Skills-formation Goes to Work: Workplace Learning and Skills-formation among Baccalaureate Graduates in Trinidad and Tobago (T&T)

Thesis submitted for the degree of

Doctor of Social Sciences

at the University of Leicester

by

Hazel Carter Strachan MSc Leicester

Centre for Labour Market Studies

University of Leicester

February 2016

Title: Skills-formation Goes to Work: Workplace Learning and Skills-formation among Baccalaureate Graduates in T&T (T&T)

Abstract

This research investigates the workplace as a site for learning and skills-formation in Trinidad and Tobago. Traditionally the unit of analysis for measuring learning has been the individual cognition situated at university. This research posits the social community as the main unit of analysis, situated in the workplace to elucidate the unique brand of skills-formation developed among graduates. It overcomes the scarcity of empirical research, adding new insights on educated workers learning and skills-formation at the workplace. The objectives of this study were to identify skills baccalaureates learn at university and work, elucidate the pedagogy of workplace learning (WPL), explicate novice to expert transitions, and structure/agency factors that influence WPL and skills-formation. A mixed-method approach yielded descriptive statistics, and qualitative data validated and corroborated findings from differing research paradigms. One hundred and twenty-six graduates answered a self-completion survey and six leaders participated in semi-structured interviews.

Both situated learning theory and activity systems provided a syncretised analytical framework for understanding the relationship between WPL and skills-formation, and a structure-agency approach resulted in a balanced perspective, not overly focused on the individual viewpoint. This research offered new insights on educated workers skills-formation in the workplace, and findings concur that WPL among graduates leads to a high-skills route. This research posits that while the skills developed at university are vital, learning for productivity originates at work. The workplace is the fundamental institution that develops skills for productive activity, however, skills-formation at university provides a platform for calibrating a high-skills route. Baccalaureates enter the workplace as novices, encounter WPL, and develop specific skills that result in expertise. This thesis contributes to the scholarly literature on the interconnectedness between working and learning of educated workers, and the general social learning debate. Working and learning are not mutually exclusive but are inextricably linked in developing key skills that drive productive activity.

Acknowledgements

The completion of this thesis depended upon the support of a number of individuals to whom I am indebted.

The respondents who participated in the self-completion survey and the semi-structured interviews demonstrated a genuine willingness to participate and showed authentic interest in the topic.

Thanks to Ruth Carter, my mother I thank her for the continued support provided as she functioned as a source of inspiration that led to the completion of this milestone in my academic career. Thanks to my deceased father, George Carter, I thank him for that perpetual push to become the best that I can be and to achieve great things in this life. I thank him for believing in me and making me believe that I can do and achieve anything that I put my mind to.

Thanks to Professor John Goodwin my Supervisor who provided guidance and support throughout this process. Without his input I would not have made it this far.

Special thanks to my Lord and Saviour Jesus Christ who led me into this journey and has seen me through to a successful end.

Contents

List of Tables

CHAPTER ONE: Workplace learning (WPL) and the Educated Worker

Introduction

This research elucidates the unique relationship between WPL and skills-formation among baccalaureate graduates in Trinidad and Tobago (T&T). The research confirms the propensity for baccalaureate absorption into a high-skills route, and that structure-agency factors determine WPL expansiveness and restrictiveness, as well as speed of expertise development in the workplace. Additionally, the speed of expertise development is inextricably linked to the relevance of the degree program to the job performed at work, and structure-agency factors. Baccalaureates learn a battery of skills at university that are transferable, significantly differentiating them from their non-baccalaureate counterparts.

This chapter commences with a description of the objectives of the study and the research questions that guide the inquiry, followed by a brief overview of WPL key themes and debates, including the myriad of definitions in the literature. Following is an outline of the history of education in T&T, and the growth and investment in the tertiary education sector. The discussion transitions to the research problem seeking to uncover the relationship between WPL and skills-formation among baccalaureate graduates in T&T. The research justification is outlined and addresses issues and concerns locally, and the list of expected outcomes from the government's unreserved investment in tertiary education.

According to the Global Competitiveness Report 2012/2013, T&T ranked 106 of 144 countries in the category tertiary education enrolment (Social Sector Investment Program 2013 (SSIP)). In 2012 tertiary students receiving government funding was 45,578 (SSIP 2013), of a total population of 1.2 million. While details of expected outcomes from this investment is identified later in this chapter, it is silent on the impact of WPL among baccalaureates on skills-formation. This study therefore, elucidates the need for research on WPL among baccalaureate graduates. The chapter concludes with a synopsis of the methodology and the thesis structure outline.

The impetus for this study centres on the scarcity of empirical evidence supporting methodologies to promote skills development in the workplace in T&T. The objectives of the study are as follows.

1. Identify the skills that undergraduates learn while at university
2. Identify the skills that graduates learn on-the-job
3. Identify the mechanisms through which graduates learning occurs on-the-job
4. Identify how novice graduates transition to experts
5. Identify organisational (structure) and individual (agency) factors that promote or demote effective WPL and skills-formation

Graduates in T&T do have an impact on the workplace, as they apply the skills learned during formal, tertiary education on-the-job, and influence work practices. The nature and extent of the impact graduates have on the workplace and vice versa must be understood in the context of skills development. How the graduate impacts the workplace, and how the workplace impacts the graduate results in a skills-formation process that requires further inquiry. This inquiry will elucidate issues of integrating learning and work including employability skills, transferability of skills, the transition from novice to expert, the development of high or low-skills, the actual skills developed on-the-job, and workplace conditions that promote or constrain learning at work. This research emphasizes the unique relationship between learning at work and formal learning elucidating how they both integrate, culminating into a unique skills-formation process.

The following research questions direct the literature review and guide the search in identifying the relationship between WPL and formal higher education (HE) learning in the skills-formation process.

1. What are the patterns of WPL especially among baccalaureate graduates?
2. What is the relationship between graduates entry skill level and speed of transition from novice to expert?
3. What workplace conditions promote high or low-skills?
4. What individual worker characteristics promote high or low-skills-formation?

5. What workplace conditions promote ease of transition from novice to expert worker?
6. What is the process of skills-formation in the WPL / how are skills formed in the workplace?

Key Themes and Debates

WPL in the context of skills-formation is the central discussion in this research, and the teleology of WPL focuses on developing the skills required in the workplace. WPL needs to acclaim both prominence and significance in T&T and this paper will uncover the need for government agencies, universities, employers and individuals to pay particular attention to this form of learning. In many first world countries an emphasis is currently being placed on WPL as they have identified the significant impact this phenomena can have on international competitiveness in the global economy (Boud and Garrick 1999). Currently WPL among educated workers is an area that is unrecognised and insufficiently researched in T&T.

The impetus for this research is to ensure that WPL among graduates gains recognition nationally. The government of T&T currently invests heavily in tertiary education, all nationals receive free tuition for a bachelor degree, and 50% tuition for a master's degree at a local university. However, to implement an effective national human resource (HR) development plan, attention should be placed on learning and education in the workplace as well. This should result in implementation of policy measures to stimulate and promote WPL.

Investment in tertiary education results in long-term economic benefits for both individual and government. The individual attains high-skills, and the potential for gross earnings to increase (OECD 2012). The government should recoup the cost of investment in HE '*through increased tax revenues from these higher-educated people, as well as savings from the lower level of social transfers these individuals typically receive* (OECD 2012 p.3). However, to focus solely on recouping the cost through tax revenues and lower expenditure on social programs is short-sighted. This research purports that the government of T&T pay closer attention to its investment in tertiary education and assess the skills

levels developed in the workplace, to assess the impact on competitiveness, and their ability to attract foreign direct investment (FDI) through a high-skills route. This research argues that while tertiary education impacts skills development, the workplace has the most significant effect on developing relevant industry skills. The government must be aware that through the workplace, learning for productive capacity, and human capability is realised. This research argues that any attempt to improve workforce skills through HE alone without considering the impact and importance of WPL is likely to be flawed. It is necessary to uncover the value of learning in the workplace as a mechanism for determining future labour force skills requirement, in conjunction with the consistent collaboration of HE institutions.

Some of the key players in WPL are employees, the employer, and the government (Boud and Garrick 1999, Etzkowitz, H., Webster, A. and Gebhardt, B. 2000, Clifford and Thorpe 2007, OECD 2012). This view is reiterated by T. Lee, A.Fuller, D. Ashton, P. Butler, A. Felstead, L. Unwin & S.Walters (2004) who indicated that '*WPL is thus often characterised, conceptualised and promoted as advantageous (or at least potentially) for both employers and employees and the State*' (p.3) It is undeniable that learning occurs at work and is the key mechanism for developing knowledge and skills in the workplace, this is not a new phenomenon (Lee, *et al* 2004).

Many of the debates about WPL arise from differing definitions and viewpoints that underscore this phenomena. WPL is defined as changes in work practices that are mediated through individual learning and organizational problem-solving processes (Ellstrom, 2001).

WPL is also described as follows

> *'…a flexible form of learning which enables employees to engage in the regular processes of up-dating and continuing professional development which have been increasingly emphasised. Moreover, insofar as the learning is work-based it is also seen as facilitating forms of learning, and types of knowledge which are of particular relevance to the work in which the learners are engaged'* (Reeve & Gallacher 1999 pp. 125-126)

Another definition describes WPL as

> *'Workplace learning involves the process of reasoned learning towards desirable outcomes for the individual and the organisation. These outcomes should foster the sustained development of both the individual and the organisation, within the present and future context of organisational goals and individual career development'* (Matthews 1999 pp. 19-20)

There is no one overarching definition of WPL and while the first and second definitions identified earlier contain similarities they also have different foci. Reeve & Gallacher's definition focuses on the learner only, and the process of updating and continuing professional development, and types of knowledge. Matthews' definition centres on both learner and organisation, elucidating desirable learning outcomes for both parties. This research will consider both the individual and the organisation to guarantee a balanced approach.

Innumerable definitions on WPL plague the literature and a foundational lens whereby learning is perceived is the clear distinction and separation between working and learning. '*In traditional discourses work and learning are usually understood as differentiated practices, each involving distinctive forms of language and sets of actions*' (Boud and Solomon 2003 p.327). The traditional view sees learning and working as mutually exclusive with no opportunity to overlap (Eraut 2004).

Watkins and Marsick (1992) define WPL as formality, informality and incidental learning (by-product of another activity) (Jacobs and Park 2009 p.137). Barnette (1999) defines WPL as the inextricable link between working and learning, where learning is inherent in work and vice versa (Jacobs and Park 2009 p.137). Boud and Garrick (1999) focus on the teleology of WPL rather than a conceptual definition, and Billett (2001) argues that WPL is neither ad hoc nor incidental, but structured based on the organisational requirements as opposed to those of an education institution (Jacobs and Park 2009 p.137).

Definitions of WPL contain both differences and similarities and this research views these definitions as opportunities for expanding and deepening a holistic understanding of WPL. WPL is defined by Evans & Rainbird (2002) as a combination of formal and informal learning centred on both employee and organisational needs; and Colley, Hodkinson, and Malcolm (2003) define WPL

as a tripartite concept that embraces formality, informality and non-formality. Colley *et al* (2003) further explain that these three characteristics are found in all learning circumstances (Jacobs & Park 2009 p.138). WPL is so expansive and complex that no single theory can define it (Hodkinson and Hodkinson 2004). Many of the debates and themes arise from the definitions used and the differences in starting points among various authors. Some of the key debates arising from various definitions include formality versus informality, which is similar to structured versus unstructured learning. There is also a focus on individual versus organisational learning (OL), the extent to which working and learning are integrated, planned versus unplanned learning, and a combination of formality, informality, and non-formality, that may be universal across learning environments. These variables will be explored in the literature review and elucidated in theoretical discussion on WPL. Therein this research will uncover the WPL conditions that promote or impede skills-formation among graduates in the workplace. While the focus of this research is on WPL, graduates and managers are the key subjects being assessed.

The differences and similarities between formality and informality are a theme that plagues the literature. Informal learning is defined as follows.

> *…takes place in the work context, relates to an individual's performance of their job and/or their employability, and which is not formally organised into a program or curriculum by the employer. It may be recognised by the different parties involved, and it may or may not be specifically encouraged* (Dale and Bell 1999 p.1)

This type of learning is the crux of productivity activity and without it organisations could not achieve effectiveness and competitiveness. While informal learning is claimed to not have a formal 'curriculum' it does have a teacher, a student, and a learning subject that focuses more on know-how than theory. Additionally, the view that informal learning does not have a formal curriculum is arguable, this type of learning in the organisation can be seen as highly regimented, regulated by power brokers, using control mechanisms to maintain the status quo (Billett 2004).

Formal learning on the other hand is defined as '*structured learning that takes place 'off-the-job' and outside of the working environment, typically in classroom-*

based formal educational settings' (Marsick and Watkins, 1990; 2001 in Lee, *et al* 2004 p.15). However, certain aspects of formal learning among students in a HE classroom setting have characteristics of informality (Colley *et al* 2002 in Lee, *et al* 2004). Issues of formality and informality are not straightforward and a clear understanding of what these terms mean is critical.

WPL encapsulates new thinking concerning learning, knowledge, transforming work, and today's enterprise (Fuller & Unwin, 2002, p. 95). The workplace is now considered a legitimate site for learning that has a two-fold outcome: enterprise development and formation of knowledge and skills of individuals (Garrick 1999 in Lee *et al* 2004,). This research focuses on the skills-formation aspect of WPL and the relationship between working and learning specifically among graduates. The workplace is not just a site for learning but a learning environment where both learning and working are unbroken (Stern & Sommerlad 1999). The issue of integrating learning and working is critical, it improves both individuals and organisations (Ellström, 2001). The integration between working and learning occurs in the workplace therefore, in this learning environment, '*little is known about processes of learning at work and the conditions that are likely to facilitate or constrain such processes*' (Ellström, 2001 p. 422). This research will elucidate the conditions that promote or impede learning at work.

When employees attend training programs outside of the workplace the link between learning and working is seen as inelastic, however, when learning occurs during within productivity it is considered more elastic (Stern & Sommerlad 1999). The highest level of connectivity between working and learning is when the structure of the workplace supports skills-formation (Stern & Sommerlad 1999). This discussion will be further expanded in the theoretical framework of WPL.

Some key themes include: differences between formal and informal learning, different approaches to learning, and the structure-agency divide The 'standard paradigm' of learning in the formal education system, is underscored by an epistemological belief that knowledge exists independently of the knower and is

something to be acquired (Sfard, 1998, p.5 in Lee, *et al* 2004 p.7). The standard paradigm is generally supported by cognitive and behaviourist psychology.

The emerging paradigm purported by Hager (2004) encapsulates perspectives of learning and social practice differing from the standard paradigm, describing WPL as acquisition rather than participation. The emerging paradigm centres on social interaction seen through the lenses of social learning theories (Lee *et al* 2004). Learning occurs when employees participate in productive activity and is not just a cognitive process or product. Two prominent social learning theories describing learning-as-participation include CoPs purported by Lave and Wenger CoP and Engestrom's activity theory. The theoretical foundation for this research is the emerging paradigm underscored by social learning theory. This research argues that while the standard paradigm has its place in the acquisition of knowledge through formal learning, skills-formation among graduates primarily arises through application of the emerging paradigm. Additionally, this paper will elucidate the high-skills brand developed when the standard and emerging paradigms culminate in the workplace, the most participative, and productively active site for learning.

Research Justification: The T&T Context

T&T is an oil-based economy and oil revenues post-1974 provided the capital requirement to invest heavily in secondary education. After 1986 however, structural adjustment policy, a dependent development strategy, was imposed on developing economies seeking loans from the International Financial Institutions (IFI's). The prerequisite for obtaining a loan from an IFI meant the borrowing nation would agree to reduce their exchange rate, budget deficits, and inflation (Easterly 1998). Under the imposition of structural adjustment poor regions like the Caribbean, were expected to privatise, restructure the public service, and a myriad of other impositions (Easterly 1998), that would organise economic activity under a prescription that determined the exact dosage of state intervention, and yield development (Melville 2002 p3).

T&T specifically engaged in structural adjustment programs and the social sector was negatively impacted, particularly in the areas of health and education. Revenues from the oil sector however, promoted the economy to a position of competence and since its independence in 1962 the delivery of decent education services in T&T has been satisfactory. Notable is the significant investment made by the government of T&T in tertiary education in recent times. Tuition at the primary, secondary, and tertiary levels (baccalaureate) are 100% free. At the masters and doctoral levels students are required to pay 50% of the cost of tuition.

> *The magnitude of the country's investment in tertiary education and TVET over the past decade is significant (of the order of two (2) billion US dollars). The country has reported significant increases in the local tertiary education participation rate within recent years, from approximately 7% in 2001, to 15% in 2004 and 40% in 2008, steadily increasing through government incentives so as to achieve a targeted participation rate of at least 60% by 2015* (MSTTE 2010 p. 5)

Since tertiary education tuition is free the number of students graduating from institutions of higher learning has increased and continues to grow significantly. This paper seeks to determine the extent to which WPL continues to develop the T&T graduates and by extension the workforce. An inquiry into the skills that are developed through WPL and the associated conditions, implications, and outcomes will be elucidated in this research.

The government of T&T developed its plan for the future in a Vision 2020 planning exercise. This vision recognised the importance of human resources in achieving its four main goals outlined below

1. Achieve excellence in innovation
2. An education system that is self-renewing, and seamless producing high quality people
3. Driving innovation and production through a highly-skilled workforce
4. Inspire innovation and creativity through embracing culture (Government of T&T 2006)

These goals show the link between education, and a highly skilled workforce, where number's 2 and 3 are inextricably linked. However, little is said about

education in the workplace. The government continues to track their investment in tertiary education and seek indicators of success within the HE system; they do not transition with the graduates into the workplace. Universities are institutions of higher learning, not higher performance and productive activity. Much innovation and production occurs at work, through high-skilled workers. Methodologies, principles and frameworks are developed at universities but the efficacy of these academic tools can only be truly measured when they are implemented within the confines of productivity activity.

In 2010 the Ministry of Science Technology and Tertiary Education (MSTTE) published the "*Policy on Tertiary Education, Technical Vocational Education and Training, and Lifelong Learning in T&T*". The (MSTTE) is responsible for tertiary education, technical and vocational education and training (TVET), and science and technology. Free tertiary education was introduced in 2001 under the Dollar-for Dollar program and the Government Assistance for Tuition Expenses (GATE) programme in 2004 *(MSTTE 2010 p 13).* With the increasing investment in tertiary education the government of T&T seeks to address a laundry list of issues that include but is not limited to the following.

- *'Reduce the mismatch between education sector output and the demand for labour to meet the technological needs of the economy which can only be supported by quality and a specified quantity of labour market inputs.*
- *Addressing the issue of low employability skills levels*
- *Bridging the gap in the labour market between qualified and under-qualified human resources*
- *Overcoming weak accountability systems for education outcomes' (MSTTE 2010 pp. 13-14)*

The justification for this research arises out of the need to answer some of the above questions. The justification for this research is to uncover the impact of investment in tertiary education at the graduate level and its influence on skills-formation. The government of T&T must also be cognisant of the nature, level and outcome of graduates' performance and skills development in the workplace. They must take an interest in the role of workplaces in skills development through WPL. Is the tertiary education system producing the quantity and quality of graduates required by the labour market; is there a mismatch? Are workplaces adequately prepared to promote and support conditions for high-skills-formation

in spite of the entrance level skills of graduates? What support do organisations need to develop high-skills workplaces and what skills levels are generally promoted in T&T workplaces?

In seeking to solve problems with low quality human capital development, local researchers continue to evaluate institutions of higher learning as their unit of analysis. It is time to place some level of emphasis on the workplace. The university is not the only site for learning that can promote high quality human capital development. Labour market theory, human capital development and university learning have been the inputs utilised by local scholars to find solutions to developing a high-skills economy. This research is unique in that it demonstrates another route to developing skills and competencies to drive and sustain economic growth, a different unity of analysis, another theory, a fresh, modern perspective that provides significant value in developing national policy and strategy toward a high-skills route. This research will elucidate the importance of WPL in the skills-formation process drawing on a combined theoretical frameworks including CoP and activity systems. These will be explored fully later in this research.

Methodology Overview

This section provides an overview of the methodology employed in this research. A mixed-method approach was applied where a quantitative self-completion survey and six (6) semi-structured interviews were conducted. The survey focused on skills that were developed during formal education and those developed during WPL. Additionally, how persons learn through WPL was a main focus. Many concepts identified within the literature review provided the basis for developing questions for the quantitative instrument, for example, the myriad of ways employees learn on-the-job formed an integral part of the self-completion survey. The qualitative instrument provided more in-depth data from the perspective of the participant. All participants in the semi-structured interview were workplace learners who finished the self-completion survey and also held the positions of Principal or Training/ HR Manager. The perspective of those charged with the responsibility to strategically craft learning environments and

manage the integration between working and learning were evaluated. A two-fold approach assess the impact of the individual on his own WPL process and the impact of the organisation on the individual's WPL process. The issue of structure and agency is discussed to provide a holistic picture of the skills-formation process through WPL.

Structure of the Study

Chapter one provides an overview of the study, a synopsis of the key themes and debates in the literature, the T&T research context, justification for the study, and how the chapters are organised. Chapter two is a review of the literature and focuses on how skills are formed through WPL. The transition from novice to expert is explored and the transition to adulthood enacted through WPL is elucidated. The issue of high or low-skills development is also explored with an aim to understanding the factors and characteristics within organisations and employees that promote or impede high or low-skills-formation.

Patterns of WPL among graduates are illuminated; these are common configurations where skills are formed while engaged in work. Three major configurations explored are surface, deep, or strategic patterns of learning. The pattern of learning used at school often informs the pattern applied at work and has serious implications for transfer of learning. Prior college learning and speed of workplace skills development therefore becomes a key point of discussion and the impact of employability skills on the skills-formation process and outcomes are elucidated. The issue of worker disposition is addressed and arises as a factor that affects transfer of learning.

The issue of work intensive and learning deprived environments are explored to determine the factors within the organisation that result in high or low-skills. The ways in which graduates learn on-the-job were expounded, some of the following learning mechanism were explained: learning from mistakes, through application of theory to practice, problem-solving, and feedback. There can be no discussion on WPL without elucidating the impact of power and politics, the literature review engages in a discussion on the two competing perspectives of power and politics. Political activity in the workplace is shared from the position of being an

opportunity however the dark side of politics in the workplace is also elucidated. Skills-formation ensues within a highly politicised work environment and situational learning is criticised for ignoring the impact of power on politics on WPL. The restrictive and expansive impact of power and politics is expounded to provide a holistic overview of how learning occurs at work.

Chapter three is dedicated to a review of the theories that explain the relationship between WPL and skills-formation. Different disciplines function through varying lenses wherewith WPL can be viewed, this chapter provides an overview of these numerous perspectives. The differences between formality and informality of learning is expounded, and the relationship between WPL and social practice is elucidated. Differing levels of participation in the workplace is discussed and the situated theory of learning provides an avid explanation for WPL phenomena including CoPs and the incidence of full or peripheral-participation. Another key theory discussed is activity theory purported by Engestrom (2001). While CoPs and activity systems are similar, the latter provides a more expansive opportunity to create new learning opportunities that included the external stakeholder in the participation process.

Chapter four addresses the methodology applied in collecting the data. The chapter provides an overview of qualitative and quantitative data analysis showing strengths and weaknesses of both, and providing a justification for the use of a mixed-method approach to the study. Both epistemological and ontological views about WPL are purported and the structure-agency debate elucidated to give credence to the triangulation approach. The population is described, ethical issues raised and both qualitative and quantitative instruments used to collect data are discussed. The limitations of and justifications for use of the data collection instruments are identified.

In chapter five the data collected from both the self-completion survey and the semi-structured interview are presented. Data derived from the self-completion survey is presented through descriptive statistics and tables identifying percentages, mean and standard deviation are identified in appendix 2. Data from the semi-structured interview is presented in thematic format underscored by narratives and quotations. Convergence and divergence between the qualitative

and quantitative data is elucidated and patterns of results across the data are summarised.

Chapter six focuses on conclusions derived from the data analysis, and implications for WPL and skills-formation among graduates in T&T. The data presented in chapter five provided sufficient evidence to draw conclusions, some of which were substantiated in the literature review and theoretical chapters. However, some anomalies that could not be justified were explained. Chapter six culminates in a discussion on policy recommendations for the government, workplaces, and universities. The unique contribution of the thesis is expounded and the chapter concludes with implications for further research and practice.

CHAPTER TWO: 5W and 1H: Who What Where When Why and How of WPL

The Starting Point: Skills-formation goes to Work

Trinidad &Tobago is part of a global society demanding higher and new skills and competencies; therefore, both local and multi-national organizations require competencies that may not exist within the country's national skills bank, or may exist at a lower than required level. There is no single overarching body responsible for the skills-formation process in T&T, and there lacks of a strategic response to demands by the labour market. There is an ad hoc response to demand for skilled human capital in key areas since supply is determined by an unintegrated group of players in the market, with different interests. This research maintains that the workplace is not the only institution engaged in skills development however, the workplace has its own pedagogy, and internal dynamic that will be isolated and examined to determine its specific impact on the skills-formation process. The workplace has its own patterns and methods of learning, and conditions that give rise to learning, culminating in skills development.

This research sought to identify leading practice in WPL, the impact on skills-formation, and different permutations in WPL processes. Internal and external forces affecting learning of graduates and the organisation will be evaluated. Solutions are required to inform policy makers, workplaces, educational and training institutions, and other corporate organizations in understanding and collaboratively restructuring a system of WPL that has a positive impact on national HR development.

A key objective of the literature review is elucidating the pedagogy of WPL; that is, how people learn at work to identify the process of developing skills on-the-job. This research encapsulates transfer and acquisition of knowledge and skills in the workplace which predominantly educates workers through participation. This review does not focus solely on a description of WPL pedagogy but places this within the framework of how graduates learn on-the-job, the impact of school-to-work transitions, the learning workplace, workers' disposition, and the nature

of learning environments. The aim is to address questions of paramount importance: the extent to which learners, organisation structures, relationships, and other organisation dynamics impact the skills-formation levels of university graduates who enter the workplace.

Developing Professional Expertise: From Novice to Expert

This section of the research investigates the novice and expert worker, and how professionals develop expertise at work. CoPs can be ideal environments for new workers to develop skills required to transition from novice to expert. Lave and Wenger's situated theory of learning elucidates new entrants' journey into a CoP and highlights the process by which they develop skills, knowledge, and habits thereby becoming 'full participants' (Fuller *et al* 2005 p. 57). This research describes a novice worker as a new entrant into a CoP, who has marginal participation, and workers effectively journeying toward expertise can be deemed full-participants. Lave and Wenger's legitimate peripheral-participation explored in more detail in the theoretical chapter describes the level of activity and access novices acquire within CoPs, and explicates the relationship between participation, and expertise development (Fuller *et al* 2005). Professionals move through the following five stages: novice, advanced beginner, competent, proficient and expert (Dreyfus and Dreyfus 1980, 1985 in Daley 1999). Novices depend on rules and laws learnt within formal education to apply to "*real situations*" at work (Daley 1999 p.134). Sufficient practice with real situations provides the novice worker with sufficient experience to access the advanced beginner stage where performance levels equip them to transition to the competent stage.

By the third to fifth year the professional achieves competence having developed planning skills and can function effectively even when situations are unpredictable (Daley 1999). Proficiency is the stage just before expert, and the professional has a '*holistic sense of work*' (Daley 1999 p.135). At this stage the professional understands the work, the client, and possibly even the market and industry in which he/she works. The expert worker "*has an intuitive grasp of the*

situation and zeros in on the accurate region of the problem without wasteful consideration of a large range of unfruitful possible problem situations" (Benner 1982, p. 406 in Daley 1999 p.135). Here the expert is able to recognize patterns that occur in real situations and rather than depending on theoretical rules, relies on "*concrete past experience*".

There are some critical aspects of novice and expert learning that will elucidate the skill-formation process of informal learning in the workplace. An exploration of informal learning revealed differences between novices and experts in two key areas: organizational factors that promote or encumber learning, and the process of expert versus novice learning (Daley 1999). Novices for example provided disparate issues affecting their learning whereas experts identified systemic concerns like organizational structure; expert learning is '*more constructivist and self-directed*' (Daley 1999 p. 140) whereas novice learning is influenced by feelings experienced during work (Daley 1999).

