relationship with the University of Southern Queensland.

Expected Benefits

It is expected that this project will directly benefit you because it will provide insight about learning in the workplace when aligning to integrated management systems. It will also benefit the present workplace raising awareness and workplace practices having an influence toward industry teaching and learning about integrated management systems. This research will also benefit the industry providing key insights and raising standards for the professional development in the construction workplace as to integrated management systems.

Risks

There are no anticipated risks beyond normal day-to-day living associated with your participation in this project.

There will be a formal letter of request and invitation to the organisations and heads of work units for you to have permission to participate in the project.

You will be given advice on this Participant information and Consent Form that your participation is voluntary and involvement will not be affected by a pre-existing relationship between the participant and the researcher. You will be given the opportunity to withdraw from the project if they believe their relationship with the researcher is a cause for concern.

Privacy and Confidentiality

All comments and responses will be treated confidentially unless required by law.

Further, a review of the transcript will be provided for your feedback and comments to protect anonymity.

Any data collected as a part of this project will be stored securely as per University of Southern Queensland's Research Data Management policy.

Consent to Participate

A Consent form is included within this pack which may be sent back informing the researchers or retained and signed on the day of interview.

Questions or Further Information about the Project

Please refer to the Research Team Contact Details at the top of the form to have any questions answered or to request further information about this project.

Concerns or Complaints Regarding the Conduct of the Project

If you have any concerns or complaints about the ethical conduct of the project you may contact the University of Southern Queensland Ethics Coordinator on (07) 4631 2690 or email ethics@usq.edu.au. The Ethics Coordinator is not connected with the research project and can facilitate a resolution to your concern in an unbiased manner.

Thank you for taking the time to help with this research project. Please keep this sheet for your information.

Research Questions - How does professional development align in the construction workplace when associated with integrated management systems?

Table 1.

Research Questions Conceptual lenses with a workplace focus	How does **professional development** in the construction **workplace** align with **integrated management systems**?	How do workers and business owners **perceive** and **value** the need for **integrated management systems within their workplace**?	How can the **intricacies** of **integrated management systems** and **professional development** be best **designed and implemented** for the worker and business owner?
Adult Learning Andragogy – 5th lens of orientation to learning	• How do you describe your workplace? • How would you describe a 'learning' workplace? • How would you describe professional development? • How does this professional development take place in your workplace? • Does professional development inform you about integrated management at your workplace?	• How would you describe an integrated management system? • How is this integrated management system practiced in your workplace? • What value do you see in having an integrated management system? • What ideally would you want to learn from the integrated management system practiced in your workplace?	• What lessons have been learnt from having an integrated management system? • How would you describe the professional development required to work at your business with integrated management systems
Apprenticeship	• Is there a mentoring / apprenticeship model of learning system at your workplace? • How do you (or How would you) see a mature or a senior manager / supervisor mentor and instruct workers in the work place about the integrated management systems at the workplace? • Have you experienced blended learning	• In understanding the integrated management system, how does senior management view instruction to those that have little knowledge about the integrated management system? • When practiced in the workplace what value does integrated management and professional development bring to the overall operation of the business?	• What would you say to someone who is going through a similar workplace challenge when working with integrated management systems?
Problem Based Learning	• How does a worker address an issue that arises from a project or workplace challenge? For an example, an event that effects the critical path in planning for project delivery or, that which has arisen from your own workplace challenge. • Describe the skills you would use in addressing this challenge. • How does work-family conflict affect the challenges faced in the workplace? For example, lack of sleep for various reasons.	• What understanding is provided to the workplace challenge and the effects this has on business performance? • How is the value, both cost and efficiency, described about the workplace challenge when considering integrated management system at the workplace? • How has blended learning helped you should you have experienced this in your context?	• How has your previous workplace prepared you for this role you are undertaking? • What lessons can be learnt from the workplace challenge? • When faced with a further challenge what knowledge will you bring to that challenge?

Appendix 4: Research Letter of Invitation

FACULTY OF BUSINESS EDUCATION LAWS & ARTS
DR PETER McILVEEN
RESEARCH DIRECTOR, ACCELL
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UNIVERSITY OF SOUTHERN QUEENSLAND

28 February 2018

TO WHOM IT MAY CONCERN

Dear Sir/Madam

Re: Clayton Lawrence Research Project

This letter is to confirm that Clayton Lawrence is completing a research project under the supervision of myself and Dr Sara Hammer.

The research project is part of the requirements of the Doctor of Education degree offered by the University of Southern Queensland. The research project is focused on professional development, organizational learning, and integrated management systems.

The research project is approved by the Human Research Ethics Committee of the University of Southern Queensland. Clayton is required to conduct his research work in accordance with the university's policies and procedures. This research work involves Clayton contacting organizations to secure their approval to conduct research activities (e.g., interviewing staff, reviewing procedural documents) in accordance with ethical protocols. Clayton will be collecting data for the project throughout 2018.

I would be very grateful if you were to agree to your organizational unit participating in this research project. Please call me if you any queries.

Yours faithfully,

Peter McIlveen, PhD MAPS FCDAA