While novices grounded their practice in knowledge from formal learning, experts governed their practice based on clients' needs. Experts actively learn new information; knowledge from formal learning was perceived as '*background material'* that '*enhanced knowledge'* (Daley 1999 p.140). The main learning strategy for novices is memory and the accumulation of information however, the expert learning strategy underscores dialogue and creation of a knowledge base (Daley 1999). Application of theory to practice created certain feelings about work for novices and there was a heavy dependence on the expert worker to validate or direct their actions. Hodkinson (2005) suggests that the best way to understand the intricate process of transfer of learning from university to work is to abandon the acquisition metaphor. If learning is an acquired product then it can readily be transferred from one location to another. The acquisition metaphor infers the separation between product, process, and context of learning (Hodkinson 2005), a perspective which is considered erroneous (Hager and Hodkinson 2005 Hodkinson 2005). Learning is therefore an *on-going, relational and reconstructive process* (Hodkinson 2005 p.527).

Transfer of learning involves an intricate and complex process. Eraut (2004) identified five interrelated stages in transferring knowledge from the university to the workplace.

1. *the extraction of potentially relevant knowledge from the context(s) of its acquisition and previous use;*
2. *understanding the new situation - a process that often depends on informal social learning;*
3. *recognizing what knowledge and skills are relevant;*
4. *transforming them to fit the new situation;*
5. *integrating them with other knowledge and skills in order to think/act/communicate in the new situation.*
Eraut (2004 p. 526)

University graduates must therefore engage in all these steps, simultaneously or singularly. Learning within productivity activity however, is different to student learning at university, and the workplace learner often lacks awareness that learning is taking place. The learner may extract without recognising what knowledge and skills are relevant. This issue will be explored in more detail in the next chapter.

On a micro level WPL has its own dichotomy between formality and informality regarding the learning process of novices and experts respectively. This has implications for transfer of learning, not necessarily the transfer of knowledge but the transfer of learning processes. The evidence suggests that novices sought to continue to learn the way they do as students in HE; seeking to form concepts, assimilate, and memorize as a form of meaning-making (Daley 1999). In the workplace however, what is important is effectively applying theory to practice. The ability to transition from expert to novice requires a change in the learning process and learning how to learn in the workplace. This view elucidates the dichotomy between WPL and formal education however, this research supports the view that learning patterns identified at college can also be applied to the workplace.

From the discussion a number of conclusion can be drawn; a new learning process must be adopted in the workplace and graduates cannot just solely and simply apply the school-based approach to learning at work. The skills-formation process in the workplace does not culminate into passing examinations but is for

practice, and productive activity. However, prior knowledge is critical, and how the graduate uses this in the workplace will determine their effectiveness in transitioning to an expert. It is apparent that prior knowledge affects learning (Resnick, 1983; Glaserfeld, 1984) and influences the construction of concepts. However, '*situated learning has relatively little to say about "prior knowledge" …, but focuses instead on how ordinary work and discourse practices can become specialized, and how identities develop.*' (Roshcelle, 1995 p. 18) Since knowledge is linked to social identity, this constructive perspective of learning elucidates the influence of worker disposition. The novice worker-disposition is based on prior learning strategies, feelings about work, and learning at work; this affects the skills-formation process on an individual level. It is the learner, the learning process and both prior and current knowledge that culminates into social and productivity activity in the workplace.

Fuller and Unwin (2005) discourse on expansive work environments highlights the relationship between prior knowledge and WPL. In a study entitled '*The significance of individual biography in workplace learning*' Fuller and Unwin's expansive work environment is described; they promote a unique relationship between past and new knowledge.

> *[Employees] experience their work as a continuous engagement in acquiring new skills and deploying their prior skills in new circumstances. Workers can then use their past knowledge and skills to succeed at work, and to build up new knowledge and acquire new skills. (Hodkinsin,P,. Hodkinson, H,Evans & Kersh, Fuller & Unwin, & Senker) p. 11)*

The skills-formation process of informal learning in the workplace is flexible and incorporates prior knowledge and current learning into a specified way of learning. When participants in the workplace learn how to learn in the workplace they can effectively transition from low to high-skills workers and make the shift from novice to expert workers.

Developing Professional Behaviours: From Youth to Adulthood

In reviewing the skills-formation process in the workplace an evaluation of the transition from youth to adulthood is instructive as it parallels the change from novice to expert. While the novice to expert transition is explained by Lave and Wenger's theoretical frameworks of legitimate peripheral-participation and CoP, they do not consider youth to adulthood (Goodwin, 2007). An aspect of learning that is largely ignored but requires further investigation is the process where young graduates transition to adulthood. Lave and Wenger's theoretical frameworks of legitimate peripheral-participation and CoP can be expanded to embrace the transition from youth to adulthood within the workplace however, the work of Norbert Elias (1961) is instructive. (Goodwin 2007).

This research elucidates the similarities between Elias, and Lave, and Wenger's writings to explore the issue of worker identity and how this is formed in the workplace. All three authors see identity not as a cognitive process but arising out of participation in CoPs with shared meanings, they elucidated the young worker's peripheral status on entrance into the workplace (Goodwin 2007). The central point of Elias' (1961) work is the relationship between '*processes of change in social relations and processes of change in habitus*' (Goodwin 2007 p. 7). Young graduates must learn how to participate in the workplace by engaging in new relationships with adult workers and changing their habitus. The transition from periphery to participation however, is one where young workers are neither adults nor children (O'Connor and Goodwin 2005 in Goodwin 2007). Movement from peripheral to full-participation for young workers requires learning and developing the social characteristics of adults. As young workers engage socially in the workplace, skills-formation is part of the change process that arises from engaging mature workers (Goodwin 2007).

Skills development is not the only outcome of the interaction with older workers; young people transitioning from periphery to full-participation also learn behaviours of older workers. They develop values and attitudes such as a greater dimension of politeness, respectfulness, and '*regulat[ing] their own behaviour in order to conform to the standards of their workplace*' (Goodwin 2007 p. 18). By merging the work of Lave and Wenger (1991) and Norbert Elisa, a more

comprehensive conceptual framework for understanding the transition of youth to adulthood within the workplace can be understood; especially related to the application of legitimate peripheral participation (Goodwin 2007).

As young people transition from school-to-work they must engage in three forms of learning: propositional, procedural, and dispositional (Billet 1993 in Smith, Henry, and Munro 2002). Propositional learning focuses on knowledge about work, procedural emphasizes know-how, and dispositional centres on values and attitudes (Billet 1993), albeit those that allow young workers to effectively transition from youth to adulthood.

This review purports that dispositional knowledge learned in the workplace is the key to effective transitioning from youth to adulthood. It is the '*broadening of student experience to enable significant, meaningful, and engaged workplace experience [that] provides a better basis for that transition*' (Smith, Henry & Munro 2002 p. 288). This review purports that it is through dispositional learning that young workers learn professional attitudes and behaviours to become competent adults that support the skills-formation process of learning in the workplace. While procedural and propositional learning lead to skill-formation and the development of professional expertise, dispositional learning lends itself to developing skills for social inclusion, belongingness and coping with work in an adult manner.

High or Low-Skills, That is the Question

High-skills-formation is closely associated with competitiveness and the world market holds this in the highest regard (Streek 1989). There is a preference for firms that can build a highly skilled workforce as opposed to those who do not (Streek 1989). However, it is to be noted that in some contexts a low-skills equilibrium is preferred and there is still a willingness to engage in unskilled work for little money over the desire for high-skills. This focus of this research is to address the following question; '*Why are some [workplaces] able to pursue innovation-oriented, high- skill strategies while others are not*?' (Finegold 1991 p.93). There are several major actors in the skills-formation process including educated workers, company managers, and the government.

Within Finegold's analysis an answer may be found in defining a path toward high-skills-formation in the workplace. Since this research focuses on graduates, the assumption is they already achieved Finegold's criteria; motivation of delayed employment and investment in further education. By engaging in HE the individual has opted for a 'higher skills route' (Finegold 1991 p. 96). Finegold's assumption is that educated workers, as inputs into the workplace, is a key criteria for high-skills-formation. Conversely, the Organisation for Economic Co-operation and Development OECD (2004) defines low-skills by those who have no qualifications or lower than secondary education.

Finegold views the employer/company manager as the most critical player in the *game* of a high-skill route. The employer must demonstrate the ability to take risks in '*reorganising work'* and investing in the development of already skilled workers who possess '*improved bargaining power and greater potential to disrupt the work process*.' (Finegold 1991 p. 97).This is indeed a risk and workplaces must take a decision to upskill or deskill in attaining competitive advantage. Workers who have an appreciation for the theory that underscores their work activities and the '*relation of [their] job to the success of the enterprise will have numerous opportunities to suggest ways of increasing productivity*' (Finegold 1991 p. 98). Workers however, would only have these opportunities in an expansive working environment where managers encourage others to share ideas, and perspectives to improve performance and productivity. The outcome of engaging in improvement opportunities is the enablement of a high-skills route that allows the organisation to develop efficient response mechanisms to external factors that impact market forces in which they operate (Finegold 1991).

High-skills development in this research is defined as '*learning and applying any combination of skills, knowledge and understanding which builds on what could be reasonably expected from a newly qualified skilled worker'* (Brown 2009 p. 5). While organisations are concerned about recruiting and developing competent workers, universities are also focused on producing high-skills students. While schools are not normally considered the best site for developing work skills (Streek 1989), HE is linked to the development of high-skills-formation in the workplace. HE is critical to '*initial high skills-formation'* (Brown 2009 p. 5) and it

must be noted that university graduates and their prior knowledge from HE has a preliminary impact on the high-skills-formation process in the early years (Brown 2009). Additionally, high-skills-formation is directly related to opportunities for expansive learning in the workplace. An assumption can be made that employees with baccalaureate degrees function more effectively in specified workplace positions than their counterparts who do not possess a university education. Smith (2001) indicates that without academic education persons rely on 'common sense', 'intuition' and 'tacit knowledge' to perform their jobs and they are somehow inefficient because of their inability to 'keep up' (Smith 2001)

If university graduates do not have access to challenging work opportunities during their initial entrance into the workplace they could miss the high-skills threshold, instead developing low-skills-formation. What are the implications for university graduates entering the workplace? Are this country's workplaces expansive or restrictive? The development of high-skills in the workplace requires the following: prior knowledge that is substantial, knowledge from working, career development activities outside of work and the aforementioned three factors combined (Brown 2009 p. 10).

High-skills development must be underscored by challenging work however, the formation of a high-skills policy can be stymied by the fact that unchallenging work compels employees to change jobs. Unchallenged employees seek opportunities in more expansive environments that provide the pathways for high-skills (Brown 2009). Prior knowledge is relevant to high-skills development in the workplace however, current knowledge learned at work is critical. While knowledge is developed in different sites for learning, transfer of knowledge in the workplace can produce a high-skills route. However, the transfer of knowledge between different sites for learning cannot be described as simple but has its own complexities (Eraut 2009 in Brown 2009). The nature of these complexities will be further explored as an evaluation of patterns of WPL is undertaken in the next section of this chapter.

Patterns of WPL among Graduates

Graduates in the workplace learn in several ways, strongly influenced by the OL approach embedded within company structure and culture (Baert and Govaerts 2012). However, patterns of learning in this research refers to opportunities for learning resulting in competency and professional development; learning derived from specified workplace activities and the steps taken to execute these activities within a CoP (Lave and Wenger 1991 in Baert and Govaerts 2012). WPL patterns are derived from the '*nature of the organization*' (Baert and Govaerts 2012 p. 548), from employees interacting with and learning from each other (Baert and Govaerts 2012).

New employee learning arrangements take different forms, they may be structured with clear goals and aims, expansive and producing rounded experts, or restrictive (Fuller et al 2005). Conversely, individual learning approaches developed within higher learning will also affect WPL outcomes, and university students engage in three generic approaches to learning. Students may either take a surface, deep, or strategic approach to learning. Students taking a deep approach seek to understand by connecting with the course material, whereas surface learning focuses on activating memory and rote to pass an examination. The strategic approach activates when students combine learning strategies to both pass an exam and achieve their goals (Marton & Saljo 1997). Both organizational arrangements and student learning approaches impact WPL. This substantiates Eraut's claim about the complexity of knowledge transfer. The structure of the organization and individual agency makes transfer of learning from university to work an intricate one.

With this information on approaches to learning at university, an exploration of the impact on WPL is required. The question about the differences between WPL and school-based learning also arises, if there is a wide gap between the two graduates may experience difficulty adjusting to learning at work. If the gap is narrow, adjusting to WPL should be less complex. An exploration of the relationship between formal student-learning at university and learning at work will provide some clarification. An inquiry into the efficacy of perceived theoretical differences between student learning at university and WPL, and discontinuities

between these two paradigms will be insightful. Additionally, the structural relationships between these two sites for learning should provide some illumination. Such a three-pronged exploration was undertaken by Hodkinson (2006) who identified similarities between WPL and student-learning at college.

The dichotomy between educational and workplace sites was reinforced by the theoretical debate on formal and informal learning; however, this gap is not as wide as was previously suspected. Upon closer view the incidences of formality and informality were prevalent at both colleges and workplaces. The relationship between tutor and student in an education setting is morphed into the workplace as supervisor and subordinate. One similarity between this learner/teacher relationship is that both parties are influenced by values and culture of the site (Hodkinson 2006). One similarity between the two sites that requires further deconstruction is as follows

> *'the processes and practices of learning may lead to success and a sense of belonging for some, and to failure and a sense of rejection for others;'* (Hodkinson 2006 p. 525).

Marton & Saljo (1997), three approaches to college learning may result in success and sense of belonging on the one hand, or failure and rejection on the other. This is premised on application of deep, surface or strategic learning. This research purports that within the workplace, the examination is replaced and workplace learners' goals are not to pass examinations but a probation or appraisal. During this period employees must demonstrate the competencies required by the organization, not by writing an examination, but demonstrating employability skills, fostering amicable social relationships, and achieving organization goals. This suggests that university students whose main learning approach was of a surface nature may experience difficulty transitioning from school-to-work. What are the implication for transfer of learning? Transfer of learning is intricate in that it involves prior knowledge, prior learning strategies, application of prior knowledge, and learning strategies, to the current workplace situation, and social identity dimensions.

A balanced approach to assessing workplace and education environments ensures that the differences are embraced and a simplistic convergence perspective does not provide a skewed interpretation. There are marked

differences between the workplace and the education institution as sites for learning. The teleology of institutes of higher learning is learning, the purpose of generic organizations is not, '*work and learning in working life on the one hand and school-based learning on the other hand differ in their aims'* (Collin & Tynjala 2003 p.342). Planned learning and assessing is significantly higher at colleges than workplaces (Hodkinson 2005). Learning outcomes at university are measured by grades, while learning in the workplace is measured by performance. However, performance appraisals in many workplaces are translated into grades, represented by letters or numbers which can be tied to reward, recognition, promotion, demotion and recognition, compensation, and employee development (Wiese & Buckley 1998). Therefore, the issue of success with belongingness or failure with rejection remains a key similarity between work and university. Another similarity between learning across the sites is identity development, and learning to belong and fit in a social setting. Conclusively student learning strategy and worker disposition impact both student learning at university and employee learning in the workplace. Student learning at university is not isolated and has an impact on the ability of an individual to transition from learning at school to learning at work.

The discussion on the patterns of WPL must address the extent to which graduates, can effectively transition to informal learning at work. However, a key argument is that WPL is learned when the student begins to work and not while they are at college (Brown *et al* in Hodkinson 2005). Collin & Tynjala (2003) conducted a study on WPL where two groups were evaluated, one group included current employees and the other comprised university students engaged in work based projects. While both groups placed high value on WPL, employees placed a higher value on WPL than school-based learning since competence and coping with work was learned on-the-job. The research also showed that seasoned workers had difficulty identifying the role or impact of school-based learning on-the-job, other employees found that education provided '*basic knowledge from the area in which they are working'* (Collin & Tynjala 2003 p. 340). Some employees felt that school-based knowledge was valuable but was '*eventually difficult to explicate in relation to practice'* (Collin & Tynjala 2003 p. 340). This evidence suggests that WPL occurs at work and while theory has some

importance, learning to work can only be done in the workplace. Students may learn theory at college but they can only learn to work at work.

The students that formed part of the study were engaged in two types of projects either based on organization specific activities, or where school-based principles could be directly applied (Collin & Tynjala 2003). The nature of projects suggests that the application of theory to practice is seamless for some work activities but possibly irrelevant in others. This lack of seamlessness in company specific activities could account for the impression seasoned workers held about theory; offering basic knowledge, and little relation to practice. Therefore, the students engaged in company specific projects saw no relationship between theory and practice. Other students found limited relationship between theory and practice, but those students engaged in work where university knowledge could be directly applied saw a seamless link between theory and practice (Collin & Tynjala 2003). From the evidence it is clear that transfer of knowledge is directly related to the nature and complexity of the work task. Enterprise specific tasks cannot be learned at university, only at work; and there are job tasks that can only be learned in the workplace. Based on feedback from the employees an assumption can be made that theoretical knowledge, once applied, impacts WPL in the early years of work. As work becomes more enterprise specific, the impact of theory loses importance. In essence theory replaces practice (Collin & Tynjala 2003 p. 341) as work is more company specific.

Prior College Learning and Speed of Workplace Skills Development

Another question the literature review seeks to elucidate is the skills levels graduates bring to the job. Does prior skill determine the length of time taken to achieve expert status? Here we examine the relationship between prior learning and expertise development at work. There are certain specifics learned at school and governed by the educational curriculum however, in the workplace, learning is often situational. If a situation occurs it must be addressed using specified skills and knowledge. Learning in a HE institution is generalized, but at work there are

very specific tasks for completion therefore, one can conclude that distinct competencies are developed on-the-job (Tynjälä, Välimaa & Sarja 2003).

The graduate's skills levels can be isolated and reviewed to determine the impact of prior learning on workplace skill acquisition. One question for example is the performance of graduates with strong research skills compared to their counterparts with poor research skills. University students with positive perceptions about the importance of research skills in their future careers versus students unsure about the importance of research in their future work were evaluated by Murtonen, Olkinuora, Tynjälä & Lehtinen (2008). Students with positive conceptions of the link between research skills and relevance to future work engaged in a deeper learning approach, were more task oriented, and experienced less challenges in learning about research skills than their counterparts. The authors concluded the following

> *…experiences in learning, learning approaches and situational orientations are related to expectations about future work.* (Murtonen, Olkinuora, Tynjälä & Lehtinen 2008 p. 599).

This research suggests a relationship between student learning at university and preparedness for work. The student's ability to learn in one setting is affected by their conception of the usefulness of the skill in the future setting. This has implications for educational institutions who should aim to empower students with skills for their future learning and employment. This has consequences for the workplace and the extent to which university graduates can transition from novice to expert and how quickly they develop new skills on-the-job.

Communication and writing skills are important to employers and a fair expectation is that graduates from the country's universities prepare effective documents that are grammatically correct and relatively error free. British and North American research has sought to establish the cost of poorly written communication and Britain's Royal Mail reports that errors from spelling and grammar alone cost British business over seven hundred million pounds per annum. (Royal Mail 2000 in Gray, Emmerson & MacKay 2005). The College of Science, Technology and Applied Arts of T&T (COSTAATT) conducted a Stakeholder Consultation meeting in October 2013 with education executives and

administrators from COSTAATT and employers and employment agencies across the nation. The discussion focused mainly on employability skills and what employers require of a COSTAATT graduate. Of the employers represented at the meeting 80% lamented the poor writing skills of college graduates in general, and asked for COSTAATT to refocus their curriculum to ensure that employers learning and development budget for business writing skills could be reduced. Employers felt that graduates from all universities in the nation should have developed this skill at college rather than employers having to invest in developing the graduate in this skill area after they are employed.

At this point a definition of employability skills will elucidate the relationship between learning at university and performance in the workplace. Employability skills is defined by the Confederation of British Industry (CBI) as

> *A set of attributes, skills and knowledge that all labour market participants should possess to ensure they have the capability of being effective in the workplace – to the benefit of themselves, their employer and the wider economy.* (CBI and Universities UK (2009 p. 8)

CBI is an institution that provides assistance in developing favourable conditions for businesses in the United Kingdom (UK) to be competitive and profitable for the benefit of all. CIB identified nine (9) employability skills as follows: self-management, team working, business and customer awareness, problem-solving, communication and literacy, application and numeracy, positive attitude, and entrepreneurship/ enterprise. These are generic skills and not necessarily related to HE, the latter specifically equips graduates with some of the following skills: research skills, critical thinking, and managing complex information (CBI 2009). Key employability skills however, should be incorporated into the HE curriculum. With these skills functioning as the workplace matriculation requirement it is expected that graduates make an effective learning transition to the workplace and demonstrate a positive impact on speed of skills-formation.

Information seeking is one key way graduates learn at work. The Project Information Literacy Research Report dated October 16, 2012 elucidated a study on thirty-three (33) college graduates across twenty-three (23) United States employers and discovered that modern graduates utilise online internet searches

to obtain quick necessary information but need to combine this with other competencies including reviewing and interpreting internal reports, using communication skills to make calls to gather information, and team learning. This suggests that that prior learning and the level of skills possessed by the university graduate upon entrance to the workplace is important to employers. The utilization of prior learning within the workplace will determine the speed with which graduates transition from a novice to an expert.

The issue of worker disposition is also evident where a university student with positive perception about the usefulness and relevance of current learning to the workplace will engage in deep rather than surface learning and be better prepared for work. A university graduate with strong writing, research, and information seeking skills combined with competencies that translate information into solutions, and problem-solving skills should be able to make a smoother transition from novice to expert worker. Graduates with less developed skills in these and other competencies required by employers may not be able to pass the probationary period let alone transition from novice to expert.

Employers today expect university graduates to possess a battery of skills, but employability skills are not an end themselves, the foundation of employability is transferability. Employers expect graduates to apply the skills they develop at university on-the-job. It is believed that employability skills do not necessarily lead to transferability of skills (Washer 2007) but that employability skills should be incorporated into the HE curricula (Washer 2007, Clarke 2007). The workplace skill-formation process cannot exclude prior learning and employability skills. The acquisition of knowledge and skills gained prior to entering the workplace forms part of the skill-formation process at work. Whether learning is perceived as acquisition or participation, it is clear that the skills-formation process includes employability skills and skills developed at university that are transferable to the workplace.

It is evident that prior learning, worker disposition, individual learning strategies, and school-to-work transitions have a significant impact on the skills-formation process in the workplace. These factors have focused on the individual, and

elements within the individual that have an impact on the skill-formation process. Employees therefore continue the process of learning through work, they do not just engage in productive activity since workplace activity lends itself to learning, they are inextricably linked. The workplace either intentionally or unintentionally provides opportunities for lifelong learning.

With lifelong learning there is another perspective however, prior learning can be counterproductive to individual and OL and functions as interference to the overall learning process (Baxter 2000 in Becker & and Hyland 2004). There is a greater propensity for seasoned workers or experts to be affected by prior learning in the workplace, and unlearning skills and behaviours that are inept poses a challenge (Becker & Hyland 2004). Old habits of expert workers could possibly affect what is being learnt by university graduates in the workplace.

From the discussion it is clear that prior learning and its relationship to WPL is not a simple one and there are several permutations that could arise. Prior learning could negatively affect learning and productivity however, this is more prevalent among seasoned workers than young graduates. Prior learning of employability skills could enhance WPL through effective transferability, prior learning and the ability to transfer is based on the student conception of the skill being learned and individual learning strategies. Finally prior learning may not necessarily lead to transferability.

Converging Workplace and Formal Learning for Effective Skills-formation

Skill-formation is normally associated with training and education however, this research seeks to determine the workplace's impact on the skills-formation process. The following aptly describes the role of the workplace in the skills development process below

> '*qualifications and training are partial measures of skill-development as most learning arises naturally out of the demands and challenges of everyday work experience and interactions with colleagues, clients and customers*' (Felstead, Fuller, Unwin, Ashton, Butler, Lee & Walters 2004 p.1)

Felstead *et al* raises the question of how learning occurs at work. What constitutes work experiences and how does learning ensue when there are

interactions among colleagues, clients and customers? There are four main types of productive activity '*that regularly give rise to learning*' in the workplace: '*participation in group activities*', '*working alongside others*', '*tackling challenging tasks*', and '*working with clients*' (Eraut 2004 p. 266).

In almost all organizations there will be evidence of productive activity, group participation, tasks at varying degrees of difficulty, client interactions, and people working in groups and teams. However, not all of these activities result in high-skills-formation characterized by 'learning intensive jobs'. The questions that need to be answered here are as follows: what are the gaps in workplaces that allow for the development of low-skills and low competencies, and what are the factors in workplaces that produce high-skills and competencies?

The seven learning conditions that must exist for work to be classified as work intensive rather than learning deprived are as follows: *a high degree of exposure to changes, a high degree of exposure to demands, managerial responsibilities, extensive professional contacts, superior feedback, management support for learning, and rewarding of proficiency* (Skule 2004 p. 8-9). These conditions however are specific to the Norwegian context and must be tested to establish universality. Norway's oil, banking, insurance, and commercial service industries have the highest level of learning intensive jobs (Skule 2004). This suggests that university graduates are absorbed by these industries. The highest level of learning deprived jobs are concentrated in the wholesale, retail, restaurant, and hotel sectors (Skule 2004). It is evident that these sectors are populated by employees that '*lose out in the education system*' (Skule 2004 p. 7).

Skule's work establishes a link between high-skills-formation and university education in the context of WPL. He clearly indicates that '*the workplace does not substitute efficiently as an alternative to school-based learning for early school leavers*' (Skule 2004 p. 7). In Norway educated workers access learning intensive jobs, which will evidently produce high-skills. Skule's work suggests that high-skills-formation in the workplace is as a result of prior skills

developed through formal education. In answering the question about workplace or learning environment gaps, that promote high or low-skills, the Norwegian model can be applied. Organizations with lucrative learning conditions include some of the following variables: frequent technological changes, decision-making opportunities, project management assignments, access to professional networking forums and conferences, direct sight between work and results, challenging work demands, and lucrative total compensation (Skule 2004, Ashton, Sung & Raddon 2005). Exposure to these variables will more than likely present opportunities to develop high-skills workers, companies and industries. In such a situation the structure-agency relationship would result in workers without HE having little or no control over being absorbed into learning deprived jobs.

In small to medium sized (SME) organizations however, Skule's model may be irrelevant. Small businesses in the UK have been criticized for their lack of investment in training (Kitching 2008) however, these criticisms are based on a myopic view of elucidating investments in formal training only (Ashton *et al.*, 2005 in Kitching 2008). WPL is a key source of skills-formation for SMEs

> *Employers might perceive employee skill-development as a strategic business activity yet rely predominantly on employees learning at the workplace rather than on external training provision to meet employers' skill requirements. Indeed, given small employers' limited resources, such approaches might be expected to be rather more common than reliance on external training (Kitching p.102).*

What are the skills developed from formal training and education, and what are the skills specifically learned during productivity activity? Which of these skills are superior in the context of competitive advantage and profitability of a business? In Kitching's study on SME skills development and WPL, SMEs were defined as '*employing fewer than 50 employees*' (Kitching 2008 p. 104). One of the key learnings from this study is that there are certain skills that can only be developed in at work. Not all learning is certified and some learning may not even be certifiable since most on-the-job learning is tacit, not explicit. Approximately 40% of employee learning is not certified (Green & McIntosh, 2006 in Kitching 2008)

and in seeking to apply Skule's model to SMEs with low investments in formal learning, they may be categorized as learning deprived. Traditional measures that normally determine skills-formation are training spend, and number of training days (Kitching 2008), however measurement of WPL is more difficult to classify. Some benefits of WPL as a skill-formation strategy are as follows: employer has greater control over the learning curriculum, employers determine their own work performance standards that can be linked to what is being learned, skills developed at work for the workplace are easier to assimilate and apply than skills learned during formal learning that need to be applied in the workplace (Kitching 2008).

SME's follow three different types of skills policies: strategic, tactical, and restrictive. Employers focusing on strategic skills policies are characterized by a structured skills development plan with long-term investment in formal training opportunities for a large proportion of their workforce. These businesses are innovative and can be found in both high and low-skills sectors. Their skills policy is designed to leverage competitive advantage therefore, skill-development is planned. External skills development from training or education may be uncertain in their relevance and applicability to the SME. The development of new knowledge and skills are independent of external investments but formed within *routine job performance and workplace interaction with other employees* (Kitching p. 109)

The evidence suggests that skills developed at work cannot be learned anywhere else. It *is not simply the inferior alternative taken by employers who are unable to offer external training or by those who attach little value to skills* (Kitching 2008 p.107). Formal learning institutions alone cannot provide certain skills and competencies required to outfit an organization with competitive advantage. Certain distinctive competencies that set organizations apart from the competition cannot be developed through formal learning, but can only be acquired in the workplace. This suggests that the acquisition metaphor cannot be postulated as superior to the participation model, and the workplace cannot be considered an inefficient substitute to HE.

Learning Practice in the Workplace: How Workers Learn on-the-job

Employees learn in many different ways while at work, and some of the most common practices of the WPL pedagogy include the following: learning from experience, within a learning organisation, from mistakes, through self-education, by practising personal values, by applying theory to practise, through problem-solving, through interacting with others, through open lateral planning, by being an advocate for colleagues, through leading others, through formal training, and through the practice of quality assurance (Gerber 1998). With the exception of formal training, these learning practices are vastly different to the structured classes and examinations college students engage in to learn. Students transitioning from university to work, with no prior work experience must be able to learn t in new ways to obtain the knowledge and skills to perform effectively on-the-job. The WPL curricula is executed through productive activity and by extension through the practices identified above. There is no formal examination to determine what has been learned. In the college, student performance is determined by the examination but in the workplace employee performance is measured by a performance appraisal.

Feedback obtained through the formal appraisal process is another form of learning in the workplace. Employees must be advised on the outcome of their performance. While participation in workplace activities promotes learning through repetition, it is critical that the worker is provided with information on the result of his efforts. Feedback is a key aspect of WPL as the feedback mechanism provides workers with information on their performance. An organization that supports learning at work should be concerned about feedback as it helps employees identify learning gaps or deficiencies, and areas for improvement in competences (Bauer and Mulder 2006). Feedback not only benefits the individual but also the organization. A company learns through feedback by engaging in continuous assessment and evaluation and identifying opportunities for improvement in employee competence (Bauer and Mulder 2006). Normally feedback takes a downward journey from supervisor to subordinate and the approach is top-down, however the concept of 360 degree feedback has been popularized (Edwards & Ewen, 1996 cited in Bauer & Mulder 2006) in recent times. With a 360 degree approach, feedback can be both top-down and bottom-

up while encapsulating a multi-dimensional feedback mechanism that provides supervisors with performance improvement opportunities regarding their leadership, and professional competence (Bauer & Mulder 2006). This type of feedback has the potential to strengthen the skills-formation process and promote the development of a high-skills organization.

Earlier in this research the relationship between supervisor and employee was identified to establish similarities between learning-as-acquisition and learning-as participation. Bottom-up feedback from subordinate to supervisor promotes feelings of self-determination in the subordinate. It can be argued that learning environments promoting feelings of self-determination, not only strengthen the integration between working and learning, but promote self-directed learning which is intrinsically motivated (Harteis *et al.*, 2005; Straka et al., 1996 cited in Bauer & Mulder 2006). This argument can only be founded in the workers conception of the value of the upward feedback in promoting change and improvement. Generally feedback in the workplace should be provided on specific tasks in the short-term, and in the long-term feedback on progress over a specified period should be offered (Eraut and Hirsh 2007). The timeframe for providing feedback is relevant to effectively correct performance gaps however, if short-term feedback is not complimented with long-term strategic feedback on overall performance, even strong and confident workers could develop feelings of uncertainty and reduce employee commitment to the organisation. (Eraut 2007 cited in Eraut & Hirsh 2007).

Feedback is an important learning mechanism in both formal and informal learning institutions, it not specific to the workplace, in formal learning environments students also learn from feedback. The University of Leicester's website clearly states the following.

> *'The quality of feedback provided to students about their academic performance is a fundamental element of the University of Leicester's approach to learning and teaching.*
>
> *The University has an approved policy that provides a clear structure and timescale for the provision of feedback to students on their assessed work'*

Therefore, one of the similarities of learning at work and formal college learning is that feedback is an important feature of both and relevant in both contexts. Feedback can bring corrective action and helps the learner improve performance.

Experience based learning (EBL) is one of the key mechanism through which employees learn on-the-job. EBL postulates the following set of assumptions:

• *experience is the foundation of, and the stimulus for, learning*

• *learners actively construct their own experience*

• *learning is a holistic process*

• *learning is socially and culturally constructed*

• *learning is influenced by the socio-emotional context in which it occurs.* (Andresen, Boud, & Cohen 1995 pp.207-208)

What is unique about EBL as a learning process is its focuses on the whole person including the intellect, feelings, and senses. The relationship between new learning and personal life experiences is promoted and enhanced to deepen learning. Consequently, learning becomes values-based on an individual level, '*new learning can be related to personal experiences, the meaning thus derived is likely to be more effectively integrated into the learner's values and understanding' (Biggs and Tang 2007 pp. 1-2).* EBL infers an inextricable link between propositional, procedural and dispositional learning as part of the skills-formation process.

One of the most significant ways graduates learn in the workplace is through making mistakes. While students are at university this practice of learning from mistakes exists, people learn from mistakes both at university and in the workplace. Real learning occurs not just from identification of the mistake but from making correction, it is important to recall how the mistake was corrected so it can be prevented. If a similar situation occurs again it is important to remember the error to ensure prevention (Gerber 1998). Workers often learn by trial and error so mistake-making may be unavoidable (Gerber 1998) however, correcting mistakes is a fundamental aspect of WPL. It can be argued that the attitude of

the supervisors regarding mistakes made at work is also important since worker confidence and feelings of uncertainty can be affected. Therefore, organizations promoting learning from mistakes in a positive manner should create the conditions for a progressive learning environment where skills can be effectively formed and developed. This also has significant implications for work environments that promote or impede high-skills-formation.

The workplace is not a problem-free environment and workers learn through solving problems that occur daily. A problem is simply the unwanted gap that lies between the current and expected state (Brightman 1998: Kepner & Trego, 1976 cited in Tucker, Edmondson and Spear 2001), which encumbers effective task completion by the employee (Tucker *et al* 2001).

Problem-solving can be either positive or negative, the responses to problem-solving can be viewed in two ways: it may or may not result in learning. The difference is whether first-order problem-solving or the second-order approach is applied (Tucker *et al* 2001). With first-order problem-solving the problem is addressed so that work continues, but there is no mechanism designed or implemented to prevent a similar recurrence of the problem. There is a temporary resolution of the problem by identifying '*missing inputs'* for task completion. With second-order problem-solving the worker, through a process of investigation, seeks the underlying causes and tries to bring change (Tucker *et al* 2001). It can be argued that the ways in which, and the extent to which problems are solved at work determines the level to which problem-solving skills are developed. Learning environments that promote or demand deep rather than surface learning should result in higher levels of competence and high-skills-formation among graduates in the workplace. Some problems are merely symptoms of defective processes and procedures that can be addressed to achieve organisation improvement (Sitkin 1992 cited in Tucker *et al* 2001).

Feedback and problem-solving are inextricably linked and once mechanisms are implemented for timely feedback, problems can be more effectively and quickly resolved. If a deep learning approach is not applied in solving problems and feedback is not provided in a timely manner employees and the organization

engage in surface learning practices that could result in low-skills development. The link between feedback and problem-solving also suggests that the ways in which people learn at work are not isolated. It can be argued that employees may engage in a number of different learning mechanisms simultaneously and or sequentially so that effective learning that leads to high competence levels may occur. It is also apparent that when the individual and team learn, the organisation learns; where processes and procedures can be adapted or changed based on discoveries and recommendations made during the learning process.

Additionally, there is an inextricable link between handling mistakes and problem-solving. This research purports that it is that gap between the current and expected states where employees can be likely to make errors and mistakes which occur within the process of problem-solving. Errors occurring during problem-solving *are important 'opportunities for learning and improvement of, for example, work methods' (Ellstrom 2001 p. 429)* Participating in problem-solving at work provides opportunities for enhanced learning and development *(Ellstrom 2001)* This is another example of how workers participate in several learning mechanisms simultaneously and or sequentially. Problem-solving, mistake handling and feedback can culminate into effective learning that leads to competence and high-skills.

Power and Politics in the Workplace

While organizations thrive on the development of new ideas, often it is through power and politics within learning that they emerge (Lave and Wenger, 1991). While learning occurs within everyday social activities and interactions among workers it would be ill-advised to ignore the impact of power and politics that are normal aspects of organising. The impact of power and politics on workplace and OL can be seen from two competing perspectives. On the one hand political activity among warring factions is seen as an opportunity to form a space for sharing ideas, avoiding stagnation, obtaining various ideas and perspectives, and challenging the status quo (Levitt and March, 1988 in Higgins, D., Mirza, M., and Drozynska, A. 2003). On the other hand '… *many occurrences of learning fail to be translated into practice because they challenge too strongly the existing*

practices of the firm's community (Newell *et al*., 2006; Robertson, 2007 in Higgins *et al* 2003 p. 474).While power and politics can have a positive influence on OL, a failure to learn can arise if the conflict makes too strong a demand on the firm's way of knowing or status quo.

Skills-formation occurs through organising which gives rise to power and politics. While situated theory has been severely criticised for ignoring the impact of power and politics, this research drew on concepts illuminated by Higgins *et al* (2003) to expand situated learning theory. Higgins *et al* (2003) investigated the role of power and politics in learning within SMEs, and purport that situated learning theory evades the importance of artefacts of politics and power.

> *'Situational learning theory overlooks the significance of these institutional artefacts of learning in favour of a focus on relations between community members and their value for processes of identity formation and re-formation. At present, the theory occupies an ambivalent position, on one hand it suggests a radical analysis of learning practices where concepts of contradiction, conflict and power are central, but the theory takes a more functionalist view in which consensus is assumed' (Higgins et al 2003 p. 478)*

Situational learning is criticised here for an unbalanced perspective on power relations, overly focused on identify formation. While situated theory places some level of importance on power and politics this is skewed by the overemphasis on an assumption of consensus.

Higgins *et al* (2003) indicate that within an organisation employees may have '*small amounts*' of power or considerable power. As a result of the unequal distribution of power, '*more powerful employees dictate how, and to what extent, the participants with small amounts of power are allowed to participate in the socio-cultural practices adopted'* (Higgins *et al* 2003 p.476). In applying Lave and Wenger's theoretical framework one can assume that employees with full power influence or create a space for sharing ideas that could possibly change the way of knowing or the status quo. Earlier in this chapter, in reviewing the transition from youth to adulthood it was discovered that graduates learn behaviours of

older workers. An assumption can be made that graduates learn how to engage in the political games that arise in the workplace from older workers.

Since learning presupposes social interaction with others in the workplace, accessing peripheral or full power will be based on the perspective of adults with whom new workers interact; therefore identity as a power broker will be based on association. If new workers associate with older workers who influence the status quo by creating a powerful space for emitting ideas and bringing change then they learn how to display power that gives rise to learning and change. However, if the new employee engages with adults who make too strong a demand on the firm's *way of knowing* they learn how to engage in political behaviours that curtail effective learning and change. Another assumption that can be made is the extent to which older workers are willing to share power with new workers will also determine the latter's identity as power brokers. The link between power, and peripheral and full-participation is not new. The move '*from peripheral to full participation is a move that entails both a shift in power relations and in responsibility for work/production: alteration in power is implicated in the move to full participation in the productive process of the community of practice'* Yandell &Turvey (2005 p.548).

This chapter proposes that the *artefacts* of power and politics can either be restrictive or expansive therefore creating learning environments that curtail or foster learning. A review of the relationship between emotion and power in OL shows how organisation dynamics inhibit OL. One issues is that management support for OL is key to its success, if this factor is not present it inhibits '*learning and change'* (Vince 2001). Three inextricably linked processes are responsible for the construction of power relations (Vince 2001). These three processes include the following: firstly organising occurs amidst strong emotional and political struggles and manoeuvring; secondly conflicting political perceptions of the business with strong emotional attachments create conditions for impasse between warring factions in the organisation; and thirdly justification of emotional and political positions and protection of rights between opposing groups superseded OL (Vince 2001).

According to Senge (1992) we must 'suspend our views' for dialogue to ensue and true dialogue is 'grounded in reflection'. When organisations demonstrate a dialogue and communication malfunction this can culminate into a learning deficiency. It can be argued that organisation cultures characterised by strong and warring political coalitions, underscored by highly defended and conflicting ideologies may be unable to learn correctly, and do not meet the criteria of expansive learning environments. They have learned how 'not to communicate' and how to promote the agenda of the coalition over the effectiveness of the organisation. It can be argued that not all learning is valuable and raises the question purported by Lahteenmaki *et al* (2001) on the improvement of both cognitive and behavioural changes first, improving the firm's performance prior to being considered as OL.

Summary

The literature review centred on learning in the workplace and the skills-formation process, who is learning at work, how learning occurs on-the-job, and how expertise is developed; in essence how skills are developed on-the-job. A clear picture has been painted on what is being learnt and why it is being learned; skills are being learned for both individual and organisational performance. Where learning occurs has been elucidated, and similarities between formal college learning and WPL identified. Additionally, the marked differences between learning at work versus formal education were illuminated; the learner must identify and implement a new way of learning in the workplace. Prior learning content and strategies impact WPL and affect the skills development process. The nature of prior learning can have a positive or negative impact on WPL, skills learned at university must be transferable, and the graduate's ability to apply prior learning in the workplace is affected by their conception of the usefulness of the skill while it was being learned at university. This is why worker disposition must be considered in any discussion on WPL since it is inextricably linked to preparation for learning and working.

Within the literature review, patterns of WPL were identified and defined, which should not be confused with the ways in which employees learn on-the-job. The patterns of learning may be surface, deep, or strategic and the ways in which

employees learn are through problem-solving, feedback, and several other methods identified by Gerber (1998). The extent to which an employee transitions from novice to expert were expounded and there are elements both in the employee (agency) and in the organization (structure) that determine speed of skill-formation and the development of high or low-skills. Employees using surface learning approaches will make a slower transition from novice to expert, and skills will be formed at a lower level than those applying deep and strategic learning patterns. The transition from youth to adulthood also occurs at work and dispositional learning is the process through which youths develop behavioural norms that allow them to move from peripheral to full-participation and from youth novices to adult experts.

Organisations promoting productive activity that gives rise to learning create environments where employees are encouraged to learn. There must be evidence of learning conditions that are work-intensive rather than learning-deprived. The evidence of structure and agency relationship is apparent here, both individuals and organisations share the responsibility for promoting learning and removing unwanted learning gaps which deter the skill-formation process. Factors in the workplace and the learner either promote or impede the skills-formation process. These factors also impact the transition from novice to expert. External factors that affect WPL are prior learning from university education and employability skills; the issue here is really transferability. The structure-agency relationship illuminates the duality of human action and the structure that informs the skills-formation process. Both structural and individual dynamics affect the development of skills, the pace at which skills are developed, and the level at which skills are developed. Individuals are able to impact the skill-formation process, but the organization also plays a key role by creating and providing opportunities for learning, growth, and development.

Finally while a university education leads to some level of skills development it may not necessarily lead to a high-skills route. While it is the experience of some nations for university education to lead to high-skills-formation, small businesses generally promote the development of skills almost solely through WPL. There are certain skills that can only be developed in the workplace and the university cannot be substituted for the development of skills that are specific to the

workplace. Certified learning alone does not result in skills development, the workplace is responsible for a significant level of learning this is not certifiable but encapsulates tacit rather than explicit knowledge. The workplace is a legitimate site for learning with its own unique and authentic patterns, methods and conditions of learning; that outfits an individual, organisation, and nation with the skills necessary to attain competitive advantage.

CHAPTER THREE: Seeking for Theoretical Syncretism

This chapter avidly seeks a theoretical basis for understanding and interpreting WPL and skills-formation among graduates in T&T, and an assessment of WPL from the research questions identified in chapter one. An inquiry into WPL theory should provide strong lenses for elucidating the central thesis questions, focused on patterns of WPL among graduates, novice to expert transitions, promotion of high or low-skills based on the organisation or the individual, and the process of skills-formation in the workplace. This chapter argues that traditional learning theory does not have the scope, and an inept conceptual framework to explain the research questions and the relationship between WPL and skills-formation. This chapter reviews theoretical foundations that provide the analytical framework to inform the relationship between WPL and skills-formation, and supports Ashton and Sung (2002) view that WPL is part of the skills-formation process.

An underlying issue is why skills-formation in some workplaces develops at a faster rate or are more enhanced than in others. Another key issue is the factors within individuals that result in high or low-skills-formation. Theories of WPL were reviewed to determine whether they are apt to explain the skill and competency development of the nation's graduates. This chapter also explicated the transition from school-to-work and the skills transferred to the workplace therefore, focusing on learning, knowledge and skills development as opposed to teaching and education. The aim is to elucidate the contribution of conceptual and theoretical knowledge to skill-development in the workplace.

Chapter one highlighted various definitions, which represent differing lenses through which WPL can be interpreted. The traditional lens through which learning is seen underscores a clear demarcation between learning and working that cannot overlap (Boud & Solomon 2003, Eraut 2004). This traditional view has changed significantly, affected by the knowledge era which 'has *created opportunities and demands for learning to move to centre-stage in the context of globalisation of markets and production, increased competitiveness and technological advancement*' (Matthews & Candy 1999 p.47). Globally, nations are motivated to attain the attributes of a knowledge economy which has led to a

transformation in perception of the relationship between working and learning. Today's employer is seeking after the knowledge-worker who demonstrates the ability to learn as a key competency (Matthews & Candy 1999), and the traditional distance between working and learning is no longer relevant or applicable in the knowledge economy.

The traditional approach to learning positions the individual cognition as the unit of analysis, ignoring the individual located within their social context (Matthews & Candy 1999). Authors like Lave and Wenger 1991 proposed the situated approach to learning; and within learning theory there is a shift in how this phenomena is understood. Knowledge and learning are entrenched in cultural practice and the appropriate unit of analysis would encapsulate practitioners, engaged in CoPs (E. W. Constant 1987). Lave and Wenger identified naturally occurring CoPs, for example tailors in apprenticeship situations which elucidates learning, situated in the context of practice. Therefore, this research argues that working and learning are interrelated and not mutually exclusive entities, learning is situated in the context of work, and it is part of the skills-formation process. This chapter elucidates the role of situated learning in explaining the process of learning and skills-formation. Lave and Wenger's situated learning framework facilitates an analysis of WPL and the formation of skills on-the-job. Their theory of CoP is aptly defined as follows; '*CoPs are informal [social] networks that support professional practitioners to develop a shared meaning and engage in knowledge building among the members*' (Hara, 2000, p. 11). This definition elucidates the graduate and the social networks within which they participate at work, leading to knowledge-creation and professional skills-formation.

Though traditional learning theory presents working and learning as mutually exclusive, WPL is elastic and several approaches exist based on the extent to which work and learning are integrated (Stern & Sommerlad1999). One approach perceives the workplace as a site for learning and planned training programs occur off-the-job. The next more closely linked paradigm is where the workplace is a learning environment, and employees learn during workplace activity. The third approach exists where learning and work are interconnected, with learning processes and learners effectively structured and organised, to achieve high

performance (Stern & Sommerlad 1999). Another similar approach to WPL is where the workplace is a site for learning and encapsulates '*learning **at** work'* and 'learning ***in** work'.* The former focuses on planned workplace training programs and the latter on learning that occurs during the course of workplace activity (Sambrook 2005). It is this third approach that supports the framework of learning purported by Lave and Wenger, where the inextricable link between learning and working functions within the structure of a CoP. According to Lave (1993), there is no separation between these two entities.

Student learning that transpires at the university and employee learning that occurs at work must be differentiated. Learning that occurs in the college and university typically follows the '*standard paradigm'* where formal learning includes certain features: an organised learning event, a teacher/trainer, and the award of a credit or certificate (Eraut 2000, p. 114). Learning results in knowledge and the types of knowledge produced within formal education are as follows: theoretical knowledge, methodological knowledge, practical skills and techniques, generic skills, and general knowledge about occupations (Eraut 2004). These types of knowledge and skills are critical as they assist the graduate in effective transitioning from school-to-work and provide a platform for translating theoretical knowledge into practice. Completion of a degree places students at an advantage, and Smith (2001) indicates that without academic education persons rely on 'common sense', 'intuition' and 'tacit knowledge' to perform their jobs and that they are somehow inefficient because of their inability to '*keep up'.*

Learning at work exists on a formal / informal continuum and the informal end of the continuum is '*implicit*', '*unintended*', '*unstructured*' learning', with the '*absence of a teacher'* (Eraut 2004 p. 769). WPL situations often require a teacher as evidenced by the apprenticeship model which mandates the involvement of an expert so that specified tasks can be learned (Barab & Hay 2001). Additionally, some level of structure is required to translate tacit knowledge to explicit (Bontis 1998). Knowledge can be tacit and explicit (Chinowski and Carillo 2007). Explicit knowledge is formally documented, recorded or explained (McInerney 2002 in Chinowski and Carillo 2007) but tacit knowledge, based on experience, is less difficult to communicate and is not in a form that can be used by the entire

organisation. The structure required to translate tacit into explicit knowledge rests in an exploration of the situated context of learning. Lave and Wenger's learning theory demonstrates that knowledge is embedded in cultural practice where tacit knowledge can be '*made explicit through social processes' (Headley 2012 p.288)*

In comparison to formal learning, the types of learning found in the workplace can be explained using Argyris & Schon (1978 in CLMS 2003) learning loop which identifies and defines incidences of single, double and triple loop learning. Single loop learning provides no real challenge to change or to existing mental maps and is reactive ;whereas double loop or adaptive learning challenges existing mental models; inclusive of norms, practices, values and procedures. Triple loop learning or generative learning on the other hand involves the transfer of insights from adaptive and survival learning to proactively reconfigure mental maps (Argyris & Schon 1978 in CLMS 2003). The main objective of the formal / informal review is to elucidate WPL from different perspectives and to provide an opportunity to expand the scope and focus from college learning to WPL. Later in this chapter the relationship between formal and informal learning will be explored in greater detail.

WPL is a relatively new concept (Stern and Sommerlad 1999, Fuller and Unwin 2002) however it is not a new phenomenon. A new concept, without strong theoretical underpinnings, or that is poorly theorised would not provide a sound explanation on the relationship between learning and working. Therefore, this section identifies theories that support and explain the reality of WPL. Traditional learning theory that follow the standard paradigm embrace disciplines like cognitive and behavioural psychology, and do not explain participation in learning and knowledge, and skills and behaviours, developed outside the secondary, tertiary and conventional training environments. Traditional learning theory that follows the standard paradigm cannot explain the operation of the apprenticeship system and how the apprentice transitions from novice to expert.

Theoretical Lenses of WPL

This chapter provides a brief overview of different theoretical perspectives of learning as a starting point for determining where WPL should be placed. There are numerous lenses through which WPL can be evaluated since a myriad of disciplines have documented approaches to WPL (Boud, 1998; Stern and Sommerlad, 1999; Hager, 1999). The social psychology learning approach for example, perceives the organisation as a group and defined as a collection of people who consistently interact and both individual and group-learning take place (Argyris & SchoÈn 1978 in Appelbaum & Gallagher 2000). Instrumentalism / management theory on the other hand is an approach that projects the organisation as agent, '*instruments for achieving social purposes'*: The organisation is the object and subject of learning (Appelbaum & Gallagher 2000). The sociological theory of bureaucracy projects the organisation as a structure and OL is equated to changing the organisation structure, whereas cybermetics information theory perceives the organisation as a system, and learning is based on the '*self-regulating process of error and detection and error correction'.* The anthropological (ethno-methodology, phenomenology) approach sees the organisation through its culture and learning is acclaimed within the socialisation process, and the construction of social reality (Argyris and SchoÈn 1978 in Appelbaum & Gallagher 2000).

One aspect of the anthropological definition of OL is '*the process by which members of an organization become cognisant of the social reality they have jointly constructed, subject that sense of reality to critical reflection, and seek deliberately to transform it'* (Appelbaum & Gallagher 2000 p.42). Lave and Wenger's situated learning theory encapsulates this social reality of learning where employees participate in CoPs. Finally, the political theorists perceive learning within the context of politics where OL involves a game-playing strategy, through the process of invention and application. It also involves the attainment of '*collective awareness'* and the transformation of '*contention'* into '*co-operation'* (Appelbaum & Gallagher 2000).

These differing theoretical perspectives have serious implications for an all-inclusive definition of WPL. While all the theories support the view that the workplace in a legitimate site for learning, the workplace is not just a site but a group, agent, structure, and system, with culture and politics. WPL is acclaimed by many theories and schools of thought all of which present their own metaphor of the organisation, their own conception of the organisation and how it learns. Each individual also has his /her own conception of learning and this significantly impacts learning outcomes both for the individual and the organisation.

This chapter sought to expand learning theory from the domain of formal education into the workplace. Lave and Wenger introduced the relationship between learning and social practise within communities and focused on different levels of participation in WPL. Lave and Wenger's situated theory of learning focuses on the requirements for new entrants into a workplace to attain full-participation through the process of skills-formation that requires the development of knowledge skills and habits (Fuller *et al* 2005).

A review of the concept of legitimate peripheral participation postulated by Lave and Wenger highlights its efficacy in providing a theoretical understanding of WPL. Lave and Wenger made a significant contribution to WPL by presenting learning as a social activity which challenged conventional learning theories normally fixated on human cognition. Lave and Wenger advanced the discourse of learning from cognition-dominated education to the workplace, where learning is redefined as a social as opposed to just a cognitive process (Fuller *et al* 2005). A limitation of Lave and Wenger's theory, when applied to '*contemporary workplaces in advanced industrial societies',* is that it cannot explain the '*barriers to learning that employees encounter.*' (Fuller *et al* 2005). The concepts '*communities of practise*' and '*legitimate peripheral participation'* were applied in empirical case studies funded by the Economic and Social research Council (ESRC), the findings will now be discussed.

One empirical studies focused on WPL in the steel industry in the UK across three different companies. The study reviewed relations between apprentices, older workers, and the learning environment (Fuller *et al* 2005). Different permutations occur when implementing CoPs and companies take expansive or restrictive

approaches. With the expansive approach, access into and across different CoPs is underscored by a clear transition from the peripheral to the participation over a specified period, and underscored by clear apprenticeship goals and objective. The outcome of this approach is well rounded experts (Fuller *et al* 2005).

Another permutation is the restrictive approach where apprentices have access to only one CoP, and the length of the program is determined by recruitment goals and challenges as opposed to structured time frame. The transition from periphery to participation can be short-circuited based on narrowly focused program goals. Yet another restrictive permutation is where program goals and aims are unclear, apprentices have access to many CoPs but little control over choice. The apprenticeship period can be truncated at any time based on competing staffing needs. WPL has been defined as a by-product and in such situations when other competing demands on the workplace arise, employee learning and development takes second place.

This case-study highlights the impact of the level of regulation on the WPL environment. The evidence from this case-study provides an answer to why some individuals transition from novice to expert at a faster rate than others. This clearly depends on the expansiveness or restrictiveness of the organisation. When companies take and expansive approach and the individuals' participation is prematurely truncated it hampers seamless transition from novice to expert. However, if the organisations' approach is restricted, this reduces opportunities for effective transitioning. How learning is perceived by the organisation will determine the importance placed on building expansive environments. If learning is seen as a by-product the propensity for restrictive environments may be higher.

In practice accessibility is highly regulated based on immediate needs of the organisation, its structure and culture. The outcomes of this case-study confirm Billett (2004) view of the organisation: highly controlled regulated participation, and power relations that maintain organisation culture. These outcomes also have implications for formality and informality in WPL explored in more detail later in this chapter. Evidence of CoPs and peripheral participation is prominent in these case studies however, there are very different permutations of legitimate peripheral participation, with differing outcomes based on accessibility and the

regulatory framework of the program regarding its expansiveness or restrictiveness. The evidence shows that the expansive environment provides accessibility to a combination of learning initiatives whereas the restrictive environment was characterised by a mono-focused and limited learning regimen. Additionally, the authors identified the impact of the novice on the learning process of the expert worker, a phenomena virtually ignored by Lave and Wenger in their original research.

The four major criticisms identified in Lave and Wenger's work are as follows: the concept legitimate peripheral participation is not all inclusive and does not extend to WPL beyond the scope of attaining full-participation; the role of teaching in the workplace context is denigrated. While the significance of learner identity is acknowledged it is not fully developed, and finally the significance of conflict and power relations is under-explored (Fuller *et al* 2005). Lave and Wenger define communities in a state of utopia devoid of power relations and inequalities which can have a significant impact on access to and participation in the social process of learning (Fuller *et al* 2005).

These are strong criticisms that elucidate the complexity of WPL encapsulated in its social context that requires further expansion and exploration. Lave and Wenger have built a solid platform upon which to further theorise on WPL and the efficacy of the concepts CoPs and legitimate peripheral-participation were found to be prominently showcased, as evidenced within the ESRC-funded case studies and in the following case.

This research considered the relationship between CoPs and performance by reviewing empirical research on four organisations within the construction industry carried out by Andrew Schenkel and Robin Teigland (2008). A major focus was the influence of communication patterns within CoPs. Researchers, policy makers, and organisational leaders have all recognised the relationship between skills development and organisational competitiveness; and since the workplace is a bona fide location for skills-formation through learning, CoPs are seen as the catalyst for advancing this important relationship.

The concept of community memory is prominent in the research and described as the storehouse for valuable knowledge. Knowledge from WPL can be tacit or

implicit and the codification of WPL is irrelevant; it can be argued that this knowledge should be transferred in an implicit mode (Reber 1993 in Schenkel and Teigland 2008). This type of knowledge transfer however, is highly dependent on *'frequent interaction'* in CoPs to stimulate and embed the community memory through what Brown and Dugid (1991 in Schenkel & Teigland 2008) designate three cognitive processes of narration, collaboration, and social construction (Schenkel & Teigland 2008). Community memory then retains practise knowledge and also demonstrates an ability to '*interpret knowledge'* (Boland & Tenkasi, 1995 in Schenkel & Teigland 2008). The authors define community memory as follows.

> *'The community memory is based on the history of stories narrated during informal collaborations as well as on the task norms developed by the CoP, and it reflects the community's development, depicting the thread running through the intertwined actions of working, learning, and innovating of the community'*
> (Schenkel & Teigland 2008 p. 108).

The benefits of the community memory are as follows: problem diagnosis, accessing relevant information in the memory regardless of time and space, interpreting and applying knowledge based on a '*shared repertoire'* (Nonaka & Takeuchi, 1995 in (Schenkel & Teigland 2008), and continuous reciprocal input of data into the community memory (Schenkel & Teigland 2008). The denigration of tacit knowledge generation can no longer be supported as its impact is real and not imagined. The above case studies have clearly demonstrated the positive and tangible impact and outcomes of WPL on the individual and on the organisation.

Another key theory advanced to explain the WPL phenomena is activity theory. The principles of activity theory are tri-generational; the first generation, based on Vygotsy's model was mono-focused and centred on the individual. The second generation embraced Leont'ev who differentiated between '*an individual action and a collective activity'* however, this endured intense criticism for overlooking cultural diversity and omitting to expand Vygotsky's framework (Engestrom 2001). The third generation focused on the interaction between multiplicities of activity systems that replace the notion of CoPs; where the '*object of activity'* is in motion and exceeds conscious short term goals (Engestrom 2001).

With traditional learning theory the unit of analysis is the individual cognition, and with the situated learning theory the unit of analysis is workers engaged in CoPs. With activity systems however, the unit of analysis includes 'two or more interconnected activity systems (Engestrom & Kerosuo 2007 p.337), which move beyond WPL to OL and the organisation rather than the learner becomes the central point. The focus is organisations engaged in the skills-formation process not just individuals in CoPs developing skills. The scope of activity systems is broader than situated learning however, Lave and Wenger's theory is apt in answering the questions that focus on agency, and activity systems answer questions related to structure (Engestrom & Kerosuo 2007). Individual/agency factors affecting the skills-formation process can be explained by Lave and Wengers' theory however, activity system provides a more expansive approach. Lave and Wenger's situated theory focuses on the skills-formation process from an agency perspective and activity systems centres on structure, and the organisational skills-formation process.

Activity theory sought to answer four major questions; who are the subjects of learning, how they are defined and located, why they learn, what motivates them to learn, how they learn and the associated key actions and processes (Engestrom 2001). Engestrom (2001) combined these four questions with five central ideas of activity theory into a matrix to build a discourse on expansive learning. Engestrom's activity theory defies the traditional teacher-led approach and supersedes the concept of CoPs when applied as an expansive learning approach.

Engestrom's matrix is identified in the diagram below and underscored by five principles. Firstly, the unit of analysis is not the CoP but the activity system which includes both individual and group actions, '*automatic operations',* and additional units of analysis that are seen as both autonomous but secondary to the activity system itself (Engestrom 2001 p.136). The second principle is multi-voicedness and accounts for a myriad of *points of view, traditions and interests* (Engestrom 2001 p.136). Historicity, the third principle, explains the time taken for activity systems to be formed and transformed; this requires sufficient time that the activity system is structured within its own history (Engestrom 2001). The fourth

principle of contradictions acts as a catalyst for '*change and development,* and must be differentiated from mere conflicts. Contradictions are defined as '*historically accumulating structural tensions within and between activity systems*' (Engestrom 2001 p.137).

Activity systems are open systems that allow entrance to external components which may collide with internal ones thereby forming a contradiction possibly leading to conflict, innovation, or transformation (Engestrom 2001 p.137). The fifth principle '*expansive cycles'* refers to the long-term cycles through which activity systems journey; this creates a broader spectrum of possibilities than in the former state of the activity. Contradictions play an important role in expansive cycles and have the potential for '*collaborative envisioning and a deliberate collective change effort'* (Engestrom 2001 p.137).It is this theoretical model identified in the matrix below that explains the relationship between WPL and skills-formation among baccalaureate graduates and provides answers to the questions on the who, why what and how of learning.

	Activity system as unit of analysis	Multi-voicedness	Historicity	Contradictions	Expansive cycles
Who are learning?					
Why do they learn?					
What do they learn?					
How do they learn?					

Figure 1 Matrix for the analysis of expansive learning (Engestrom 2001)

This matrix was applied in overcoming problems that existed at a hospital in Finland. The problem at the hospital was the overuse of costly hospital services and neglecting the more economically apt primary care service at the health centres (Engestrom 2001). In order to maximise child-patient care and reduce costs, greater collaboration between health-centres and the hospital was required. The issue was one of communication and co-ordination and these gaps could be closed through the application of activity theory (Engestrom 2001). A boundary crossing methodology was applied and hospital staff, primary care staff and parents of the patients were organised into a triad activity system engaged in "knotworking" (Engestrom 2001). All three parties '*learn new patterns of activity*' (Young 2001, p. 159) and the formation of new relationships create a

learning platform to close the communication and co-ordination gaps identified earlier.

Evidence from the case-study revealed that activity systems and CoPs are similar learning labs but the former is more expansive and has the capacity to explore further learning opportunities by engaging new and different stakeholders through boundary crossing. The idea of boundary crossing creates greater accessibility for external stakeholder participation within the workplace and expands the employee and organisation's ability to engage in new forms of WPL. The impact of such learning strategies has the potential to create customer centric, stakeholder friendly organisations that truly assess and identify customer needs and requirements, and tailors the production or service process to attain greater customer-satisfaction which is closely linked to profitability. This is WPL in action, a credible reflection of reality where learning results in greater customer satisfaction and reduction in costs. Such learning when compared to student learning within an educational institution HE learning adopt the shroud of a lab or incubator of knowledge production and learning. The workplace unveils the credibility of theory in practice and the expansion of learning that can be measured by the bottom line. This again raises the issues of transferring learning from educational institutions to the workplace, how it is transferred and what happens to knowledge when it is transferred.

In reviewing Engestrom's activity theory, Young (2001) pinpointed the importance of pedagogy for WPL though the role of the teacher was not specified. He applied activity theory to vocational education and training (VET) and identified tremendous value in expansive learning when applied to strengthening VET through forging relationships that transform or design new curricula that link school and work-based knowledge. His view is clearly identified below.

> *'In the case of VET we would be looking for new relationships between schools and employers and new curriculum concepts for connecting school and work based knowledge. Taken with his expansive learning cycle, Engestrom provides us with a valuable framework for evaluating the learning potential of such initiatives as the new LifeLong Learning Partnerships in the UK and the focus on work process knowledge being developed in Germany' (Young 2001, p.159)*

For VET to be successfully implemented a number of key stakeholders including workplaces, training providers, government institutions must collaborate and co-operate; and expansive learning is seen as the mechanism through which this can be accomplished. Expansive learning is not applicable VET in its entirety and Young concluded that the application of expansive learning was situational and some learning environments or workplace situations did not warrant the transformational element of learning (Young 2001). Some workplaces required simpler interventions where there are '*no existing relationships to transform'*. He also defined the learning that occurred in the hospital situation as *incidental*, focused on OL (Young 2001).

While the main purpose of the hospital was the provision of healthcare the learning intervention resulted in better service which in Young's view is *incidental to the main goals of the organisation*. Young argued that the major goal of an employer is not learning but the provision of a product or service and that a VET system's main goal would be the provision of learning. In this sense activity theory could not be fully applied to VET. This chapter however, earlier identified learning as a by-product and not the main teleology of organisations. It would be ill-considered for profit-driven, private enterprise to conduct business for the sake of learning. One benefit of WPL is providing organisations with the potential to enhance productivity, customer satisfaction and profitability. Engestrom's proposition of WPL is 'learning-by-participation' as opposed to 'learning-as-acquisition'. Felstead *et al* (2004) clearly point out that Engestrom (2001) extended 'learning-as-participation' into the realm of '*learning as construction'* by unlocking the '*transformative potential'* that occurs within the workplace when activity theory models are applied. WPL is backed by strong theoretical positions and empirical evidence supporting its credibility and reality.

A Syncretised Theoretical Model

This chapter has shown that both CoP and activity theory provide explanations for the WPL phenomena. Below is a diagram representing how these two theories articulate together, providing a conceptual framework for understanding WPL among baccalaureate graduates in T&T. In this matrix a CoP is the starting point,

a micro activity system that explains the apprenticeship relationship with a teacher and a student and explicates the journey from periphery to core resulting in expertise development. In the workplace, individuals journey through diverse social relationships that have differing structures. As identified earlier in this research some structures warrant a transformational element and others require a simpler intervention (Young 2001). CoPs and activity systems are structures of social relationships that facilitate learning and development of expertise. However, activity systems are more expansive and show how organisations develop expertise, innovation and transformation.

Engestrom's matrix is expanded to include the where and when dimensions of learning as they have not be pictorially represented prior. WPL only occurs at work and learning that ensues through boundary crossing only occurs as workers engage inter-organisationally. Therefore, the when and where dimensions are significantly important. Adding these dimensions allows an assessment of the skills-formation process that identifies where skills are learned and when they are learned. It also provides a picture of how skills are learned in different locations and at different times. Additionally, this provides an opportunity to deepen the assessment of how skills are learned, and what is learned, clearly demarcating the when and where dimensions. This provides for a deeper analysis of the skills-formation process and differentiates between what is learned when, and what is learned where. Through Wenger's shared repertoire both interactions and artefacts develop history and confirmed ways of doing things, longevity is established and things become predictable and stable showing a parallel with historicity.

Theoretical Syncretism: Converged Analytical Framework of CoP & Activity Systems

	Communities of Practice as a Unit of Analysis	Activity System as a Unit of analysis	Multi-Voicedness	Historicity	Contradictions	Expansive cycles
			Shared Repertoire, Joint Enterprise, Mutual Engagement			
Who						
What						
Why						
How						
Where						
When						

The syncretised diagram showing the interrelationship between CoP and activity systems elucidates the connection between the five principles of activity system purported by Engestrom and the following three dimensions of community articulated by Wenger 1998 as follows: mutual engagement, shared repertoire and joint enterprise. Mutual engagement encapsulates consistent interaction with CoP/activity system participants who impact and influence each other's professional practice through shared understanding. Even in the midst of mutual engagement however, contradictions can occur and a collision between members of the community is possible. Some elements of historicity exist in mutual engagement, since ongoing maintenance of the community through mutual engagement provides the catalyst for longevity and the time taken to effect and transform the CoP/activity system.

Joint enterprise focuses on negotiated goal sharing underscored by mutual accountability (Wenger 1998). Joint enterprise is negating different points of views and multi-voicedness requires negotiation to promote joint enterprise which ensures the survival of the CoP/activity system. Shared repertoire is underscored by meaning-making that is also negotiated. Interactions and actions offer new

meaning for participants and artefacts are reified, where interpretations are now predictable and stable, thereby creating sustained collaboration and agreement within the CoP/activity system. Shared repertoire provides the foundation for expansive cycles, since long-term cycles must be constructed through a system that is sustainable. The above diagram has identified the syncretism between activity systems and CoPs as a comprehensive model for explaining WPL and skills-formation among baccalaureate graduates in T&T. This model will be tested and applied in chapter five.

Key Metaphors, Issues, Epistemologies and Ontologies of WPL

Having reviewed the main WPL theories this chapter will now focus on key concepts and issues in WPL impacting on its credibility, reality and legitimacy. 'Learning-as-acquisition' focuses on attending planned training programs or educational institutions and 'learning-as-participation' explores the development of skills within workplace productivity. WPL from a theoretical perspective is an offshoot of educational research that defines the workplace as a legitimate site for learning. The educational institution is often defined under the acquisition based approach and the workplace under the participation based approach. These nomenclatures are further viewed as metaphors that can potentially create a biased perspective regarding learning across sites and caution should be exercised about the perils of '*theoretical distortions'*, '*undesirable practices*' and the thin line that exists between theory and metaphor (Sfard 1998).

The acquisition metaphor perceives knowledge as property that can be applied or transferred (Sfard 1998). This model cannot be discarded since there is value in learning within the education system and this chapter will show that this model also has significant relevance in the workplace as it pertains to skill acquisition that demolishes the acquisition/participation divide. They do not have to be two competing intellectual paradigms but different steps in the process of learning within different environments; this chapter purports that one must participate and acquire as part of a comprehensive learning process. Completion of a bachelor degree allows the student to acquire knowledge in preparation for the world-of-work; to obtain a job, and transfer knowledge acquired thereby transforming

theory to practice. On the issue of transfer however, the focus is not on replication but application and know-how (Bransford & Schwartz (1999) in Hager 2004). The learning process continues within the workplace and the learner must transition and learn within a different environment, one that values '*knowing that*' but focuses on knowing-how. In this new environment the graduate is not just engaged in an individualistic cognitive process, but learning by its very nature is encased in productivity and both people and organisations learn within the process of productivity activity.

The participation metaphor transcends from acquiring knowledge to doing, where learning activities are inextricably linked to the workplace. '*Learning is not something that requires time out from being engaged in productive activity*' (Zuboff 1988, p. 395), Learning is not just an individual cognitive activity but occurs socially through human interaction and has three key features: firstly, once there is action, learning is inevitable and regular practice produces specified learning outcomes; secondly, '*embodied action*' is contextual, transformative, and shapes the learning environment; thirdly, there can be no learning without interaction; there is much interaction in the world of work.(Felstead *et al* 2005 p. 363).

This chapter offers a discussion on learning-as-participation and reviewed the results of a survey of 1943 employees in the UK presented by Felstead *et al* 2004. This elucidates the relationship between learning and individual performance and highlights the importance of work-design in the learning process (Felstead *et al* 2004). Factors in the organisation and individuals will be highlighted to determine efficacy or inefficiency. The authors criticise the traditionally constructed surveys which include a starting point where learning is defined as acquisition, and questions asked of respondents focus on regularity of attendance on training programs. They recommend that the 'learning-as-participation' starting point focus on the impact of a variety of work activities on employee performance (Felstead *et al* 2004). This approach is seen as holistic as it showcases the perspective of both process and product that provides policy makers with access to data that describes factors crucial to work performance and job effectiveness (Felstead *et al* 2004).

On its own without any planned intervention WPL exists both as a cultural construct as well as a tool to construct culture. This chapter purports that it is through WPL that organisation culture persists and or changes. WPL is as old as organisation culture and they must co-exist – they are interdependent. This relationship between WPL and organisation culture is acclaimed by anthropology, ethno-methodology and phenomenology schools where an organisation is denoted as '*a small [society] in which people create for themselves shared meanings, symbols, rituals and cognitive schema*' (Appelbaum & Gallagher 2000 p. 42). These things allow people to create and maintain meaningful interactions among themselves and in relation to the world beyond their small society." (Appelbaum & Gallagher 2000).

OL is the process of cultural socialisation, the process by which "cognitive modes" are translated in to methods and models, the process by which employees become aware of what they have constructed and can take deliberate action to transform it (Applebaum & Gallagher 2000). WPL is not just an emerging paradigm as indicated by Hager (2004), but has strong theoretical underpinnings. Additionally, WPL and cultural socialisation are inextricably linked, and learning at work, even when separated from its economic purpose still exists. In other words, while the main purpose of an organisation is not the creation of WPL, learning occurs within the organisation and gives efficacy to the quality and outcomes of the production process.

WPL cannot be separated from the workers conception of it and Pillay *et al* (2003) suggest that the extent to which WPL has efficacy depends on worker conception. If the worker has the conception that he is expected to, and has the ability to 'think critically, reflectively and creatively' (Gee *et al* 1996 cited in Pillay *et al* 2003), then WPL outcomes should be the acquisition of the 'new capitalism' (Lankshear 1997 cited in Pillay *et al* 2003), as productivity based upon applied science and technology. Pillay *et al* (2003) conducted qualitative research on WPL from the older workers' perspective (40 and over) and found that learning was perceived on varying levels which determines its probable outcomes. When work is perceived as a job it militates against new work practises, when conceived as a challenging experience it is disassociated with opportunity for self-development. The conception of work as "personally empowering" and "structuring my life"

however, are linked to competencies that empower individuals to embrace "*practises of the new emerging capitalism*" (Pillay *et al* 2003).

A discussion on the epistemology of WPL provided clarity on employee conception of informal learning occurring in the workplace. A definition of epistemology in the context of learning is identified below.

> *'The idiosyncratic belief system about the nature of knowledge and about how and in which situations it can be acquired seems to be a determining factor for learning. These individual beliefs about the nature of knowledge and learning are called epistemological beliefs'* (Bauer *et al*, 2004 p. 285).

This definition suggests that learners should be aware that learning can be acquired at work and this awareness influences learning outcomes. From this definition an assumption can be made that a student taking classes at a university will be fully aware that that he/she is operating within a learning environment. It can also be argued that epistemological beliefs about formal learning are inextricably linked to 'university student learning strategies and outcomes' (Schommer, 1990 in Bauer *et al*, 2004). However, this assumption of conception of learning may not be prevalent among workplace learners.

It can be argued that where complex learning environments exist, learners with constructivist epistemological positions demonstrate greater competence through their performance (Jacobson and Spiro 1994 in Bauer *et al*, 2004). The epistemological belief of the employee determines learning outcomes and a belief that WPL is simply the 'acquisition of declarative knowledge' would limit the acquisition of 'occupational competence' (Schommer 1998, p. 134 in Bauer *et al*, 2004 p. 286). The link between epistemological beliefs about learning and occupational competence could be used by employers to differentiate between, persons who are suitable and unsuitable for a job (Schommer (1998, p. 134 in Bauer *et al*, 2004).

The critical-realist however would argue that WPL may exist in spite of the workers conception of it. A critical-realistic perspective when applied to the work of Pillay *et al* 2003 may liken the conceptions of the workers to the fabled blind men of Hindustan, trying to describe an elephant. The fact that each had a

different conception of the elephant did not mean the elephant did not exist. If there are several different conceptions held by workers about WPL, this does not discount its existence.

It is relevant to review the ontological position of WPL as a strategy for determining whether it is simply a by-product of productivity or a credible reflection of reality. A critical-realist perspective of WPL will perceive the object of knowledge existing independently of our knowledge of it. WPL when separated from *workplace learners,* still exists, and its dimensions can be clearly identified.

It would be foolhardy to discount worker conception of learning and even though the contemporary researcher may identify the inextricable link between the workplace and learning, if this link is not conceived by the worker then the output and impact of WPL is curtailed. Boud & Solomon (2003) identified the relationship of work and differentiated between the traditional and temporary dimensions. Boud & Solomon (2003) made significant use of the word 'learning' in their research and specifically asked respondents two sets of similar questions, one set clearly identifying the words 'learning' and the other morphing the use of the word 'learner'. These similar sets of questions, differently worded led to responses that were quite different and attested to the impact of language and its effect on '*social realities regarding and creating domains of thought and action*' (Boud & Solomon 2003). Naming oneself as a learner was equated with worker competence and either inclusion or exclusion from particular work groups based on the operations of power relations within the organisation.

Formality and Informality of Learning

A discourse on WPL would be incomplete without discussing the interrelationship between formal and informal learning. The divide between formal and informal learning is arguable since it can be viewed as two sides of the same coin. This chapter reviewed the nature of this divide as a point of departure from elucidating learning from the perspective of the student at college and embracing other viewpoints. Formal learning is normally associated with educational institutions and a structured approach; whereas informal learning is associated with the workplace and an unstructured approach. These associations could be

problematic for workers, policy makers and employers and it has become apparent that formal learning contains informal elements and informal learning encapsulates formal elements (Malcolm *et al* 2003, Eraut 2004). Malcolm *et al* (2003) developed a four-prong heuristic device for examining the attributes of formality, informality and non-formality in learning environments. The four areas include process, location and setting, purposes, and content. Application of this model revealed that most learning situations possess combinations of formal and informal dimensions but with different balances.

The idea of formality and informality is rejected by Billett (2004) who purports that WPL is fully regimented by the organisation based on '*cultural practices, social norms, workplace affiliations, cliques and demarcations'* (Billett 2004 p. 312). WPL is presented a part of a control mechanism within organisations, highly regulated by organisational power brokers seeking to maintain the status quo. Instead he purports a pedagogy of WPL where workplace activities are not incidental as identified by Young (2001) earlier in this chapter, but as central to work outcomes that maintain continuity. This pedagogy is accentuated by a learning curriculum emanating from structuring work. Finally, Billett (2004) rejects the notion of formality and informality since it promotes a 'deterministic relationship' between the learning situation and change in the learner. This suggests that learning situations determine learning outcomes irrespective of human agency.

Transfer of Tacit and Explicit Knowledge in the Workplace

Eraut (2004) also identified some unease about the concepts of informal learning from the research perspective. The fact that workers are not aware of their own learning is somewhat problematic. In a sense this could pose a question as to the reliability and validity of experience and clearly defining tacit outcomes. This research supports the view that there is a mechanism for managing tacit knowledge and Eraut (2004) suggests that the application of tacit knowledge in the medical profession builds competence within a social context.

This also raises the issue of the transfer of knowledge from education to the workplace and Eraut (2004 pp.256) highlights five important stages: relevant

knowledge extraction, understand new situations, knowing which skills are relevant and applicable and can be transformed to fit the new situation, and finally integration of knowledge and skills to match the requirement of the new situation. This also corroborates and expands Applebaum and Gallagher (2000) view that '*cognitive modes*' are translated into methods and models utilised in the workplace. It is within the situated context of the workplace that school-based knowledge is extracted, applied, transformed and integrated to create, not learning outcomes, but workplace outcomes that have implications for the success of individuals, organisations, and nations.

Additionally, there are two other mechanisms for knowledge conversion; internalisation and socialisation. Internalisation is the process where explicit knowledge in translated into tacit knowledge, where learning occurs by doing. Socialization occurs where tacit knowledge is transferred from one group of learners to another by sharing their experiences informally and unconsciously (Nonaka & Takeuchi (1995).

While the focus of this chapter is on WPL one of the aims is to elucidate the contribution of conceptual and theoretical knowledge to skill-development. The knowledge and skills transferred by university graduates to the workplace are explicit and applicable to jobs and work activity. Knowledge from WPL is generally considered tacit and companies expect that employees supplement and enhance learning and experience from educational institutions (Wagner & Stenberg 1987 in Smith 2001). Others however, believe that explicit and tacit knowledge are mutually exclusive and therefore the former cannot be converted to the latter (Isaacs 1999 in Smith 2001). Isaac's (1999) position is not shared by Nonka (1991) who identified four basic knowledge creating patterns two of which focus on the conversion from tacit to explicit and explicit to tacit (Smith 2001).

This research purports that it is the ability to convert knowledge from explicit to tacit that graduates must demonstrate in the workplace when they are initially employed. On the one hand tacit knowledge can be harnessed to promote 'creativity and innovation' and on the other hand explicit knowledge provides an opportunity for a predictable and stable work environment (Brown & Dugid, 2000 in Smith 2001). While the graduate must demonstrate the ability to transfer

explicit to tacit knowledge in the workplace, this research suggests that it is also important as part of the learning process for the tacit to explicit, tacit to tacit and explicit to explicit flows to occur so that one can transition from a novice to an expert. New hires with degrees are required to perform, and while they have explicit knowledge they must acquire know-how thereby closing the performance gap that exists between know-what and know-how. Xerox representatives were able to close this performance gap by transforming explicit knowledge to tacit knowledge via social interaction, and knowledge sharing through story-telling (Smith 2001). This is the process through which academic knowledge is translated into skills.

Summary

WPL occurs within the parameters of organisational activity and productivity. The workplace is a legitimate site for learning where both conceptual and tacit knowledge encapsulates social activities that produce individual and organisational outcomes that affect the bottom line. It is the place where theory and practise meet and the main output of HE institutions become inputs that engage in a social process of knowledge production not for its own sake but for the sake of meeting organisation goals and objectives. WPL is a credible reflection of reality that exists in spite of learners' conception of it, but is more effective when workers critically reflect on what they jointly construct and seek to transform it. To effectively understand the differing dimensions of WPL both activity systems and CoP have been syncretised to broaden our understanding of the WPL phenomena.

WPL is important for educational institutions, organisations, policy makers, researchers and workers all of whom, in some form or other need to understand the operations of WPL for their own benefit. HE institutions need to effectively manage the transition of their graduates from school-to-work, institutions are the crafters of WPL and must structurally and culturally harness this transition process to yield competitiveness, high-skills, competence, customer satisfaction, transformation and productivity; all of which impact on their bottom line. Policy

makers need to understand how WPL improves performance so that learning environments can be shaped and crafted by policy to yield the best performance outcomes. Researchers must be careful to ensure that they apply epistemologically and ontologically sound starting points and clear definitions of the term WPL so that findings and outcomes are a credible reflection of reality and not misconstrued as wishful thinking. Finally, WPL runs the risk of being misunderstood as wishful thinking if organisation structure and culture are not designed to promote accessibility through regulation and supportive organisational relations.

CHAPTER FOUR: Mining Through the Methodological Maze

Introduction

This chapter outlines the methodology and research procedures used in evaluating the main purpose of the study; the relationship between WPL and skills-formation among graduates in T&T. What skills are actually develop on-the-job through WPL? How do they actually develop the skills in the workplace? The study extracts empirical evidence on how and what is learnt in the workplace, and the views of workplace managers regarding organisational arrangements that support or inhibit the effective implementation of WPL. A mixed-method strategy was utilised where both quantitative and qualitative research was conducted and this chapter outlines the benefits derived from the mixed-method approach to WPL, rather than a single-method approach. This chapter includes the following: a review of social-science methodologies, a justification for the approach, a description of research instruments adopted, and the research process; inclusive of data analysis methods, ethical issues, and limitations.

Quantitative and qualitative methodologies both have value in research and this chapter explores the most appropriate methodology applicable to this study and therefore, identifies the strengths and shortcomings of each research paradigm in effectively evaluating the relationship between WPL and skills-formation. This section of the chapter assesses the debates on the efficacy of quantitative, qualitative, and methodological triangulation in evaluating WPL phenomena and provides a justification for the mixed-method approach adopted in this study. In reviewing studies conducted on WPL several researchers used either quantitative, qualitative, or the mixed-method approach. For example, the mixed-method approach was applied by Maaranan *et al* (2008) and Hoekstra *et al* 2009 in evaluating WPL phenomena. Additionally, quantitative research was used by Hicks *et al* (2007) and Geertshuis & Fazey (2006) in studying WPL. Finally, the qualitative approach was used by Wofford, Ellinger, and Watkins (2013) who applied the qualitative case-study and in-depth semi-structured interviews in evaluating WPL; Warhurst (2013) used a qualitative case-study and Songge Ma, (2012) applied narrative enquiry. An internet search was conducted on

publications in databases and journals; extensively using the Journal of WPL. Many of the research products embraced the quantitative research paradigm; however, there were also mixed-method and qualitative research projects.

An extensive literature review on WPL and its relationship to skills-formation was conducted and this informed the design of the quantitative instrument used to collect data from respondents. Key indicators of learning and skills-formation were identified in the literature review to elucidate different dimensions of the broad concepts (Bryman & Cramer 1990) skills-formation and WPL.

WPL indicators were delineated and the 'who, what, why, where, when, and how' of learning were identified. The *'who'* of learning is the baccalaureate graduate from a T&T institution of HE? When activity systems are applied however, it is also the organisation that learns. Graduates' learning patterns within different learning environments is elucidated, however the interplay between formal and informal learning is explained to clarify the skills-formation process among this research group. The *'what'* dimension of learning is directly related to skills-formation, and the difference between what is being learned at school and at work is expounded. The fusion of learning content from university and work are illuminated as well as the intricacies related to transfer of learning from one site to another. Additionally, prior learning, transferability and the skills required to transition from youth to adulthood, and novice to expert, represents other dimensions of what is being learned in the workplace that are critical to this research. What is being learnt also encompasses issues of high or low-skills.

The *'why'* of WPL focuses on the pursuit of HE and its ability to lead to a high-skills route, it also centres organisationally on productive activity, and the skills required for competitiveness; therein lies the teleology of WPL. The *'where'* dimension of learning focuses on the two different sites for learning: the university and the workplace. Both sites utilise different learning pedagogies where the workplace is driven by CoPs, learning-as-participation and informal learning practices, whereas the university is underscored by formal learning, learning-as-acquisition and cognitive activity.

The **'when'** dimension of learning centres on learning-as-participation where employees learn about WPL at work at not at university. Although HE normally leads to a high-skills route it is **when** graduates enter the workplace that they learn how to participate through engagement in CoPs and activity systems generated by social and productive activity. Formal learning processes are key features of university learning which can be described as cognition-dominated education, students learn theory rather than practice **when** they are at university.

There are several indicators that describe the **'how'** of learning in the workplace and these include but are not limited to the following: from experience, mistakes, self-education, applying theory to practice, feedback, and problem-solving. Additionally, other indicators like learning patterns among students and learning patterns among workers were elucidated to determine how learning occurs at school and work. These dimensions and their associated indicators informed the research design. Some of the dimensions and indicators were evaluated both quantitatively and qualitatively.

The Quantitative Debate

The philosophical paradigm that underscores quantitative research is substantial as it elucidates the innate strengths and weaknesses of this framework and provides the researcher with an opportunity to make an informed decision on the selection of a methodological approach. Quantitative research embraces positivism and is defined as follows.

> *'… an epistemological position that advocates the application of the methods of natural sciences to the study of social reality and beyond'* (Bryman, 2004 p. 11)

Positivism proposes a unique relationship between theory and research where the purpose of research is to test theories and provide material for the development of laws (Bryman, 2004). Positivists purport that social research should focus on facts and not values since the latter are subjective in nature; facts are value free, verifiable by observation and experimentation, and most valid knowledge is objective knowledge. They see valid knowledge emerging from testing observable facts and ideas through a methodology focused on measurement and quantification of phenomena geared toward the isolation of

specific measurable variables. The relationship between these variables is analysed to determine causality, general laws, or explain characteristics of the social world (CLMS, M1 U2 p10).

An example of the processes of positivist research begins where the researcher formulates a hypothesis based on his "hunch" about the relationship between the two variables. The researcher conducts a literature search and identifies greater complexities about the definition of the independent variable, recognises ways to measure it, and designs his research instrument (CLMS, MI U2 p12). The researcher also seeks to clarify the specific aspect of phenomena he intends to measure and finally narrows it down. Having fine-tuned the variables a hypothesis is reformulated (CLMS, MI U2 p12). As the process continued the researcher widens the scope of the study to three rather than one organisation to add depth to his research by revealing further insight into the subject area. This is done to achieve the representation of a broader population than just one organisation and use a random sample of each organisation to realistically manage the data collection process (CLMS, MI U2 p12). Finally the survey is conducted, data collated, analysis completed using statistical software, and conclusion established about the hypothesis. This process applies deductive reasoning.

In summary the procedure identified in the preceding paragraphs reveals a simple process of positivist research which sought to achieve the following: *phenomenalism*, generation of hypotheses that can be tested, collation of valid **knowledge** arrived at through collecting and organising facts that provide the basis for laws, research conducted in a way that is value free, and the proposition of normative statements assumed to be true to the domain of the scientist (Bryman 2004). It is also apparent that with the positivist approach much of the work conducted by the researcher was done at the design stage.

The goal of positivism replication of methodological characteristics of the natural sciences. A key question is whether the study of social phenomena like WPL can satisfy a natural science methodology. Natural science methodology has been successful in explaining phenomena through the formulation of theory of underlying forces that produce the phenomena but when applied to social matters, can the same outcomes can be attained?

Hicks *et al* (2007) examined social phenomena and reviewed WPL strategies, facilitators and barriers, of Accountants in Canada. They applied a strict quantitative approach, where 143 participants completed surveys. When exploring approaches to WPL, Geertshuis & Fazey (2006) used computer-based questionnaires with a sample of over 389 employees across 35 organisations. When testing how firms acquire expatriate knowledge through international joint ventures with a focus on learning by doing, Tsang (2002) used the survey method across 162 Singapore and Hong Kong firms with joint ventures in China. This methodology was strictly quantitative. The quantitative methods applied in these studies were appropriate and suitable for the quantities that were being surveyed to establish validity and reliability however, they are all limited in that the view of the respondent is missing.

The Qualitative Debate

Qualitative research is rooted in interpretivism defined as follows

> *'… It is predicated upon the view that a strategy is required that respects the differences between people and the objects of the natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action.'* (Bryman 2004 p. 30)

This definition suggests that meaning-making of social action is the premise of interpretivism. The term phenomenology is encapsulated in interpretivism and is the main philosophy on how individuals make sense of the world around them, and how researchers should prescribe preconceptions in their grasp of the world (Bryman 2004). Phenomenology purports that even the most valid knowledge is subjective, and that knowledge comes by viewing the world through the eyes of others we study; this valid knowledge is arrived at through an understanding of the subjective understandings of our research subjects (CLMS, M1 U2 p13). The process of phenomenology is different from positivism as the starting point is not the hypothesis. Phenomenology uses research to make discoveries about the specified subject matter, it seeks to build theory as opposed to testing it. With phenomenology there is no need to reconstruct a hypothesis based on new or conflicting findings but rather research can be recalibrated as the process is flexible and responsive. Additionally the epistemological position rejects

measurement and quantification of the social world so that qualitative research methods are applied (CLMS, M1 U2 p13).

The phenomenologist school argues that social-science knowledge is subjective and not value free; it is characterised by viewing the world through the eyes of the subject. Human beings interpret their world and engage in it; while they are impacted by external forces they also act based on internal and unobservable phenomena which can also be studied though it is inherently subjective. The positivist researcher is a scientist but the phenomenological researcher takes an inductive rather than a deductive approach to phenomena under study which they purport to have several distinct advantages. The research process is quite flexible as the research design instrument does not require prior identification of variables. Rather the process of research becomes part of the research design where variables and relationships between them are identified; this way research can be refocused. They are not preoccupied with measuring their world and utilise qualitative data analysis since they are more interested in the how and why of social phenomena. (CLMS 2002 p. 22).

Qualitative research is one of the most controversial (Greene, 2008; Morse, 2005; Creswell, Plano Clark, & Garrett, 2008) research methods since it can include three different orientations where researchers can either focus on past, present, or future phenomena. Additionally the sources of data can focus on the provision of one or multiple viewpoints in order to gain insight into a particular issue. Some of these viewpoints include: the researchers own experience, the experience of others, the behaviours of others, and cultural products (CLMS, M1 U4 p9). This chapter elucidates the value of qualitative research by reviewing some methods and practices used by qualitative researchers in WPL. Therein this chapter demonstrates the value of qualitative research in evaluating WPL phenomena.

Qualitative research does not have a distinct set of methods and practices of its own but often utilises the following: semiotics, narrative, content, discourse, archival and phonemic analysis (Denzin & Lincoln 2003). Qualitative research is described as a field of inquiry that cuts across disciplines, fields and subject matters having *"no single methodological practice over another"*. Qualitative research is unique in that it boldly approaches social phenomena with the aim of

identifying and investigating the social world through the subjective level of human experience (CLMS, M1 U4 p10). Unlike quantitative research, qualitative research broadly defines a problem - not formulating a hypothesis, uses an appropriate sample usually small in number but appropriate to the research problem, makes observations through structured research instruments from the field, minimises generalisations to large populations, and is characterised by an awareness of the potential of bias to affect the collection and interpretation of data (CLMS, M1 U4 p.11).

In evaluating WPL, qualitative research may appear to have greater efficacy since the questionnaire method is not a viable application for investigating the content and level of learning (Lantz and Friedrich 2003). An assumption can be made that work activity is subjective and ensues within a social context; meaning-making occuring during the process of work is lost in quantitative methods and the extent of vocational skills developed is difficult to capture (Lantz & Friedrich 2003).

Wofford, Ellinger, & Watkins (2013) applied the qualitative methodology to examine the process of informal learning of aviation instructors. Data was assessed using constant comparative analysis that underscored a qualitative instrumental case-study design, using document review and in-depth multiple-semi-structured interviews (Wofford *et al* 2013). Qualitative research does not boast of its ability to promote generalizations but heralds that it adds depth to phenomena under study. The qualitative case-study method is used to effectively assess complexity and provide depth of understanding (Stake 1995 in Wofford, Ellinger, & Watkins 2013).

Warhurst (2013) conducted empirical research on the role of managers in enabling WPL for individuals and teams. This research reviewed learning from the managers' perspective and a qualitative case-study research method was applied. In assessing WPL among graduates in T&T the perspective of the manager, albeit the HR manager and other organisational leaders was assessed to identify the strategic input or lack thereof regarding WPL and skill-formation. Similar to Warhurst (2013) this research seeks to determine how management (the HR management) enables WPL among learners (baccalaureate graduates).

This research sought to elucidate the relationship between WPL and skills-formation by conducting an enquiry into the impact of managerial support in crafting expansive or restrictive workplaces. While the quantitative tool focuses on gathering data from graduates the qualitative tool gathers data from managers, who according to Senge play a tri-partite role in promoting WPL: designer, steward, and teacher (Wallo 2008)

> *'The designer tries to fit together the organizational structures with the work processes to enhance or hinder learning. The steward mediates a so-called purpose story, which consists of the leader's personal translation and embodiment of the organizational vision. In spreading the story of how learning connects to the progress of the organization the leader becomes a steward of that vision. The teacher is responsible for creating opportunities for reflection about the organizational reality, which can be seen as events, patterns of behaviour, systemic structures and purpose stories.' (Wallo 2008 p.22)*

Drawing on the principles of expansive and restrictive environments it can be argued that a leader functioning in the role of designer has the ability to enhance or hinder learning. A leader, by sharing vision, can create a culture of learning, and as a teacher can promote behaviour patterns that will either endorse or diminish learning structures. What are the factors in organisations that promote high or low-skills-formation? Could the leaders in organisation and how they function as designers, stewards and teachers affect this? One can assume that a graduate is an organisational input that will readily lead to a high-skills route however, if the leadership in the organisation do not promote learning then a low-skills route could be the outcome. Managerial support has recently become a recognised component in the WPL literature (Eraut *et al.*, 1999) and this research seeks to capture the impact of this key group on the skills-formation process in T&T. The importance of managerial support for learning has only recently been recognised in the literature.

Songge Ma, (2012) used the narrative inquiry approach as a methodology for assessing what doctors have learned during medical practice. In exploring what is learnt and what doctors want to learn, data was collected via face-to-face

interviews characterised by open-ended questions and participant-observation. The research was valuable as it elucidated the difference between professional and non-professional learning from the Chinese doctors' perspective, and how these two types of learning were inextricably linked to a dichotomy between professional and social identity respectively. A clear link between learning and identity was established and the impetus for favouring one learning type over the other undersocred which identity doctors wished to promote. In essence '*learning is identity oriented' (*Songge Ma, 2012 p.457). There is no argument that a clear link between WPL and identity was established by this study and that it is through the qualitative school that such rich data was generated. However, the relationship between learning and identity is mono-focused, limited by the use of a single case-study and a single theoretical standpoint (*Songge Ma, 2012). In seeking to establish what is learned and what respondents want to learn a triangulation approach could have avoided the shortcomings and limitations identified in Songge Ma's study. Any investigation into WPL that looks at behaviours requires a mixed-method approach. There is greater flexibility in the data collection process, data can be collected in different locations and at varying times. This provides a more holistic view of events (Holman *et al.*, 2001).

Mixed-methods, Triangulation, Structure-Agency and Critical-realism

Mixed-methods and Triangulation

Triangulation involves the use of disparate methods, characteristically three, hence the term triangulation (MI UI p23). With methodological triangulation a researcher may gather data on his research problem via a questionnaire, participant-observations and focus groups to provide *different angles* and to cross-check findings from the different methods used (MI UI p23). The challenge with methodological triangulation is the classification of differences located in the results and whether they are genuine. The question is whether findings are different based on the use of disparate methods or '*aberrations'* of one of the methods used (MI UI p24). There is also the issue of one method supporting the researcher's arguments and another possibly refuting it. Additionally, the characteristic mix of quantitative and qualitative techniques in research is

important as there are a myriad of combinations the epistemological mix of methods could provide, with possibly different outcomes.

Erzberger & Prein (1997) reviewed the strengths and opportunities of the multi-method approach and identified that methodological triangulation has been in use since the 19th century. They cited Le Play (1985), and Burgess in Chicago (1927, and Jehoda *et al* (1982) who utilised the multi-method approach to investigate social phenomena. Erzberger & Prein (1997) expounded on the popular Barton & Lazarfeld article published in 1955 where these researchers used qualitative research to define and generate hypothesis and quantitative research to test them. They took a simplistic approach to methodological triangulation and their "Cinderella" position saw qualitative methods only being useful for exploring and discovering aspects of reality and not for proving or falsifying theories (Erzberger & Prein 1997).

Another combination or permutation of methodological triangulation is the strengths and weakness approach. These strengths and weakness are summated below.

> *'Whereas quantitative research often neglects the fact that social structures can only survive if they are actively reproduced and interpreted by social actors, qualitative researchers tend to ignore that there is an objective social reality beyond individual interpretations or they tend not to distinguish between narratives and reality'* (Erzberger & Prein 1997 p.142)

While Erzberger & Prein are fully aware of the problems that may result from utilising triangulation they demonstrate some partiality toward the strengths and weakness approach once it is *fruitfully employed,* and plausible assumptions made about research field and research method specifics, formulated on the basis of general action theory (Erzberger & Prein 1997). They identified several permutations where quantitative and qualitative methods were combined.

The convergence method aims to prove validity by utilising both methods for analysing the same empirical domain to check for convergence. The convergence method was based on the assumption that no research method is flawless and the sociologist should examine his research from many methodological perspectives (Denzin 1977, in Erzberger & Prein 1997). This

method was used to examine the relationship between occupational careers and private family biographies utilising both retrospective standardised interviews and qualitative non-standard interviews. Both methods were compared to determine validity and '*allowed an evaluation of the extent to which the quantitative analysis could be relied upon*' (Erzberger & Prein 1997). This strategy allowed for a reduction in margin of error and validated knowledge derived from the research. It can be concluded that convergent triangulation adds depth through validation of qualitative and quantitative data.

Another method is the complimentary method. It is defined as '*putting the empirical findings together with the help of theoretical assumptions that were developed before the start of the investigation*'. Convergence differs from complementarity as it measures the same reality whereas the latter measures *different constructs* and then puts the findings together to produce an *adequate image of reality* (Erzberger & Prein 1997) The qualitative methods are often applied to analyse individual interpretations and quantitative to collect data on phenomena that can be described objectively. The complementarity method was applied to the study of the administrative side of welfare receipt and while data on this subject was reliable there was no repository identifying the subjective side of welfare, so qualitative data was collected. This data provided insights into the respondents' life course and when the existing data was combined with the newly collected quantitative data, a more holistic picture of the reality of welfare receipt was derived (Erzberger & Prein 1997). This returns us to the early epistemological question on what constitutes as valid knowledge, and it can be argued that combining both approaches through convergent triangulation adds depth and validity by allowing the two sides of the welfare coin to be seen as a constituent whole.

A third permutation is dissonance which holds that the findings of qualitative and quantitative research combined does not necessarily lead to a coherent picture with all the pieces of the puzzle matching as with complementarity. Dissonance does not seek after confirmatory evidence but searches for the provocative (Rossmand & Wilson 1985, cited in Erzberger & Prein 1997) which results in the function of falsification and a suitable process for validating theories. The dissonance strategy was also applied to investigate the relationship between

occupational careers and private family biographies of women but on this occasion their husbands were also investigated to arrive at an understanding of *the process of modernization in couples (*Erzberger & Prein 1997). This dissonance triangulation approach revealed that total dependence on any one of the studies would not have been totally accurate; instead they appeared to contradict each other. A further validation of both methods of inquiry provided a holistic explanation of the issue (Erzberger & Prein 1997).

Having defined three methodological triangulation strategies Erzberger & Prein provided examples of the use of each strategy, and concluded that *general rules for the use of triangulation strategies cannot be established*. The evidence suggests that a situational approach be taken to the study of WPL among graduates in T&T, since the application of methodological triangulation elucidates different phenomena not identified by the research as well as different aspects of the same phenomena thereby adding tremendous depth to the research area.

Denzin (1970) also identified four types of triangulation beyond research methods and designs, they are as follows: data, investigator, theoretical, and methodological triangulation. Data triangulation focuses on gathering data utilising quite a few sampling strategies, investigator triangulation exists where more than one researcher gathers and interprets the same data, and theoretical triangulation where more than one theoretical position is utilised to interpret the data, and methodological triangulation which utilises several methods to gather and analyse data (Denzin 1970). It can be argued that combining any of the first three strategies with methodological triangulation will result in even greater depth to phenomena under study but not without additional problems and complications regarding bias, misinterpretation, appropriateness of statistical models, and margins of error. While triangulation claims to provide improved or strengthened validity of research: eliminates bias; allows the researcher to validate; dismisses, or accepts hypotheses or research claims, it is often quite problematic.

A review of methodological triangulation from different scientific perspectives: modernist, post-modernist and post post-modernist reveals that the modernist scientist aims to increase the validity of the results of the study, and seeks to yield valid information about phenomena using different methods (Odegard 2003).

This research purports that while validity is a central issue of methodological triangulation, rather breadth and depth are the key centralities (Odegard 2003). Knowledge is contextual and the utilisation of disparate methods yielding differing results adds depth and an expanded picture of reality.

Scientific results must be collated to establish greater understanding of phenomena. Odegard (2003) indicates that such a strategy could be termed *methodological triangulation through co-operation*. This strategy has a marked resemblance to investigator triangulation identified by Denzin (1970) earlier in this research. Could it be that Denzin (1970), Odegard (2003) and *(*Erzberger & Prein 1997) have developed three different ways of categorising the same data and are in fact saying the same thing just in different ways?

Having reviewed the information provided, it is clear that methodological triangulation is a sound strategy that allows phenomena to be interpreted from many different angles thus providing different views of valid knowledge and to some extent an eclectic reality. The literature on methodological triangulation reviewed in this chapter has elucidated the ways in which each authors work validates and contradicts the other, and also provides an expanded view on a robust research strategy. One thing is clear, that whether a researcher seeks to test, refute, or build theory, methodological triangulation can be utilised in all cases but the researcher must be lucid on the advantages and disadvantages of each methodology and design the right combinations of research tools; if not the research itself could be flawed and problematic.

This section of the chapter will review studies on WPL, using methodological triangulation or mixed-methods. Hoekstra *et al* (2009) explored the relationship between teachers' perceptions of WPL conditions and WPL activities and learning outcomes. A mixed-method approach was applied where both quantitative and qualitative research were combined. The case-study method was used to ensure depth of analysis. Quantitative research using a purposeful sampling technique was applied *'to position 32 teachers in relation to each other'* (Hoekstra *et al* 2009, p. 282). This mixed-research study is indicative of an *'embedded design'* (Cresswell, 2005, p. 558 in Hoekstra *et al* 2009). While information derived from the two case studies were rich and deep, as with

qualitative methods generalizability was not possible. Therefore, it was difficult to generalize findings from this study on the relationship between teachers' perceptions of WPL conditions, and WPL activities and learning outcomes. However, the case studies were imitative of the quantitative study and based on *'concrete criteria'* (Hoekstra *et al* 2009, p. 294). The combined approach allowed for decreased margin of error and validated the knowledge derived from the qualitative research.

Another mixed-method study was conducted by Maaranan *et al* (2008) and focused on theoretical frameworks regarding teacher learning and WPL. The study included a qualitative interview method and a quantitative questionnaire, the latter was characterised by descriptive statistics and factor analysis. Eight (8) students participated in the qualitative interviews and 113 students responded to the quantitative survey. Themes were derived from both quantitative and qualitative data sets to summarize the results of the analysis. The first three themes emerged from the qualitative data and the fourth theme from the quantitative analysis (Maaranan *et al* 2008). Evidence of complementarity arising from a mixed-method approach exists where the data is combined to form a link between three types of informal WPL and teacher education.

Structure-Agency

A discussion on structure and agency is significant to this study, it addresses factors within the graduate that promote high or low-skills and factors in the organisation that foster expansiveness and restrictiveness. This chapter has identified studies taking a purely qualitative or quantitative approach to the study of WPL. These approaches can be viewed as taking an agency or structure approach (Waters, 1994 in Hewege 2013) to the study of WPL. Structure and agency are different approaches to research that focus on the social-structure and the individual respectively. The social-structure influences individual actors and the structure of workplaces influence workers behaviours. Social-structure embraces the *institutionalised relationships between social positions and practices located at different levels of the social strata* (Giddens, 1994 in Hewege 2013 p. 347). In the workplace it is the structure of work, organization structure, and culture that creates social positions and inform workplace practices at different levels in the organization structure. Quantitative studies have been

severely criticised for their overuse of structural characteristics (Layder, 1998 in Hewege 2013). Agency can be viewed as individual subjectivity (Hewege 2013) to WPL. Social research with a bias toward the individual's perspective elucidates an agency approach, focusing on individual social action and reasoning, (Van Gramberg, 2006 in Hewege 2013). From a WPL perspective this will also include the workers experience with the inter-subjective world. The category of analysis in which agency falls is interpretive and can be described as shaping the capacity to be productive. (Giddens, 1994 in Hewege 2013 p. 347). When applied to WPL, workers would be perceived as being in control of their own productive capacity. With a structure approach, workers would be perceived as being products of their learning environment, learning structure and learning culture.

The dichotomy that exists between positivists and phenomenologists can only be addressed through a mixed-method approach. Positivists view the world from a level that is broad and structural, ignoring the perspectives and interpretations of the individual. Conversely the phenomenology proponents are limited, depending solely on individual subjectivity. To further solidify the justification of a triangulated methodology this research will evaluate the structure-agency dichotomy (Bamberger, 2008; Waters, 1994) to determine how appropriate the recommended methods are in investigating social phenomena (Hewege 2010) such as WPL. Social-structure is formed by human agency or the behaviour of individuals and the social-structure then reshapes human behaviour (Hewege 2010). The flow of human behaviour and social-structure can be viewed as cyclical with one influencing the other in a circular flow that shapes and reshapes structure and individual behaviour.

To have a holistic understanding of WPL it must be studied both from the positivist and the phenomenological viewpoints. Survey based research is biased toward structure and qualitative research focuses too heavily upon agency shrouded by individual subjectivity (Hewege 2010). An accurate conception of reality requires a convergence of both structure and agency. A combined structure-agency approach to WPL helps to overcome the following phenomenological challenges: research that is too heavily focused on the individual perspective, where grounded theory is used as a qualitative research method, reports often result in a barrage of narratives, the macro or wider social structure is ignored, and when

mixed-method approaches result in incompatible ontologies. These challenges can be minimised when a structure-agency approach is used in research. When a combined structure-agency research strategy is used a connection is created between two competing paradigms, human activity and the associated social contexts (Layder, 1994 in Hewege 2010). Such an approach is more succinct than a mere mixed-method approach since the latter does not necessarily provide the connection between social structure and individual subjectivity Hewege 2010).

Critical-realism

The answer therefore lies in critical-realism; while epistemology focuses on knowledge, realism (ontology) centres on the object of knowledge and realist lobbyists claim that the epistemological preoccupation with knowledge as opposed to the object of knowledge produces flawed ontological assumptions (CLMS, M1 U2 p26). Realists also claim that if the researchers' assumptions of what the world is really like are inaccurate, their claims to valid knowledge will be based on an invalid world. Realists suggest an alternative starting point to research, where one first asks questions about the nature of existence and then seek to prove validity of that which is proven to exist.

The ontological argument is at a philosophical level and the researcher needs to identify practical ontologically derived tools to conduct research and investigate social phenomena. The researcher has identified the importance of the object of knowledge, purported by ontology and seeks to close the gap between the way the world is viewed and how it actually exists. What the researcher seeks now is a methodology that is critical-realist to guide social investigation.

Critical-realists argue that the nature of the research problem should determine the choice of methods. One view is that the most effective approach is to use a combination of quantitative and qualitative methods or techniques (Olsen, 2002 in in McEvoy & Richards 2006).). Critical-realists see methodological triangulation accomplishing three main objectives: confirmation, completeness, and abductive inspiration also called retroduction (Risjord *et al.*, 2001, 2002 in McEvoy & Richards 2006). Confirmation enhances the reliability and validity of the information, completeness yields a more comprehensive picture of the patterns

and processes of [phenomena] than that had been developed using quantitative or qualitative methods alone, and abductive inspiration brings detailed observations that may provide a platform for making retroductive inferences about the causal mechanisms that are active in a given situation. It was concluded that all three objectives were compatible with the critical-realist approach (McEvoy & Richards 2006).

Critical-realism has no methodological tools of its own and advocates the use of methodological triangulation as a strategy to add depth to phenomena under study. The combination of critical-realism and triangulation creates a holistic approach that allows for a more systematic starting point, a movement away from the positivist and phenomenological hunch to an ontological definition of the object of knowledge rather than knowledge itself. Critical-realism was utilised by Ayers (2010) who conducted a study on learners needs. Learners needs can now be understood as both real and socially constructed and provides a more thorough understanding of learners' needs that was previously available.

Critical-realism is a very thorough methodology that combines structure-agency, promotes the benefits of retroduction, and allows for WPL phenomena to be addressed through what may have, must have, or could have caused it; Critical-realism supports the mixed-method or triangulated approach and has a great deal of efficacy when effectively applied. This research applies a mixed-method approach to the study of WPL among graduates in T&T. The triangulation studies, methods, approaches and strategies outlined in this chapter have provided sufficient evidence to suggest that this is a legitimate and effective approach to conducting research on WPL.

The Research Process

Quantitative Process

The indicators identified in the literature review were designed into statements which respondents answered within the structure of a self-completion survey using a five-point Likert-scale. The Likert-scale is a very common method used in social-science to measure attitudes (Bryman 2001), they provide data that is normally reliable as respondents answer a range of questions and provide

answers within the range. It is also suggested that respondents prefer the benefit of choice and can select from a scale of five choices as opposed to agree or disagree (Oppenheim 1966). Within this research process the Likert-scale is applied and examples of questions in self-completion survey include the following:

I receive feedback on tasks I perform on-the-job
I seek feedback on the quality of the tasks I perform
My job requires me to recommend solutions to problems
My job requires me to be creative and develop new ideas
I share ideas with the team and listen to their feedback

The purpose of the self-completion questionnaire is to identify patterns of WPL and how this leads to the development of skills. Prior learning is also addressed in the questionnaire so that the skills transferred from university to work can be effectively captured. The quantitative questionnaire was designed and conducted to collect data for the research. The questionnaire is comprised of two parts: the first part includes a total of fifteen questions on bio-data; and demographics like place of work, employment type, educational level, job level within the organization. Questions 16 to 28 focus on skills learned from tertiary education and how learning occurs on-the-job. All questions in section 2 are based upon a five point Likert scale with responses from "1=strongly agree" to "5=strongly disagree".

This self-completion survey took the following WPL metaphors into consideration: learning-as-acquisition and learning-as-participation, and developed questions that refer to acquisition of and participation on college and WPL. The questions did not just focus solely on WPL but also sought to establish employability skills developed through college-based learning. The questionnaire sought to unearth data from the respondents and test the following

- Level of expertise within current job by asking where the respondent categorised themselves through the following: novice, specialist, experienced specialist, expert or master. This instrument helps to gauge the location of the respondent from novice to expert. These points from novice to master are based on the Taxonomy of Employee Competence (Jacobs and Washington 2003, p. 351)

- Prevalence of patterns of WPL outlined in the literature review
- Incidence of employability skills learned prior to entering the workplace,
- The relationship between baccalaureate degree and type of position held (this would determine whether HE automatically leads to a high-skills route
- The extent to which graduates change jobs as an indicator of workplace expansiveness and restrictiveness,
- Access to internship, mentorship and leadership development programs and other indicators to test expansiveness of work environment, industry and company in which employed as well as position held to test high or low-skill route or outcome.

The quantitative research instrument addressed different types or patterns of learning in the workplace including self-directed, learning from mistakes, team learning, internet searches, learning from mistakes, meetings, observing others, from past experience, teamwork, collaborating with others and many other dimensions of learning in the workplace. The self-completion survey was administered before the qualitative semi-structured interview and participants from the former survey were selected and participated in the qualitative interview.

The use of the self-completion survey yields rich data on the learning of graduates at work and at school. A legitimate strategy for analysing quantitative data is through qualitative analysis (Bouma & Atkinson 1995). Qualitative judgements map the relationship between WPL and skills-formation. Descriptive statistics that measure central tendency and variability is the strategy used to collate ordinal data. Mean and standard deviation (SD) is used to report the findings. The next chapter also provides information on SD but does not engage in a discussion on it, these are placed in the tables to provide context to the mean.

Qualitative Process

A semi-structured interview was used to collect qualitative data on 6 leaders from different organisations. The purpose of a semi-structured interview was to determine the perspective of those who have a strategic responsibility in the organisation for WPL. The qualitative instrument could have focused on the viewpoint of baccalaureate respondents however, there are other factors apart from the learners that affect learning patterns, processes, and outcomes.

Leadership is an important condition that could expand or restrict WPL (Wallo 2008 pp. 33) and this research considers the impact of managers on learning in the workplace. Human resources (graduates) can be developed in the workplace through WPL and this research sought to empirically elucidate the impact of managerial staff on the learning of graduates. Support for this approach can be identified in the work of Whittaker & Marchington (2003) *who argue that without the support of a systematic HR expertise it is likely that even the best suited managers will find it difficult to follow the learning ambitions espoused in company policies if these policies oppose goals connected to daily production*. (Wallo, A. 2008 p. 33). The role of the HR function in crafting learning opportunities for graduates is critical and HR policies must support WPL to achieve productivity goals and targets. The HR department can be seen as a main support structure for engendering WPL and this research includes 4 HR managers and 2 other organisational leaders who were interviewed to determine their role, impact and perspective on workplace specifically for graduates.

The use of the semi-structured interview is useful in assessing the situated perspective of WPL, since learning is embedded in social, historical, and cultural contexts (Illeris 2007 in Wallo 2008). Most qualitative research starts from the perspective that is situated and contextual, *and* the purpose of the interview is to '*ensure that the relevant contexts are brought into focus so that situated knowledge can be produced.*' (Mason 2002 p. 62). The context of the manager is instrumental in elucidating factors within the structure of the organisation that impact WPL for graduates in T&T. The advantage of an interview guide is that it makes sure that the interviewer has carefully decided how best to use the limited time available in an interview situation' (Patton 1990 p. 282), and both face-to-face and telephone interview methods were considered. The ability to collect contextual information from a semi-structured interview is somehow curtailed in a telephone interview and conducting face-to-face interviews in the respondents' workplace offers the opportunity to observe the participants daily work process (Goodwin & Horowitz 2002). There are proponents who hold the view that telephone interviews are not suitable for the collection of qualitative interview data (Gillham, 2005; Legard *et al.*, 2003; Rubin and Rubin, 1995) as it diminishes the opportunity for building rapport, part of the natural encounter (Shuy, 2003 in Irvine

2012) of the interview process that underscores the collection of rich data. Why then consider the telephone interview? This research took the telephone interview method into consideration for the following reason: it saves time, it is less costly for travel, and anonymity is at a higher level especially in relation to sensitive subjects (Irvine 2012). Five interviews were conducted face-to-face and one interview was conducted via SKYPE.

The interview is comprised 9 components and the first part focuses on the greeting: the interviewer thanked the respondent, shared the purpose of the study and the interview, identified and obtained agreement on ground rules (e.g. timing, anonymity, and cell phone), and assurance of confidentiality. Part 2 of the interview called "Interviewee Data" focused on how long the interviewee had been with the company, the position held, and confirmation of the respondent's qualifications. Part 3 of the interview concentrated on 'Interviewee Perception of Learning', part 4 focused on 'Who is Learning', part 5 on 'What is Being Learnt', part 6 on 'Why it is Being Learnt', part 7 on 'where' it is being learned, part 8 on 'how' it is being learned, and part 9 on the workplace itself and how it could become more invitational from a learning perspective, with increased opportunities for learning.

During the interviews participants were able to describe what is meaningful to them in their own words. While workplace learners are generally unaware that learning is occurring the opportunity to think and talk about WPL with interviewees provided them the opportunity to reflect on their learning. Additionally, respondents were recruited based on their participation in the quantitative questionnaire and formerly had an opportunity to reflect on the skills formed from learning both at university and at work. In a sense the quantitative questionnaire prepared respondents to answer questions in the qualitative interview based on a certain level of familiarity with the topic. An interview guide approach was used during the interview process and each respondent provided with a copy so they could follow the interview questions as they were being asked; this promoted clarity of understanding of the interview questions. The interviewees' responses were not tape-recorded as interviewees indicated their discomfort with this method. Interviewee responses were not hand-written but typed since the

interviewer utilised her advanced keyboarding skills in capturing the data. In most instances dialogue was typed verbatim and occasionally it was necessary to paraphrase. The fact that the interview responses were not tape-recorded but type-written does not affect the academic integrity of the responses and is a legitimate method of documenting interview responses. Interview data can be collected either by audiotaping or handwritten notes, and there are pros and cons for each method (Sim and Wright 2000 p.143). A benefit of writing the interview responses is that ideas for further analysis can be inserted in the notes. Written notes overcomes the lack of trust demonstrated by respondents who are suspicious of their words being recorded. (Lincoln and Guba, 1985 in Sim and Wright 2000 p.143).

The data collected from the semi-structured interviews were coded using QDA Miner 4 Lite, a free qualitative software accessed on the World Wide Web. Codes were assigned to segments of the text in QDA Miner and this research used 7 categories and 23 codes identified in the table below which highlights the codebook and the coding frequency.

Table A

Category	Code	Description	Count	% Codes	Cases	% Cases
Bio Data	Position		6	2.4%	6	100.0%
Bio Data	Qualifications		6	2.4%	6	100.0%
Bio Data	Years		6	2.4%	6	100.0%
Differentiate	Differ BSc from Non BSc		24	9.8%	6	100.0%
Graduate	Graduate and Less Qualified		24	9.8%	6	100.0%
Graduate	Graduate and Org Productivity		4	1.6%	4	66.7%
Graduate	Graduate and Performance		8	3.3%	6	100.0%
Graduate	Graduate Learning Pattern and Technique		6	2.4%	6	100.0%
Graduate	Graduate Learning Preference		6	2.4%	6	100.0%
Opportunity	Equal Opportunity		7	2.9%	6	100.0%
Recommendations	Future Help		6	2.4%	6	100.0%
Recommendations	Invitational Workplace		6	2.4%	6	100.0%
Transitions	Adulthood		6	2.4%	6	100.0%
Transitions	Novice to Expert		6	2.4%	6	100.0%
WBL	How of WBL		24	9.8%	6	100.0%
WBL	Learning Experience WBL		18	7.3%	6	100.0%
WBL	New Skills WBL		10	4.1%	6	100.0%
WBL	Opportunities WBL		18	7.3%	6	100.0%
WBL	Prior Knowledge and WBL		12	4.9%	6	100.0%
WBL	Prior Skill and WBL		6	2.4%	6	100.0%
WBL	University Learning and WBL		18	7.3%	6	100.0%
WBL	Value of WBL		6	2.4%	6	100.0%
WBL	Who Helped		12	4.9%	6	100.0%

With this free version of QDA Miner 4, there were many aspects of the software that were not available as with the full version so the data was exported to Excel for further analysis. The data was analysed by elucidating themes, patterns, sequences and even differences. Small generalisations were identified and linked to both theory and practice highlighted in the literature review.

The Population

Students graduating with a degree from T&T universities were selected to participate in the survey. Students that graduated from any of the following universities were considered: University of the West Indies (UWI) (St Augustine Campus only), University of the Southern Caribbean, College of Science,

Technology and Tertiary Education in T&T (COSTAATT), Cipriani College of Labour and Cooperative Studies (CCLCS), and University of T&T (UTT). These are the list of universities and colleges operating in T&T that are authorised to award accredited degrees. This study does not include any students from CCLCS and only one from COSTAATT. Access to these colleges was difficult and gatekeepers were resistant to allowing a student from a foreign university to conduct research on their graduates.

While many students from different Caribbean islands attended the above universities, only the cohort that learn and work in T&T were allowed to participate in the survey. Employees in T&T that attended UWI in different Caribbean islands were not considered, only the St. Augustine campus in T&T was included. To participate in the survey, the respondent had to meet the following criteria: completed a baccalaureate in a T&T university or college and is currently working in T&T.

Information on the number of students that graduated from local universities and currently working in the nation was unavailable from the Central Statistical Office (CSO) of T&T. Since the survey focused on graduates in T&T the number of the total population was inconclusive. It is unlikely that this dissertation could have undertaken research on the entire population. To survey all persons who are in the T&T labour force and possess a baccalaureate from a T&T university or college could not be undertaken in this study. Therefore a sample of the population was selected.

Data Collection and Sample Size: Quantitative
This research utilised the World Wide Web as the principal source of data-collection for the study. This approach was chosen as it is one of the most efficient mechanisms through which a researcher can '*recruit large, heterogeneous samples quickly, recruit specialized samples… characteristics, and standardize procedures, making studies easy to replicate*' (Birnbaum 2003, p. 803). Some of the methodological issues related to web research are increased dropout rates and repeated participation (Birnbaum 2003). The data was reviewed for dropout rate and only 4% of participants abandoned the survey. Additionally, of the one 126 participants who completed the survey no two data sets are the same, this

indicates that there is no incidence of repeat participation. According to Birnbaum (2003) '*Identifiers, such as student numbers, phone numbers, email addresses, mailing address, demographics, or names, can be used to identify each record of data. It is an easy matter to sort by such identifiers to detect multiple submissions from the same person*'(Birnbaum 2003 p.814) To evaluate the authenticity of the data for repeated participation, identifiers like internet protocol (IP) addresses, response identification numbers, and completion dates were reviewed and crossed checked.

Some of the characteristics of web recruits are as follows: '*Those who are recruited via the Web are on average older than college students, have greater mean education, and greater variance in age and education than do college students*' (Birnbaum 2003 p.820). For the purpose of this study these characterises are supportive of the population since the focus is on graduates at work, not those in full time study. In the next chapter however, Birnbaum's description of the characteristics will be evaluated against the sample in this study.

This research employed a convenience sample dictated by the fact that an online survey was designed and emailed to respondents. Social-media provided tremendous opportunity to access willing respondents to participate in the online survey. Units of the population that use social-media were targeted to participate in the study. This can be referred to as non-probability sampling or model-based sampling. '*Web surveys are one new example of nonprobability sampling*' (Battaglia 2011 p.523). Respondents were randomly selected and provided access to an online survey tool and the link was emailed and distributed through online social network (OSN) like Facebook and LinkedIn. These non-probability samples can be conducted quickly and saves the researcher time, they are also more cost-effective than probability sampling (Battaglia 2011).

The survey was emailed to approximately 300 persons and 15% of respondents replied indicating that they did not complete a bachelor degree with a local T&T institution of higher learning, however, an additional 20% of respondents who did not complete a bachelor degree with a T&T University completed the survey

anyway. This information was included in the survey since it captured respondents who completed a baccalaureate degree at a T&T campus with more than 85% local faculty however, the degree was awarded by an offshore university. Essentially these respondents met the criteria of the population under study and were included in the research.

Respondents were contacted via email, in-mail and messages, however no reminders were sent. The researcher continued to send the link to the questionnaire to new respondents aiming for a total of 125 persons to complete the survey to ensure that the sample was large enough to establish representativeness. Respondents were required to click on the survey link and directed to the website to complete the questionnaire. Of the number of respondents that attempted the questionnaire, 4% abandoned the survey. Social-media professional groups and online university alumni were targeted and messages, in-mails or emails sent to contact respondents.

Some of the main advantages of administering online surveys are the cost, time, and convenience however, online surveys have been severely criticised on the basis of survey bias (Hwang & Fesenmaier 2004 in Dolnicar, Laesser & Matus 2009). The specified type of survey bias refers to coverage errors and non-response errors. Coverage errors can be non-representative if the data is collected from online chat groups for example, additionally when respondents form a non-representative sub sample participate, the non-response error is high (Dolnicar *et al* 2009). Data was collected from legitimate professional groups on LinkedIn and Facebook. Many of the respondents hold managerial and professional positions in T&T organisations and are employed in the public and private sectors.

Another option considered was the mail survey however, time was a factor that excluded this approach. Research studies show that mail surveys yield higher response rates than online surveys. (Bason 2000, Tse *et al*. 1995, Treat 1997) however, mail surveys take a much longer time to return than online email surveys (Mehta & Sivadas 1995). Administering the survey via email, in-mail and messages required no cost to the researcher, and while the response rate for this method is lower than the mail survey, the response time, and cost are far superior

(Ilieva, Baron, and Healey (2002); Moore, Soderquist, and Werch (2005). Based on the advantages outlined above the online survey approach was chosen to ensure that time constraints of the research were not violated. The web based survey hosting tool http://www.qualtrics.com, was used to administer the research instrument.

One of the limitations of the email and social-media approach is that potential respondents who do not use such media were excluded from participating in the survey. However, the sample of respondents demonstrate that they have some level of ability to use the internet and social-media just by their response to the survey. For those persons who were located in professional groups and alumnae on LinkedIn and Facebook, it can be argued that the respondents in the sample have an awareness of how to personally use social-media and networking to advance their professional skills and resources. One of the benefits of using Facebook messages and in-mail is a reduction in the number of undelivered or undeliverable emails that arise when using traditional email. However, one of the limitations was that some respondents who rarely utilise their social-media accounts may have missed the opportunity to participate in the survey, a characteristic identified by (Lukawetz 2002 in Birnbaum 2003). This could be one of the reasons for the low response rate (over 50%).

Data Collection and Sample Size: Qualitative

Several factors were considered in determining the sample size for the qualitative instrument. For the qualitative framework the researcher must be intimately engaged in the process of research to ensure the establishment of 'fruitful' relationships with the subjects (Crouch & Mc Kenzie 2006). Since the researcher needs to manage a close association with a number of respondents the maximum number of cases recommended is 20 (Crouch *et al* 2006). The semi-structured interviews were used to collect data on WPL from. The focus was on respondents' feelings and perceptions to obtain an insight into the experiences of designing and promoting opportunities for learning within the organisation.

Purposive sampling was employed and managers who participated in the self-completion survey were contacted. Purposive sampling is '*strategic and entails*

an attempt to establish a good correspondence between research questions and sampling…the researcher samples on the basis of wanting to interview people who are relevant to the research questions (Bryman 2004 pp.333-334). The qualitative research sample is strategic in that the subjects selected are organisational leaders or learning professionals; both have an impact on the restrictiveness or expansiveness of WPL within organisations. Of the managers that finished the self-completion questionnaire 6 participated in the semi-structured interview. In qualitative analysis, having a small number of respondents is commonplace within the social-sciences (Crouch, *et al* 2006).

WPL Limitations

Workplace learners are generally unaware that learning is occurring, *informal learning is largely invisible, because much of it is either taken for granted or not recognized as learning; thus, respondents lack awareness of their own learning* (Eraut 2004 p. 249) Therefore, observational methods are a more suitable collect data when compared to semi-structured qualitative interviews. However, there was little opportunity to engage in observation of the six interviewees, participating in this research. There was little difficulty in arranging the semi-structured interviews and time constraints disallowed the use of the observation method. Some of the benefits of the observation method include the following: they provide an opportunity for the researcher to become familiar with respondents work-setting, to identify interactions between research subjects and others in the workplace, and identify the list of cultural artefacts used in the workplace including items in both text and electronic forms. Observations can also be useful in initiating the interview process regarding specified rather than generic aspects of both practice and the practice environment (Eraut 2004 p. 249).

Ethical issues

A guiding statement regarding ethics in research indicates that '*there is no single set of rules or practices that govern the ethics, truth and politics of a research project*' (Soobrayan 2003, p. 107). Most of the participants engaged in this study are Facebook and LinkedIn account holders and were located in groups on social-media. The commonality among respondents is that they completed a baccalaureate degree with a university campus located in T&T. One course of

action that was originally considered was to contact the gatekeepers of the local T&T universities and seek access to the alumnae as a viable strategy to obtain willing respondents. This course of action proved futile and a decision was taken to access graduates at locations where they often assemble. These two locations are Facebook and LinkedIn. According to Barnes (1979) ethical decisions arise when a decision has to be made between two different courses of action, founded on the premise of what is right or wrong. Most of the respondents who answered the self-completion survey are graduates from the University of the West Indies (St Augustine Campus). While this university was not contacted and asked for access to their alumnae, the decision to expedite the data collection process by circumventing the process of contacting gatekeepers, and accessing willing participants via Facebook and LinkedIn, cannot be considered ethically incorrect.

The self-completion questionnaire did not ask for name of participant however, participants were asked to insert place of work. Most participants willingly identified their place of work. The issue of privacy and anonymity with regard to the name of local organisations in T&T is required. No approval was requested or granted from workplaces in T&T to conduct research with their staff. However, the information obtained from respondents who identified the names of their workplaces will assist the researcher in identifying and cross-checking the industries in which people work, to make assumptions regarding the relationship between WPL and skills-formation across different sectors of the T&T economy.

Building trust during the qualitative interview is an important ethical issue and communicating confidentially with anonymity is a critical part of the process. The purpose of the research was shared with all participants, and during the greeting phase of the qualitative interview this was addressed. The qualitative instrument is identified in appendix 3. The interviewees received a copy of the interview guide and were able to read the questions while interviewer conducted the interview. Part of building trust was assuring interviewees at the onset that they could withdraw from the interview at any point during the process if they felt uncomfortable or did not want to answer any further questions. Participants were asked about their role and disclosing a brief description of their respective companies; 100% of participants agreed. For building trust they were all assured

that their names and any other identifying data would not be included in the research.

All participants in the semi-structured interview were recruited from the self-completion survey. They already had previous information on the research and what kind of data was previously collected. Since these participants were first contacted online, an email was sent inviting each of them to engage in the qualitative survey. However, further contact was established as a face-to-face and SKYPE interviews were scheduled. All interviewees were provided with the email and contact number of the researcher in the event that any further clarification was required. All six interviewees will have access to the data collected from this study to ensure transparency. They will be able to review the data and validate that no ethical standards were breached.

Summary

This chapter provided a discussion on the benefits and pitfalls of both qualitative and qualitative data and a justification for the use of a mixed-method approach to the study of WPL and skills-formation among graduates in T&T. Studies that applied quantitative, qualitative and mixed-method approaches were reviewed to determine the efficacy of these methods when applied to the study of WPL. The complexities involved in using a mixed-method approach were identified, as well as the strengths of combing both positivist and phenomenological perspectives and research methods. The discussion on structure and agency was included since qualitative studies normally take an agency approach and quantitative research often applies the structure perspective. Additionally, it was important to address the structure-agency divide since this research inquired into factors in the individual and the organisation that promote high or low-skills and expansive and restrictiveness, respectively.

An exploration of critical-realism to the study on WPL and skills-formation provided an alternative methodological starting point and opportunities for overcoming methodological switching between qualitative and quantitative paradigms. Essentially, critical-realism provided a justification for the mixed-method approach and its efficacy in accomplishing confirmation, completeness

and retroduction. An overview of the qualitative and qualitative instruments was provided, as well as the steps taken to design the self-completion survey and the semi-structured interview. Both research instruments are identified in appendices one and three. The research population was described, justification for the sample size identified, and the process of data collection elucidated. Limitations and ethical issues were addressed and methods for overcoming them explored. Then next chapter provides the findings derived from the implementation of the research tools.

CHAPTER FIVE: WPL and Skills-formation: Data Analysis

Introduction

This chapter presents the findings from the empirical quantitative and qualitative research carried out on WPL and skills-formation among graduates in T&T. The data addresses the research questions identified in chapter one and elucidates the following: how and what graduates learn at university; the transition from novice to master, factors that militate against attaining full mastery; access to learning opportunities, and organisational and personal learning strategies. The data is presented and uncovers both intrinsic and extrinsic areas that determine expansive and / or restrictive learning environments. Respondents answered questions about skills learned at college and the workplace. Learning-as-participation and learning-as-acquisition are both addressed in the survey. The questionnaire allowed the researcher to explore individual rankings regarding generic bio-data and demographics pertaining to career and learning.

The quantitative instrument identified academic and employability skills learned at college and respondents perceptions about attributing learning of certain skills to formal education. The 'what' of WPL is elucidated where the focus of the qualitative instrument is to obtain data on skills formed on-the-job? Skills-formation through WPL and college learning is identified in the survey. What is being learned in the workplace, and what is being learned at college is also elucidated. All tables demonstrating quantitative data are identified in appendix 2.

Bio-Data and Demographics

The self-completion survey provides responses from 126 respondents and includes 28 subject areas commencing with bio-data. The first question asked for gender of respondents, 68% are female and 32% male. The data indicates a gender bias skewed toward female participants. This skew is representative of the total population where gender inequality regarding males in tertiary education in T&T (MSTTE 2011) is corroborated. Table 1 in appendix 2 identifies data on respondents' age.

The ages of the participants are identified in Table 2 below. Respondents between the ages of 18-25, with the least amount of WPL experience, represented the lowest number of respondents in the survey with just 6 persons in this age group. This data corroborates with Birnbaum (2003) perspective on web recruits identified in chapter 4. The age group 44-55 was the most highly represented in the data at 32%. However, the age group 35-43 was highly represented with a rate of 31%, just 1% less than persons between the ages of 44-55. An assumption that the use of social-media like LinkedIn and Facebook among professionals between the ages of 56-65 is lower since they may use other mechanisms to build their professional networks. For respondents between the ages of 18-25, it can be inferred that their membership in professional groups accessed by this study is low. Since this data was collected by inviting graduates from professional groups on the internet to complete the survey, respondents between ages 18-25 were not well represented possibly because of low membership in the groups targeted to answer survey.

Participants were asked if they completed a master's degree and 51% completed a master's degree. This information is identified in Table 4 below. The enrolment in or completion of a master's degree is 71% and this data suggests that respondents see the value of increasing tertiary education or participation rates are high since post-graduate education tuition is subsidised by 50% through the GATE program identified in chapter one. Since the majority of participants in this study are employed there is a deviation from Finegold's view of delaying work to pursue HE; approximately 20% of respondents are working and pursuing a master's program simultaneously. This motivation among 71% of respondents to pursue post-graduate education is an agency factor that will be matched against their motivation to be highly productive and self-directed.

Respondents were asked if they completed a doctoral degree and 4 respondents completed a doctoral degree, with 8 in progress, this information is identified in Table 5 below. The propensity for professionals to engage in formal education beyond a master's program is low. It implies that they do not see the value in pursuing additional formal education beyond the master's program. There is no further motivation to obtain further education.

The names of institutions where respondents completed their degree was particularly important in ensuring that participants met the criteria of the population. The main criterion is completion of a degree at a local T&T campus. Two types of respondents were identified; individuals who completed a bachelor degree locally and were awarded their certificate by a T&T institution of higher learning, and persons who completed a bachelor degree at a local campus but the degree was awarded by a foreign institution of higher learning. Persons enrolled in off-shore universities and attending local campuses also qualify for GATE funding.

The names of universities or campuses attended are listed in Table 6 below. The largest number of respondents at 75% attended the University of the West Indies (UWI The data reveals that 83% of the sample completed their degree with a regional university located in T&T, and 17% completed their degree with an off shore university at a local campus.

Participants provided feedback on their bachelor degree title and categories identified in Table 7 below. The largest group at 32% completed a management degree. When asked about the number of positions held after graduating from university 77% held 1 to 3 positions, 29% held 4 to 6 positions, 7% held 7-9 positions and 2% held 10 or more positions. This data is identified in Table 8 below. Since 77% held only 1 to 3 positions, this could be an indication that the learning environments provided the challenge and the opportunities for learning. Some of the organisational factors that influence retention are challenging and meaningful work, the provision of opportunities for upward mobility and advancement, as well as the quality of new opportunities and challenges (Birt *et al.*, 2004 in Goverts & Kyndt 2010, pp.37), which are key elements of an expansive learning environment. However, respondents changing 4 to 6 or 7-9 positions could be an indication that the learning environments were not expansive but restrictive. Noteworthy however, is that both agency and structure factors determine retention and while expansive learning environments promote employee longevity there are agency factors that could determine retention.

When asked about their number of years post-baccalaureate experience 19% has 0-2 years and may be classified as novices, 17% has 3-5 years and may be

at Dryfus and Dryfus (1980) competent stage, 15% has 6-8 years, 12% has 9-11 years, and 37% has 12 or more years work experience. This data is identified in Table 10 below where only 19% could possibly be novices. However, Table 15 below shows that 0% perceive themselves as novices. This implies that even the 19% of respondents who only possess 0-2 years' experience do not perceive themselves as novice. Most respondents have passed the novice stage and exist between specialist and master.

Respondents identified their current job title and Table 10 below identifies 125 positions held by respondents. Only 1 respondent is currently unemployed, 6 hold administrative and clerical jobs as follows: 2 Administrative Assistants, 1 Clerical Assistant, 1 Clerk II, 1 Operational Clerk and 1 Checker. All other positions are para professional and above. This information substantiates Finegold's (1991) claim that graduates have opted for a high-skills route. Most respondents in this study, by possessing a degree have avoided low-skill jobs in clerical and administrative fields.

Participants identified the grade in which their current job is classified and Table 11 below identifies the responses where 13% are administrative, 6% para professional, 33% professional, 26% managerial, 6% technical, 6% executive, and 10% other. Other categories are identified in Table 13 below. Noteworthy is that the two most highly represented groups in the data hold either professional or managerial positions at 59%. This data corroborates Finegold's high-skills route for graduates.

Respondents identified the industry in which their positions exist and Table 13 outlines this information. The largest number of respondents are employed in the banking finance and insurance services industry at 20%, followed by the education sector at 19%, and the public sector at 16%. This finding corroborates with Skule (2004) discoveries in Norway where the banking, insurance and commercial services possess the highest level of learning intensive jobs. Additionally the education sector in T&T has increased the entry requirements for teaching and a teacher must possess a bachelor degree. A large portion of graduates will therefore be concentrated in this sector.

Only 118 respondents answered the question on company name, and 85 companies are listed. Respondents were asked about the number of years employed in their current company and Table 14 below identifies the following; 24% have worked with the company for more than three years, 23% over twelve years, 18% for 6 to 8 years, 16% less than a year, 12% for 4-5 years, and 7% for 9-12 years. The government of T&T must pay particular attention to these trends to determine which companies and industries are able to retain graduates and which have high attrition rates. Further inquiry on the relationship between retention and expansiveness and the learning intensity of jobs is required.

Quantitative Summary

The quantitative data analysis provided an opportunity to measure skills-formation through tertiary education and WPL. The self-completion survey provided an understanding of students' perceptions of the skills-development at university however there was no occasion to illuminate these reactions. The ability to probe deeply into the feelings of respondent is one of the limitations of this self-completion survey. However, these validity and reliability issues will be overcome by the mixed-method approach used in this research, and in the next section a qualitative analysis of many of the same dimension measured in the self-completion survey will be assessed. All participants in the quantitative study completed a baccalaureate at a local T&T university or campus, and 51% have completed or are enrolled in a master's degree. None of the respondents perceive themselves as novices, 84% have over six years post baccalaureate experience, and over 59% hold managerial / professional positions. This evidence suggests that baccalaureate degrees lead to a high-skills route. CoP's provide an opportunity to engage in social learning however, CoPs exist within expansive or restrictive learning environments determined by structure. While CoPs *are organic, spontaneous and informal [in] nature* (Wenger and Snyder 2000 p. 140) structured learning opportunities organised by the company stimulate access to the centre and away from the periphery resulting in full-participation. In this research structured opportunities to initiate the transition from novice to expert is high and many participants engage in learning intensive activities that are arranged by the organisation. Graduates have a higher propensity to access jobs

that provide problem-solving and decision-making opportunities which are characteristics of expansive learning environment with learning intensive jobs.

Graduates learn at work through feedback which acts as an extrinsic motivator for improved performance. They are self-directed learners who are motivated by agency factors, and actively engage in team-working which is inextricably linked to feedback. Making mistakes and taking steps to correct errors is another key source of learning in the workplace. Graduates employ learning strategies underscored by social interaction, and personal strategies enshrined in manipulating both tacit and explicit forms of knowledge. Formality and informality both co-exist and are integral aspects of WPL. A combination of procedural, propositional, and dispositional learning occurs within CoPs and results in the development of know-how, job knowledge, and social survival skills that allow the graduate to obtain organisation and job fit-in.

Access to explicit knowledge on the internet, in books and journals, and company documents are key sources used to overcome challenging work; in addition to consulting with others. Here we see both the cognitive and social dimensions of learning integrated through CoP's that result in knowledge-creation that yields productivity activity. Full versus partial development of expertise can be disadvantageous if workers do not have the academic background to perform the job functions effectively. Employees without the relevant academic background may lack the criteria for moving beyond the periphery of a CoP, and further research is required to determine entrance and sustaining requirements for active to full-participation in a CoP. Relevant training and an opportunity to access the relevant experience is required to acclaim full expertise in a job. The self-completion survey yielded the above findings which will be compared to those of the qualitative interviews in the next section.

A Syncretised Analysis

Introduction

Six organisational leaders participated in the semi-structured interview and information collected during the interview process in now presented. The interviewees also participated in the self-completion survey and are HR or training managers, and organisational leaders. This chapter includes the following sections: overview of respondents, perceptions of WPL, opportunities for learning-agency and structure, how novice graduates transition to expert and the associated transition to adulthood, what graduates learn on-the-job, high or low-skills route, the differences between a baccalaureate and non-baccalaureate graduate, the invitational workplace, and an empirical application of the syncretised model. This chapter five also provides evidence of convergence and complementarity between quantitative and qualitative data. While generalizability is not possible at times with just six interviewees many of the findings are substantiated by the literature review and the quantitative data. Findings will also be linked to the objectives of the study identified in chapter one.

Overview of Respondents

All interviewees were asked to provide information on their formal education and 100% hold a bachelor degree and post graduate qualification in their respective fields. Their skills levels are based on acquisition through formal education and participation through the workplace. All interviewees indicate that most of what they learned on-the-job facilitated their transition from novice to expert. The six leaders that participated in the semi-structured interview are as follows and will be referred to as respondents A B C D E and F

- Respondent A is in the HR Manager at a vehicle management company in the public sector
- Respondent B is the Regional Manager Learning and Development of a multi-national insurance company in the private sector
- Respondent C is the HR Manager at a multi-national pest control company in the private sector

- Respondent D is the HR Manager in the public sector. The company makes suitable real estate available to qualified tenants, developers and operators in a commercially viable manner.

- Respondent E is a HR Manager in the public sector. The company's main goal is the formulation of strategic goals for implementing sustainable infrastructure development projects

- Respondent F is a High School principal.

Perceptions of and Participation in WPL

The interviews began with a question on the value placed on WPL and directly relates to research objective 3, and focuses on how learning occurs on-the-job. Interviewee A describes it as '*an essential mechanism*' for both employee and skills development in the organisation. Interviewee A sees WPL proceeding through trial and error, prior work experience and standard operating procedures. While WPL is essentially described in the literature as informal there are aspects of formality in the organisation's provision of explicit knowledge and using procedures for employee and OL. Learning preferences for Interviewee A are through coaching, mentorship, experimentation, and research. Interviewee B indicates that the value placed on learning is shaped by the head of the organisation, changes in organisational heads will disrupt the OL journey. Interviewee B also identifies trial and error as a key mechanism through which WPL elapses; indicating that learning is both ad hoc and structured. Interviewee B prefers to learn through research, reading, reviewing templates, conducting interviews with subject-matter-experts, and '*turning the information into material that [she] can understand*'. Tacit knowledge is translated into explicit knowledge when organisations codify information however, individuals also codify information and translate this into tacit knowledge that they can understand and use. In essence this interviewee is applying Eraut (2004) model of transfer of learning identified in the literature review. The respondent conducts interviews with subject-matter-experts and [*extracts] relevant knowledge*, *transforming [information] to fit the new situation,* (Eraut 2004 p.256). However these steps are being used with knowledge from membership in a CoP not knowledge gained at

university. Workplace learners must keep transforming information until it is translated into a form where it can be used by the learner.

Interviewee C perceives WPL as the place where key organisation and job skills are learned. Learning occurs on-the-job through CoPs where there are meetings with subject-matter-experts, collaborative meetings, team-working and collaboration, and *'review[ing] different situations on the job and identify[ing] how to address them'*. Here we see convergence between quantitative findings on teamwork, collaboration and meetings. Interviewee C prefers to learn by doing and documenting policies and procedures. Interviewee D perceives WPL as '*critical to the workplace given the fact that it is how you can come up with succession and continuity in the company'.* WPL is perceived as the key to maximising company vision. For Interviewee D, learning occurs on-the-job through information sharing, focus groups, committee meetings, and team meetings. Interviewee D prefers to learn through a hands-on approach and indicates that specified job knowledge is learned on-the-job to become competent in a particular field.

Interviewee E indicates that WPL '*is necessary and valuable as it encourages staff to continue learning and thereby improve the organisation'.* The link between WPL and organisational improvement is identified in this interview. For Interviewee E learning occurs on-the-job through brainstorming, mistakes, policies and procedures, and company intranets. Interviewee E prefers to learn through internet research and formal training workshops. For this interviewee WPL provides the following.

> *I learned payroll, what not to do in industrial relations, I learned a lot about protocol and government regulations. I learned to adapt to a highly political environment. I also learned about the business of the company which is transportation systems, engineering, recruitment of marine personnel, infrastructure development, various marine regulations and ports infrastructure. This is specific to the company, I could not have learned this anywhere else* (Interviewee E).

The above quote provides an example of activity systems rather than CoPs which will be discussed later in this chapter. Noteworthy are the learning preferences identified by interviewees. The learning preferences corroborate with methods of

WPL identified in the literature review and the quantitative questionnaire. The how of learning was assessed in the quantitative and qualitative instruments, the same empirical domain (how employees learn) was analysed to check for Erzberger & Prein (1997) convergence. While the number of respondents in the qualitative interviews was small, convergence between the two different data sets validates findings and provides for generalizability. Gerber (1998) identified several ways that employees learn on-the-job. The quantitative survey revealed that respondents learn through feedback, problem-solving and decision-making, self-directed learning, teamwork, company job aids, internet research, mistakes and personal strategies. This converges with the qualitative interviews where interviewees indicated that they learn through many of the same mechanisms. The data gathered from the semi-structured interviews both converged with the data from the quantitative study and add depth. Respondents were asked to rate their participation in workplace activities in 10 areas identified in Table 18.

These ten areas were selected as they are representative of Lave and Wenger's learning as social activities in the workplace, additionally they are characteristic of expansive learning opportunities. They also provide an opportunity for graduates to legitimately participate in CoPs. Results from the quantitative revealed that the largest number of participants at 31% disagreed that they participated in an internship program. Many jobs require internships for effective transition from novice to expert however, in this study access to internships is low. Internships are also seen as a primary source for developing professional identity and effective transition from student to professional identity (Proshansky *et al.*, 1995 in Le Maistre Anthony Paré, (2004). For participation in a mentorship program as a mentee, 38% disagreed that they participated in a mentorship program. This data infers that opportunities for graduates to engage in mentorship programs is low. For participation in a mentorship program, 37% disagreed that they participated in a mentorship program as a mentor. Results on participation as a mentor corroborates with the data on participation as a mentee. This data infers that opportunities for graduates to engage in mentorship programs is low.

For participation in a leadership development CoP 32% agreed, and 19% strongly agreed. For participation in a special individual work assignment 43% agreed, and 37% strongly agreed. Opportunities for graduates to participate in leadership development program and special individual work assignments is high and the former shows evidence of social learning activity and workplace expansiveness. For participation in a special group work assignment 47% agreed, and 31% strongly agreed and this infers that there are opportunities for participation in CoPs. For participation in an on-the-job training program; 30% agreed, and 26% disagreed, 14% strongly agreed, and only 21% strongly disagreed. The largest number of participants at 30% agreed that they engaged in an on-the-job training program as part of their work experience.

For participation in a company orientation program 38% agreed, and 22% strongly agreed. Orientation programs are an important part of the social learning process '*and have been shown to socialize newcomers and increase their knowledge, skills, and abilities (KSA) upon completion*' (Acevedo and Yancey 2011 p.349). The purpose of the new employee orientation program is to teach on key competencies, and elucidate key cultural aspects of the organisation like history and goals. The language and politics of the organisation is also articulated during orientation and empowers new employee to achieve fit in the work environment (Acevedo and Yancey 2011). Graduates in this study generally have access to orientation programs as part of their WPL. This evidence implies that access to orientation programs increases the ability to achieve person-organisation fit. This aspect of formality within WPL is a key requirement for transitioning from novice to expert.

For participation in company sponsored training 44% agreed, and 30% strongly agreed. For participation in company sponsored conference 38% agreed, and 0% disagreed, 24% strongly agreed, and only 8% strongly disagreed. Conferences are considered a lucrative learning condition (Skule 2004, Ashton, Sung & Raddon 2005), an opportunity to develop high-skills. Noteworthy is the fact that 0% disagreed, this suggests that companies in this study or where the respondents have worked previously, invest in baccalaureate graduate professional development by providing opportunities to attend conferences to enhance learning. The learning opportunities identified in Table 18 are indicators

of expansiveness rather than restrictiveness. The results of this survey indicate that organisations in this study generally provide learning conditions that promote opportunities to accommodate graduates or newcomers. Internships, mentorship programs, leadership development programs, special individual work assignments, on-the-job training, orientation programs, and company sponsored training and conferences are examples of structured learning opportunities for both novices and experts. A high incidence of structured learning opportunities to enable transitions from novice to expert, and to build professional expertise are prevalent in this study, with the exception of mentorship and internship. These ten areas represent learning opportunities that support entrance into a CoP, social learning opportunities, and workplace expansiveness. In essence these ten learning opportunities allow for transition from the periphery to the participation stage and facilitate the transition from novice to expert. These are opportunities structured by the organisation for engaging is social learning that result in skills-formation and are representative of Billett's invitational workplace

All interviewees in the interview identified WPL as valuable, the key mechanism through which they acquired organisation specific skills. Organisations document explicit knowledge and produce policies and procedures, however these formal documents are used as learning tools to develop explicit knowledge about the organisation. WPL toggles between levels of formality and informality where employees develop skills that they could not have acquired anywhere else, especially not at university. Convergence between quantitative and qualitative data was identified when evaluating how learning occurs on-the-job. This discussion on perceptions of WPL has identified how graduates learn on-the-job and converges with data from the quantitative analysis and the literature review. This discussion has elucidated research objective 3 that focuses on mechanisms through which graduate learning occurs on-the-job.

Opportunities for Learning: Structure and Agency

Respondents identified several opportunities for learning in the workplace both from an agency and structure perspective. Interviewee A sees poor decision of others as a learning experience. While learning from mistakes was earlier identified as a mechanism through which learning occurs on-the-job, learning

from the mistakes of others is now promoted as a learning opportunity. This data infers that through knowledge-sharing and engaging in CoPs participants are able to identify and learn from others mistakes. Hidden mistakes do not provide opportunities for learning unless they are uncovered. Being nominated to attend symposiums and meeting with leaders in senior management and managing crises on-the-job on a daily basis are identified as other opportunities for learning. Interviewee A indicates the following.

> *…school is an area where you are placed in situations of mini crises every day. If those crises are not solved the school will implode therefore we are experts at crisis management. The opportunities emerge from the crises. This is where sharing and networking comes in, you have to network. As you develop you develop a crisis bank of solutions. If the crisis comes again the reaction will not be unskilled or amateur but experienced* (Interviewee A).

Crises are perceived as opportunities to problem solve and identify solutions. Opportunities to think and talk about what is learned are available for new graduates (new teachers) through scheduled meetings with seniors to facilitate *informal chats*. New teachers participate in CoPs, and access experts in developing skills, as well as their professional identity. An inference can be made that participation in CoPs result in developing professional identity.

Noteworthy in the above quote is the perception that they are experts at crisis management. Because crises take place on a daily basis expertise is developed through the development of a tacit crisis bank of solutions. This quote also identifies what Daley (1999) refers to as the expert's ability to recognize patterns from real situations, the crisis bank of solutions has no reliance on theoretical rules. The above quote also demonstrates second order problem-solving, where a mechanism is designed to prevent a similar occurrence (Tucker *et al* 2001). The mechanism defined by Interviewee A is a crisis bank of solutions which results in crisis management competence. An assumption can be made that opportunities are embedded in the work itself and how the graduate seeks to solve problems will determine the extent of competence development. Additionally, this scenario demonstrates an agency approach to WPL where the interviewee perceives opportunities embedded in the work itself rather than seeking for the organisation to formally structure opportunity.

Interviewee B also promotes an agency approach to opportunities for learning and indicates the following

> *Whenever you start a new job the opportunities are massive it's up to the employee to determine the extent to which he wants to learn* (Interviewee B)*.*

Opportunities to think and talk about learning however are structured and dependent on the organisation. Structured opportunities to think and talk about what employees have learned are perceived as penance.

> *…when managers have meetings with their staff to identify what they accomplished this week and what they will be doing next week is another opportunity. Staff is not interested in participating in the verbal weekly reporting meetings. They see it as penance.* (Interviewee B)*.*

The above quote indicates that not all learning opportunities structured by the organisation are perceived as learning opportunities. This suggests that organisations must ensure that workers perceptions of workplace opportunities corroborate with those of the organisation. Opportunities should be sold to the employee rather than enforced to ensure congruence of perception.

The link between learning opportunities and individual performance is made by respondent B in the quote below.

> *If you perform well then the opportunities will come. Without a structured approach to the provision of learning opportunities this is the only way to get access to more* (Interviewee B)*.*

Expansiveness can be provided by the organisation in a structured manner however, the individual can use his good performance as an opportunity to access more opportunities. Here we see the interplay between structure and agency where, in spite of lack of structured learning opportunities, individual agency through performance can create these opportunities. Interviewee B indicates that '*Equal Opportunity for learning in the workplace can be implemented by developing a structured approach to selection for projects, and promotion'.* This suggests that full-participation for all is dependent on the organisation and not the individual. While individuals should take responsible for their own learning, organisations must be held accountable for creating

expansive work environments. Table I below provides quotes and responses from interviewees on opportunities for learning in the workplace. The table identifies both descriptive and prescriptive elements of factors in the organisation that promote skills-development and descriptive factors on the agency side.

Table I Opportunities for Learning through Structure and Agency

Structure	Agency
Meetings with senior managers	Own mistakes
Attending symposiums	Mistakes of others
Daily work activities	Meetings with senior managers
Brainstorming	Daily work activities
design the work environment in such a way that the work is achieved as a team (A)	Hard work brings more opportunity
Through regular meetings with staff, toolbox meetings… They share anything of significance that impacts the work. (A)	Opportunities thrown at you outside your job description
…but these opportunities are often ad hoc and not structured (B)	*Whenever you start a new job the opportunities are massive it's up to the employee to determine the extent to which he wants to learn (B)*
Opportunities to think and talk about learning depends on the CEO or Managers	*When you practice you identify opportunities for improvement and then master the skill (B)*
Without a structured approach to the provision of learning opportunities this is the only way to get access to more.(B)	*When you perform well you get noticed and other learning opportunities open up for you (B)*
Equal Opportunity for learning in the workplace can be implemented by developing a structured approach to selection for projects, and promotion(B)	*Sometimes opportunities open for the person because of the person and not the organisation(B)*
Weekly meetings	Learning from others
Policies and procedures and awareness of policies of procedures as a learning opportunity	*No opportunity to learn from my co-workers, In terms of their academic level I am unable to learn from them (C)*
Knowledge transfer from Supervisor	Solving customer complaints
Participating in projects	Work assignments
Mentorship/ Formal mentorship program	Feedback from managers and colleagues
Performance appraisal interview	Teamwork
Three training programs for a particular period for everyone. Advance coaching and mentoring on-the-job as a performance criteria for the Line Managers. Having a policy to ensure equal opportunity to participate. Equal opportunity to learning and coaching (D)	Learning from crises
Work assignments	Learning from others
Acting in a higher position	Problem-solving and asking for solutions
Teamwork & Structured formal meetings	

The above table identifies the responsibilities of the individual and the organisation in providing and identifying opportunities for learning in the workplace. The data implies that for the development of an expansive learning environment the organisation must deliberately and strategically develop initiatives to ensure that learning opportunities are available to the workforce. However, agency is a factor that creates opportunities for learning based on performance, and perceiving daily work and challenges as opportunities for learning to pursue the high-skills route. Factors in the individual and factors in the organisation that promote learning has been identified and has elucidated research objective 5 which sought the answer to the question about organisational (structure) and individual (agency) factors that promote or inhibit effective WPL and skills-formation.

Factors in the individual and organisation that hinder effective WPL and expertise development were identified in the quantitative study in Table 28 and 28a. Indicators of lack of academic qualifications to master aspects of the job was prevalent in the qualitative study specifically in relation to comparisons between baccalaureate and non-baccalaureate graduates. While lack of motivation to master aspects of the job was low among graduates in the quantitative survey it appeared high among non-baccalaureate graduates when interviewees were asked to compare them. Results of the quantitative survey in this regard are provided below

Participants were asked to rate themselves on aspects of the job they never mastered and why; 6 indicators and results are captured in Table 28 below. For the question on 'I do not have the academic background to complete the task effectively', 15% agreed, 34% disagreed, 3% strongly agreed, and 30% strongly disagreed. 17% neither agreed nor disagreed. The results show that not all respondents perceive that their HE qualifications have prepared them to complete all workplace tasks effectively. For not having the relevant training to complete the task effectively 31% agreed, and 22% disagreed, 3% strongly agreed, and 23% strongly disagreed. 21% neither agreed nor disagreed. Based on this data certain assumptions can be made; access to formal training while working on-the-job enhances and is required to supplement the workplace skills-formation process; and levels of formality and informality are required to ensure

a holistic skills-formation process. Formal training that occurs after the employee enters the workplace are inputs that foster expansiveness and expertise development. While expansiveness is specifically related to learning-as-participation, continuous inputs from learning-as-acquisition is necessary to achieve improved competence and high-skills-formation. Questions on structure / agency and factors in the individual versus the organisation that promote skills-formation can be elucidated from this data. Respondents generally believe that they possess the qualifications to perform the job however, responses indicate that lack of relevant training is seen as a deterrent to effective skills-formation or the achievement of full mastery. Once the organisation provides relevant training in key skills, full rather than partial expertise can be achieved.

For not having the relevant experience to effectively perform the tasks 32% agreed, and 23% disagreed, 5% strongly agreed, and 22% strongly disagreed. 19% neither agreed nor disagreed. Relevancy of experience is important and workplaces must be expansively structured such that graduates gain skills that are relevant to their specific job functions. Experience is a key factor in expertise development and enhances the skills-formation process. This data implies that relevance of experience is a factor of workplace expansiveness and restrictiveness. In structuring workplaces, gaining experience in all aspects of the job, rather than some areas must be taken into consideration. Employees must access opportunities to gain relevant experience, develop requisite skills and effectively transition from novice to master. While no respondents perceive themselves as novices this data identifies that some are novices in relation to specific skills that can be developed through experience and training. When opportunities are unavailable this averts full-participation and full mastery. This elucidates the need for greater expansiveness, a focus on the whole job, and the development of all relevant skills to achieve mastery. This is one factor in the job as opposed to the individual that impedes skills development in the workplace. Issues of not having time to focus on the task could be either based on the individual or the organisation. The way work is allocated and structured or the employee's ability to manage time could account for a lack of mastery in a particular job function. Additionally the importance placed on the task by the

individual or organisation could result in lack of skills development and expertise in this aspect of the job.

For not having the time to focus on the task 33% agreed, 27% disagreed, 7% strongly agreed, and 15% strongly disagreed. 19% neither agreed nor disagreed. For not having access to the relevant tools to complete the task 34% agreed, 22% disagreed, 7% strongly agreed, and 14% strongly disagreed. 24% neither agreed nor disagreed. For not being motivated to complete the task 18% agreed, and 29% disagreed, 2% strongly agreed, and 24% strongly disagreed. 26% neither agreed nor disagreed. The data implies that that lack of access to relevant tools is an aspect of restrictedness and precludes the acquisition of mastery in the workplace. Additionally, this is a structural factor within the organisation that impedes effective WPL and skills-formation. Motivation to complete the task is generally based on the individual rather than the organisation and in this study few persons lack motivation. There is general disagreement that job functions are not mastered as a result of lack of motivation. There was very little evidence that motivation factors in the individual inhibit effective skills-formation however it cannot be denied that 18% agreed and 2% strongly agreed that motivation was an issue affecting mastery of certain aspects of the job. The data infers that both structure and agency factors that impede access to full-participation, it is only through full-participation and optimum skills-formation can be achieved.

 Table II below identifies convergence between the qualitative and quantitative data on agency factors that inhibit effective WPL, and additional factors derived from the qualitative study.

Table II Factors that Impede WPL

No.	Factors that Impede WPL (Qualitative Quotes)	Interpretation	Convergence with Quantitative Analysis: Aspects of My Job I have Never Mastered
1	*Not all university graduates actually are able to transfer that theoretical knowledge into the workplace. It depends on the university that they attended. [XYZ offshore university] graduates are below the standard required and the other graduates fare better than them.(A)*	Universities that produces low performing graduates who are unable to transfer theoretical knowledge in the workplace	I do not have the academic background to complete the task effectively
2	*If there are underqualified persons working with you, you can become uninterested because you are not learning anything from them, they are less qualified and you are not challenged.(A)*	Underqualified non-graduates who do not challenge you Limited academic qualifications	I do not have the academic background to complete the task effectively
3	The leadership of the organisation changes continuously and with each leader the value of learning changes (B)	Changes in leadership	Not measured quantitatively
4	*Some companies are unionised and it is difficult to implement if you don't have buy in from the union.(B)*	Lack of union buy-in	Not measured quantitatively
5	*My organisation is a mediocre insurance company. If we could judge the managers by the organisations performance then I would say we have mediocre baccalaureate graduates. They add value but mediocre value.* (B)	Mediocre organisations with mediocre graduates who add mediocre value	Not measured quantitatively
6	*Very minimal, I would have to do things on my own, there is not much opportunity to move further. No opportunity to learn from my co-workers, In terms of their academic level I am unable to learn from them. Most of the managers are now trying to get their degrees. They don't place much emphasis on paying for people to develop(C)*	Organisation with few baccalaureate graduates and little opportunity to learn from fellow employees	I do not have the academic background to complete the task effectively

No.	Factors that Impede WPL (Qualitative Quotes)	Interpretation	Convergence with Quantitative Analysis: Aspects of My Job I have Never Mastered
7	*The person in the Service Controller role did not have a degree and it was very difficult for her to embrace technology, she was slow and could not meet deadlines, we had to let her go. (C)*	Underqualified employees cannot master the job because of non-possession of relevant academic qualifications	I do not have the academic background to complete the task effectively
8	*The organisation would perform much better if we hired more qualified people. We have to rewrite letters produced by supervisors and some managers. (C)*	Lack of recruiting qualified employees results in poor performance	I do not have the academic background to complete the task effectively
9	*A non-baccalaureate graduate wants you to spoon feed them … The non-degree persons wants you to hold their hand every step of the way. (C)*	Non baccalaureate graduates who need much supervision and spoon feeding	I do not have the academic background to complete the task effectively
10	*Half of them we wish to send back as they have low employability skills (F)*	When graduates have low employability skills	% of participants who disagree that they did not develop these skills at university
11	*…there are many teachers who never develop any expertise of any kind because it is not a requirement for increment and continued employment. Sporadically means that 1 out of 10 teacher might end up being good.(F)*	Little internal and external motivation to develop expertise	Lack of motivation
12	*Low productivity looks like poor classroom management, disinterested and disengaged students, low quality assessment, increased failure of students. Their impact is significant.(F)*	Low productivity and low performance outcomes	Lack of motivation
13	*Persons who come on-the-job and are having difficulty acquiring the skills because of lack of interest in the job or inability to understand the job just remain frustrated and dissatisfied until they retire(F)*	Lack of interest and lack of expertise development	Lack of motivation

Level of Expertise and transitions from Novice to Expert

The fourth objective of this research study focused on how graduates transition from novice to experts in the workplace. Interviewee B aptly describes the expert learner by saying '…*When you practice you identify opportunities for improvement and then master the skill'. You can share information on the process without referring to a text book, you can do it without looking'.* Learning by doing indemnifies the employees' transition away from the periphery to a location purported by Daley (1999) as a lack of reliance on theory. Interviewee B is no longer referring to the text or theory but real situations. Table III identifies ways in which the transition occurs. Discussions and collaboration with subject-matter-experts and senior officers was a key theme among the interviewees. Emulating subject-matter-experts through observation and developing a mind-set of learning were identified as mechanisms through which expertise is developed. Noteworthy is the mind-set of learning since the workplace is not a university that sells academic courses, however, learning is a significant aspect of productive activity and without a learning mind-set, knowledge creation could go unnoticed. This may have an impact on the worker's propensity to practice surface versus deep learning or prevent active implementation of personal learning strategies identified in table 24 and in the quantitative analysis.

Respondents in the quantitative analysis were asked about their level of expertise within current job ranging from novice to master. The results are identified in Table 15 below where 50% identified themselves as experts, 27% as experienced specialist, 14% as master, 10% as specialist and 0% as novice. The age ranges and job titles also substantiate these findings where 59% of respondents are classified as managers or professionals. Respondents were asked to rate the academic skills that they developed while completing their undergraduate. Table 16 below identifies their responses which are concentrated in the agree/strongly agree range. For other skills developed at college only 56% offered responses; these other skills are identified in Table 17 below.

Many skills identified in Table16 are entry level/ employability requirements for both professional and clerical/administrative positions in T&T. With the exception of research, the other skills identified in Table 16 are required for

clerical/administrative positions. While the data indicates these skills are developed at university, research and writing skills have the highest level of agreement. These are two skills that cause graduates to significantly differ from their non-baccalaureate counterparts. Further expansion on the impact of these two skills on WPL will be discussed in the qualitative evaluation. This data will be compared with qualitative findings in the next chapter. Noteworthy are the other skills identified in Table 17 that respondents indicated they developed at university. Many of these can be classified as high-skills and are not prerequisites for non-professional positions. This information infers that graduates are prepared through formal university education for a high-skills route.

The transition from novice to expert requires journeying to full-participation within a CoP; novices have marginal participation whereas exerts are full-participants. Access to mentors, and experts provides an opportunity for a novice to transition. Both the quantitative and qualitative data provides information on how learning occurs at work. Interviewees identified some of the same indicators listed in the quantitative data on how learning occurs at work to describe how a novice transitions to expertise. Table III identifies trial and error, mistakes, and feedback as novice to expert transition pathways and elucidates that both dimensions including how learning occurs, and how novices transition to expertise are inextricably linked. The main difference however is the presence of an expert.

Interviewees' responses in Table III identified the application of university learning as a mechanism for transitioning from novice to expert. Rules and laws learned at university, and referencing prior university knowledge is generally considered a novice behavioural pattern (Daley 1999). Interviewees indicated that formal training organised through the workplace is a requirement for transitioning from novice to expert. Most respondents in the quantitative data set saw motivation as a factor that did not affect their ability to attain full expertise and one of Daly's (1999) critical aspects of expert learning is identifying factors in the organisation structure as encumbrances rather than feelings. Few respondents from the survey saw motivation as an encumbrance however, non-baccalaureate graduates described in the qualitative study were perceived as requiring *spoon-feeding* and *hand-holding* to achieve competence in the job. The structure-agency issue is also present in the transition from novice to expert

where structure rather than agency factors may function as encumbrances to the development of expertise even for expert workers. Interviewees indicated that in spite of structural issues some graduates used hard work and performance to access further opportunities in pursuit of their high-skills route. The data implies that workplace restrictedness based on organisation structure can be overcome by individual agency.

 Another critical aspect of expert learning that can be added to Daly's (1999) list is the ability to look beyond organisation structure as an encumbrance and focus on performance to obtain opportunities for more learning. However further research on this point has to be conducted to establish generalizability. Some aspects of learning that promote the transition from novice to expert identified by interviewees include the following: documenting what is learned from the expert, conducting investigative work, conducting research, and presenting findings. Many of these activities however, require access and without the ability to move from the periphery into full-participation novices will not be provided with the opportunity to make an effective transition.

The undermentioned quote by Interviewee C encapsulates some of the ways in which the novice transitions to expert status.

> *'They must be trained in every aspect of the job so a training program is set out which matches the job description…this is what we call orientation and induction. The knowledge they gain they are now able to fit…when they don't know the policies procedures and job functions they are not yet a fit or a part off. They become more confident and performance improves…' (Interviewee C)*

Being trained in all aspects of the job is critical since some aspects of the job, left undeveloped or not mastered will prevent the graduate from developing full-participation. This level of full job participation is directly related to the job function as described by the job description. Full job participation results in job-fit, confidence and improved performance. The above quote also identifies the importance of including formal learning as part of the process of transitioning a novice to an expert. Orientation and induction are foundational elements of the transition. Formality existing within informality is a feature of transitioning.

We need to have someone to have formal training to ensure that that persons can evolve the role to meet its full capacity. (Interviewee D)

Making our orientation more detailed to make them transition easily… (Interviewee D)

The above quotes also support formality in the workplace. To achieve full capacity within the job role, formal training is required. Additionally, orientation is a perquisite to effective transitioning from novice to expert. The complementarity between qualitative and quantitative data regarding orientation and novice to expert transitions may be a factor that establishes generalizability of these findings.

Respondents in the quantitative survey were asked about participating in orientation programs as part of their learning and 60% of the respondents accessed the foundational elements to transition from novice to expert. This complementarity between quantitative and qualitative data validates the findings and provides an opportunity for generalizability. Two different constructs were being measured; novice to expert transition and orientation; the link between these two different constructs deepen an understanding of the significance of orientation in the WPL and skills-formation. Interviewee D was quoted as saying '*It is not supposed to be difficult to transition. The task is learning the organisation and its processes. The transition should not take long*'. The strategy here is learning the organisation. The data implies that organisation fit is a key mechanism for effective transitioning.

Table III How Novices Become Experts

Interviewee A	Interviewee B	Interviewee C
Discussions with experts	Interviews with subject-matter-experts	Collaborative meetings with subject-matter-experts
Having an expert mentor	Expertise is learned on-the-job	Emulate subject-matter-experts
Develop a mind-set of learning	Documenting what you learn from the expert	Refer to what they have learned at university
You have to be willing to be "exploited", it's all about that person's attitude. By exploited I mean taking up the challenges to learn and grow from opportunities thrown at you even if is not stated in your job description. Hard workers are rewarded with more work and more opportunities	*Through years of experience, getting to practice what they learn, if they don't practice they will not become experts*	*Quote by Interviewee C pg. 66*
Interviewee D	**Interviewee E**	**Interviewee F**
Investigative work and preparing reports	Working closely with their manager or senior officers	Interacting with senior persons in the organisation
Conducting research and comparative studies	Mistakes, feedback, trial and error	Formal training on teaching provided after they are hired
Presenting findings on research conducted	Taking positive criticisms	Practical experience
Ask for recommendations from they tend to enjoy that work more than the regular clerical work. Have them present their findings. They tend to gravitate to those things faster.	*They work closely with their manager and other senior officers, by taking positive criticisms and feedback and through trial and error, mistakes.*	*Quote in Table II No.11 (Interviewee F)*

Part of the transition from novice to expert includes a simultaneous journey from youth to adulthood and interviewees were asked to identify how youths made the transition in the workplace. An exploration of this transition will elucidate the

formation of worker identity and the relationship between learning and developing identity will be elucidated. This relationship is aptly described as follows.

> *Given that individuals play an active role in constructing meaning from what they encounter, this suggests that a focus on learning for change, working life, participation in the workplace needs to account for individuals' sense of self and identity, which are both shaped by and shape their agency and intentionality* (Billett & Somerville 2004, p.315)

As young workers participate in CoPs they transition to adulthood and within the process worker identity is developed. The values and attitudes learned by workers described in the interviews include but are not limited to the following: responsibility, accountability and the ability to take ownership. The theme obligations and responsibilities is prevalent throughout the interviews and Interviewee A indicates that '…*I have found that through each person's life experience and what obligations and responsibilities they have, that basically forces them to transition to adulthood in the workplace*'. This data infers that the development of identity as an adult worker is directly related to the obligations and responsibilities associated with the job role. Responsibility for work/production is a critical factor identified by Yandell & Turvey (2005) that represents a movement away from the periphery to participation. As the worker transitions toward full-participation there is a concurrent development of adult worker identity. Additionally, Yandell & Turvey (2005) also identify an implicated shift in power.

Interviewee A shared that culture is a factor that determines speed of transition and indicates the following '*Depending on the culture in the workplace the graduate may transition faster than in another*.

> *In organisations where rules and regulations are enforced they will learn, they can get roped into bad habits and not take the job seriously it depends on the organisation culture* (Interviewee A)

There is also the view that negative values and attitudes can be learned on-the-job by young workers from their older counterparts. The above quote indicates a relationship between the adoption of negative values and habits and organisation culture. Additionally, structural factors in the workplace may have an impact on

the adoption of or disregard for rules and regulations that are necessary for the development of the social characteristics of adults.

Interviewee B describes younger workers as follows

> *…sometimes they are very immature, they learn to be adults by collaborating with adults at work. Sometimes they look down on adults, especially those who are not professionals and who never developed themselves educationally* (Interviewee B)

The above quote implies that immaturity can be overcome by collaborating with adults, and supports Goodwin's (2007) view that young graduates must learn how to participate in the workplace by engaging in new relationships with adult workers. The above quote also implies that workers who developed themselves educationally (graduates) are more appreciative of older workers than their non-baccalaureate counterparts. If interacting with older workers is a central mechanisms for change of habitus, a poor perception of older workers may decelerate the low-skill worker's ability to transition to adulthood.

When asked about the process through which young graduates transition to adulthood in the workplace Interviewee E indicated that exposure to power and politics in the organisation is another way that young workers change their habitus and develop adaptability. The quote below points to a relationship between politics and change in habitus through learning from negative experience. The outcome of such learning is adaptability.

> *Once they are bitten by some power play in the organisation they learn, once they were a victim of a negative experience they tend to learn quickly how to adapt.*(Interviewee E)

While graduates engage in propositional, procedural and dispositional learning (Billett 1993) it is through the latter that they develop acceptable social characteristics of adults. The interrelationships among these three types of learning is identified in the quote below

> *'They interact with the HOD and Deans, through staff meetings, through policy learning and learning proper behaviours expected. Through off site training for young teachers and general guidance from the HODs Deans and Vice Principals…'* (Interviewee F)

Graduates engage in CoPs and interact with Heads of Department (HODs) and Deans; these are adult workers and experts who have had historicity and a number of years work experience as teachers. Graduates obtain knowledge about work from staff meetings, and policy and procedures. They obtain know-how from off-site training and general guidance from adult workers and experts. They obtain values and attitudes that result in adulthood from social interaction with adult workers.. Here we see procedural, propositional and dispositional learning taking place within a CoP and young graduates concurrently developing professional and personal identity as teachers and adults.

What is learned on-the-job

The second objective of this study is to identify the skills that graduates learn on-the-job. Table IV below identifies and organises pertinent information from qualitative interviews. The consensus among the interviewees is that graduates learn a battery of skills on-the-job however, critical to their skills development in the workplace are institutional knowledge, job specific skills, and industry knowledge; three areas that cannot be readily learned while at university.

Noteworthy is political acumen, a skill used when transitioning from novice to expert, and when accessing *scarce resources*. According to Interviewee E, the graduate must learn to fight when resources are scarce. Interviewee A uses words like *cut throat*, *cunning* and *conniving* to describe the graduate in the political context. When asked about what new skills graduates learn through work related activity Interviewee A indicated the following.

> *Survival skills, the survival skills in an organisation that has a culture of strong power relations and is political in nature. They will learn how to be resourceful through networking and how to adapt to varying personalities in order to survive in the workplace* (Interviewee A)

In the previous section Interviewee E established a link between politics and learning to adapt. In the quote above the theme of adapting arises in relation to politics once again. Political acumen requires networking, adapting to different personalities to achieve survival in the workplace. The literature review described politics and power relations as both restrictive or expansive from a structural perspective however, individual agency and the development of the political

acumen skill can ensure survival and access to learning opportunities. However, from a political standpoint graduates learn how to participate in political games and utilise cut-throat, cunning, and conniving behaviours to access participation and learning opportunities.

One of the limitations of this study is that **what is being learned** in the workplace by graduates was not measured in the quantitative instrument, only what is being learnt at university was measured quantitatively. Therefore, no opportunity exists to find convergence or complementarity between the data sets. However, there is a strong similarity between how people learn and what they learn. For example, how graduates learn was analysed in the quantitative instrument and some indicators of how people learn converges with what is leant in the workplace. The quantitative instrument revealed that graduates learn through problem-solving, and decision- making, while the qualitative interviews revealed that these two skills are developed on-the-job. Problem-solving and decision-making are classified as deliberative learning, a learning pattern that includes a learning goal, deliberate acquisition of *new knowledge*, and participation in learning activities where time is set aside for acquisition through analysis (Eraut 2004 p.251). This kind of learning is a metacognitive process that involves '*conscious monitoring of thought and activity; self-management; evaluation* (Eraut 2004 p.260). An assumption can be made that one of the main reasons why graduates access the high-skills route is their ability to engage in decision-making and problem-solving in the workplace both as a learning process and as a skill. How graduates learn also construes what they learn on-the-job and the quantitative analysis revealed that participants learn through feedback, problem-solving and decision-making, self-directed learning and workplace experience, teamwork, learning how to learn, learning strategies, personal strategies, company job aids and documents, internet searches, learning strategies for overcoming work, and learning from mistakes. A brief synopsis of these quantitive findings will now be provided.

Learning through Feedback

Participants rated themselves on how they learn through feedback and four indicators identified in Table 19 were rated. Feedback occurs within social networks where graduates practice. For feedback as a de-motivator only 9%

agreed, and 43% disagreed, 6% strongly agreed, and 25% strongly disagreed. The literature review identified feedback as one of the key mechanisms through which employees learn in the workplace and the above data supports this. Inferences from the questionnaire results are as follows: feedback is a key mechanism through which graduates learn at work, feedback is sought by graduates and functions as a motivator for improved performance. Since graduates are engaged in CoPs at work, an inference can be made that feedback is a key mechanism for the effectiveness of and fuels CoPs. Additionally, while graduates may generally be driven by agency, external motivators like feedback also facilitate the skills-formation process and promote improved performance.

WPL through Problem-Solving and Decision-Making
Participants rated themselves on how they learn through problem-solving and decision-making in the workplace. Opportunities to solve problems and make decisions are indicators of workplace expansiveness. 4 indicators identified in Table 20 were rated, and results concentrated in the agree/strongly agree range. The literature review identified problem-solving and decision-making as key mechanisms through which employees learn at work. The data infers that graduates access learning intensive jobs that provide opportunities to solve problems, recommend and implement solutions, and develop creative ideas. Evidence of Lave and Wengers expansiveness is evidenced in WPL that provides opportunities to problem solve and make decisions. Additionally, participation in decision-making suggests that respondents are engaged in full rather than peripheral-participation. It is the ability to engage in CoPs that results in the development of problem-solving and decision-making skills.

Self-Directed Learning and Workplace Experience
Participants rated themselves on self-directed learning and work experience, and 5 indicators were rated in Table 21, where results concentrate in the agree/strongly agree range. The literature review identified self-directed learning as one of the key mechanisms through which graduates learn in the workplace; the survey results supports this. Additionally experts rather than novices engage in self-directed learning (Daley 1999), which is intrinsically motivated (Harteis *et al* 2005), this infers that most survey respondents are no longer novices and are agency focused. From the results the following inferences can be made:

graduates are self-motivated and engage in self-directed learning, agency factors are not sources of demotivation, graduates continue to utilise resources from formal education while in the workplace as part of their learning, and graduates consult external sources outside of company job aids. Overall this data infers that working and learning are inextricably linked and supports Lave (1993) view that there is no separation between working and learning.

Learning Through Teamwork in the Workplace

Participants rated themselves on learning through teamwork in the workplace and 4 indicators identified in Table 22 were rated with results in the agree/strongly agree range. Within a CoP there are opportunities to engage in teamwork, which can be differentiated from CoPs in that the team has specified objectives and a definitive end date, but the CoP continues to function as an informal social network of expertise dissemination and sharing. CoPs therefore facilitate teamwork and the data infers that: understanding team norms is a critical aspect of learning in the workplace as part of a team, accepting and providing feedback to team members is required for effective team working, feedback and teamwork are two different ways to learn at work that are inextricably linked, and some tasks in the workplace are team-based therefore, teamwork is an essential part of both learning and performance. Teamwork can take place within the context of CoPs and provide structured opportunities for participants to discuss and collaborate on specified organisational goals and objectives. The opportunities for developing expertise through CoPs when teams are assigned specified objectives provides another mechanism for novices to transition from the periphery and attain full-participation. The interplay between structure and agency here is rich in that the organisation provides the goals and objectives and the individuals engage in expertise development which culminates in individual and organisational performance.

Learning Strategies in the Workplace

Participants rated themselves on 5 learning strategies and results are captured in Table 23. Responses are in the agree/strongly agree range. The results indicate that graduates learn on-the-job by completing new tasks and applying past experience, collaborating with others, attending formal meetings, and

observing how others work. This data infers that social interaction with others is a key mechanism through which learning occurs on-the-job

Personal Strategies for Learning at Work

Participants rated themselves on 3 learning strategies and results are captured in Table 24 mainly in the agree/strongly agree range. The data indicates that learning by doing requires taking notes which is also a practice prevalent in formal education. This data clearly identifies that interconnectedness between working and learning identified by Lave. Generic formal education practices are incorporated into learning-as-participation. Practising a task results in improved knowledge and competence, and keeping a personal collection of reference material is a practice that aids in WPL; therefore, explicit knowledge in the form of reference materials supports the WPL process. Personal learning strategies require the utilisation of both tacit and explicit knowledge as well as formal and informal learning practices. Explicit knowledge from academia is combined with tacit knowledge from practice and translated in know-how and skills-formation.

Learning through Company Job Aids and Documents

Participants rated themselves on four learning strategies. Results are captured in Table 25 where results concentrated in the agree/strongly agree range. The data reveals that explicit knowledge in the form of company job aids, reports and other documents support the WPL and skills-formation process. Executing and monitoring work tasks are stimulated by performance management practice and there are structure factors in the organisation that stimulate motivation to perform (e.g. reward and recognition). All the questions identified in Table 25 show the involvement of structure that enables agency. These are characteristic of an expansive work environment that can promote full-participation and leads to the development of expertise. Company procedures, performance management system, reward and recognition initiatives, company reports and documents facilitate the transition to full-participation however, agency and is required to take advantage of these company provided initiatives.

Learning through Internet Research

Participants rated themselves on 4 indicators of learning through the internet, results are captured in Table 26 and results concentrated in the agree/strongly agree range. Inferences from the questionnaire results are as follows. CoPs are

not the only mechanism through which expertise in developed in the workplace. Internet research is a critical part of acquiring know-how and facilitates procedural and propositional learning. Learning through self-education is a critical aspect of WPL. However, the CoP provides an opportunity for dialogue and the translation of explicit to tacit. While at work the graduate continues to engage in self-directed cognitive oriented education and by engaging in CoPs can translate this knowledge into know-how.

Learning Strategies for Overcoming Challenging Work
Participants rated themselves on 4 indicators of learning to overcome challenging work. Respondents' answers are captured in Table 28 and results concentrated in the agree/strongly agree range. Inferences from the questionnaire results are as follows. Overcoming challenging work is both self-directed and collaborative. The graduate must engage in both cognitive dominated and social learning activities to overcome challenging work. The CoP provides the opportunity for collaborating through social learning. Access to explicit knowledge is a critical input in overcoming challenging work. Both self-education and social learning are critical aspect of overcoming challenging work. From the data this research infers that when cognitive self-education and social learning are combined, these two mechanisms strengthen the CoP's ability for renewal with current explicit inputs and expertise development through tacit outputs. Knowledge-creation and dissemination are key functions of the CoP.

Learning from Mistakes
Participants rated themselves on how they learn from mistakes, 4 indicators and results are captured in Table 30 below. For seeking to cover up mistakes 54% disagreed, and 36% strongly disagreed. For taking steps to correct errors 58% agreed, and 39% strongly agreed. For taking a mental note of how the error occurred to ensure that it does not happen again 54% agreed, and 41% strongly agreed. For making mistakes when they learn by trial and error 46% agreed, and 15% strongly agreed. Participants in this study agree that they learn on-the-job by making mistakes, and corroborates with the discussion in the literature review. Since over 50% of respondents in this study perceive themselves as experts an inference can be made that both old timers and newcomers make mistakes. Mistakes made within CoPs/activity systems and are opportunities for learning.

However, learning occurs when steps are taken to correct errors. Prevention of repeat mistakes requires mental identification of the error and how it occurred. Trial and error is a requirement for learning new tasks therefore, making mistakes when performing tasks is a fundamental aspect of WPL. Since the CoP is a knowledge sharing community, covering up mistakes will militate against participants learning from the mistakes of others. Mistakes made by trial and error can occur with newcomers or possibly when an expert is learning a new task or procedure. Additionally, taking a mental note of the error can only facilitate the learning within a CoP if it is explicitly shared. Even within CoPs both tacit and explicit information must be shared in developing expertise.

Table IV Skills Learned on-the-job

Skills Learned at University		
Job Specific Skills/ Know How	Patience	Technical Skills
Institutional Knowledge	Emotional Intelligence	Executing Skills
Decision-Making	Business Acumen	Political Acumen
Problem-Solving	Organisation Awareness	Project Management
Communication Skills	Relationship Management	Planning and Organising
Survival Skills	Strategic Outlook	Adaptability
Conflict Management	Intrapersonal Skills	Report Writing
Crisis Management	Time Management	Industry Knowledge
how to be cut throat cunning conniving calculating (Interviewee A)	*They learn the real stuff, they learn principles and models at school but in the workplace they learn the way things are done around here… In the workplace they learn know-how (Interviewee B)*	*The environment is different to a university, coming into the workplace they learn to have relationship with colleagues, how to navigate through that in the workplace. They learn business acumen and organisation awareness, how the business works, policies, procedures and core value of the organisation. They have to adjust to becoming someone that the organisation would value (Interviewee C)*
Decision-making is something learned on-the-job. Even though you have theoretical knowledge you will learn this on-the-job. The risks involved and the exposure will be learned. Also the technical knowledge of the job (Interviewee D)	*They learn how to do job specific duties and how to handle conflict, survival skills, and power and politics. By power politics I mean learning how to fight for scarce resources. (Interviewee E)*	*Classroom management, teaching, lesson planning, curriculum delivery skills, disciplining students, assessment, testing, marking and time management(Interviewee F)*

High or Low-Skills Route: Bachelor versus Non-Bachelor

This section provides an overview of the differences between baccalaureate and non-baccalaureate performance in the workplace. This section supports Skule's (2004) work that elucidates a link between high-skills-formation and university education. Generally interviewees' believe that the graduate employee has '*a level of analytical and reasoning skills that will help them grasp certain concepts*

faster'. Interviewee D said that '*We need to have someone to have formal education to ensure that persons can evolve in the role to meet its full capacity'*. This suggests that roles or positions have a capacity and the issue of full capacity for some roles may not be achievable without formal education. Table V below identifies the differences between a baccalaureate and non-baccalaureate worker derived from the interviews.

Interviewee F indicated that the Ministry of Education (MoE) hardly recruits teachers without a degree except in specified technical and vocational areas. The education sector in the nation is seeking to establish high performance among teachers by increasing the recruitment and permanency requirement in this field.

> *The Ministry of Education recognised that the minimum requirement to teach a secondary and primary school is a baccalaureate degree. Only baccalaureate graduates can enter teaching, however in the past someone with 5 O'Levels or A' Levels could be a teacher. (Interviewee F)*

To substantiate the above claim made by Interviewee F, an article from the T&T Guardian Online, identifies the then Chairman of the Teaching Service Commission (TSC), Hyacinth Guy, saying the following.

> *"You lift the standards through the selection process by setting bars. The ministry has already indicated that teaching is to be viewed as a profession and every teacher, whether primary or secondary, needs to have a university degree." Guy said a teacher could no longer enter the service with five CXC O-level subjects. "You cannot be made permanent anymore with five O-levels. You can be hired temporarily but you will not be made permanent until you have that degree," she said. The TSC and the MoE are collaborating to make these changes a reality, she assured (R. Rambally 2011)*

The TSC and MoE has sought to raise the bar on primary and secondary education by upgrading the recruitment and permanency requirement for teachers from Caribbean Examination Council (CXC) O-levels to a degree. The Chairman of the TSC indicated that the outcome of this upgrade, among other changes is '*high performing schools in the country through teachers who have the talent to lead schools'* (R. Rambally 2011). This implies a link between baccalaureate education and high performance.

Conversely, Interviewee F provides another perspective and indicates that

> *A bachelor student and a non-bachelor student makes no difference to being a teacher. Sometimes you find that a teacher with A levels better than a teacher with a degree and vice versa. Sometimes younger people are better at teaching since they are more familiar with the teaching curriculum. The only way a teacher can really teach is when they learn to do so on the job. Teachers however who have completed the training at the Teachers Training College can hit the ground running as a teacher (Interviewee F).*

Interviewee F believes that other characteristics beside the degree produces a high performing teacher. Interviewee F indicates that the crux of a high performing teacher is teacher training and formal education specifically in teaching. Having a degree in a generic subject area does not prepare one to teach, a degree in teaching better equips the teacher to teach. This information reveals that relevancy of the degree to the job being performed is key to skills-formation and performance. When Interviewee F was asked about prior skills that graduates transfer to the workplace the following information was shared.

> *Knowledge content only. They are not trained for the job. Only those who have taken a course or two in education come with skills. Half of them we wish to send back as they have low employability skills (Interviewee F).*

This implies that knowledge content in a subject area does not prepare a teacher to teach. Only knowledge content in teaching makes a difference to teacher performance. From this discussion it can be concluded that formal education and training in a specific field directly related to the job results in skills-formation that leads to high performance. Additionally, an assumption can be made that prior knowledge from education that is specific to the current job will have a positive impact on the transition from novice to expert. According to Interviewee F '*If it is not within their field of study they would have to depend on a good mentor or coach'*. A degree that provides the knowledge directly related to the job will result in faster transition from novice to expert. Universality can be established as this finding corroborates with those of (Collin & Tynjala 2003) where those students engaged in work where university knowledge could be directly applied saw a seamless link between theory and practice.

While a high-skills route can be accessed through the acquisition of a degree, formal training while on-the-job is also a significant contributor. Additionally, the relevance of the degree to the job being performed may affect skills-formation, performance outcomes, and the transition from novice to expert. There are certain roles and positions within an organisation that employees who do not possess a degree will not be able to access or perform effectively in. The low-skill worker when compared to the graduate lacks the ability to participate in self-directed learning, problem-solving, and takes a less structured approach to learning.

Table V Differences between a bachelor and non-baccalaureate worker

No	High-Skill Worker	Low-Skill Worker
1	Quick Learners	Require hand holding
2	Communication competence both orally and written	Limited communication skills
3	*The bachelor student is able to participate in problem-solving (Interviewee A)*	Cannot problem solve depends on the Supervisor or Manager
4	*The bachelor student would have more potential for growth within the organisation… the bachelor student would be able to be used in a future role and develop into a future promotion in the company (Interviewee A)*	Limited potential for growth and meeting the fullest capacity of a role or job function
5	The degree students try to fact find more than their counterparts, the conduct research and learning is more self-regulated	Less self-directed and self-regulated
6	I believe that the bachelor student learning capacity and capability allows them to function better. By function better I mean complete the tasks in a more satisfactory way. They can do a letter better than someone who does not have a bachelor degree.	Poor writing skills
7	Baccalaureate graduates set the tone. They hold the higher paying jobs so they are the standard that less qualified employees see. Less qualified employees see a new standard that they can emulate if they want to. Less qualified employees sometimes hold supervisory and in rare occasions managerial positions. The baccalaureate graduate's impact on them is their desire to enrol in a degree program to improve their skills.	Dependent on others to help them
8	The have a more structured approach to learning, they will put together a method to determine how they will learn something. They will try to fact find on their own rather than depending on others to help them.	Less structured approach to learning

The Invitational Workplace

Interviewees were asked how they could make their workplaces more invitational from a learning perspective and all interviewees focused on structural elements in the organisation. Table VI below identifies responses from the interviewees. The idea of an invitational workplace was purported by Billett who indicated that '*… the invitational qualities of a workplace are constituted by factors associated*

with its norms and practices and directed to secure its continuity' (Billett 2004, p. 5). Organisational leaders are required to [*structure] learning experiences* if they are expected to continue (Billett 2004, p. 5). There is no guarantee that certain ad hoc practices will provide accessibility and continuity. Therefore, the intentional development of a structured WPL pedagogy should yield the invitational workplace (Billett 2004). Interviewee D alluded to this when discussing perceptions of WPL as '*critical to the workplace given the fact that it is how you can come up with succession and continuity in the company'.* The managers in this study identified several factors that would cause their organisations to become more invitational.

- Structuring learning and formalising through the use of technology and eLearning, planned rather than ad hoc learning
- Training managers to adopt the role of trainer rather than just monitor
- Reducing the number of underqualified recruits
- Buy-in from the head of the organisation
- Budget for and introduce formal training programs
- Develop a structured approach to recruiting and developing graduates
- Set compensation thresholds that allow graduates to attain higher salaries that their non-baccalaureate graduates in the same job
- Implementing structured orientation programs and providing up to date policies and procedures as part of the learning curriculum

The above recommendations underscore the regulation of WPL and would promote the continuity of the business (Billett 2004) resulting from HE learning. However, Billett (2004) warns against the vagaries of regulating WPL as it is political in nature and may serve the interest of some over others.

Table VI The Invitational Workplace

Interviewee	Quotation
A	*By having technology available in terms of ICT, most bachelor students are invited by this, having eLearning and by recruiting persons of the same calibre. If there are underqualified persons working with you, you can become uninterested because you are not learning anything from them, they are less qualified and you are not challenged.*
B	*…we need to let graduates know that we are willing to train them and develop them. We can have a more structured approach to attracting and developing graduates. We need to move away from ad hoc learning to a more structured way of developing our employees. More planning is required*
C	*Get buy in from the general manager to introduce training programs and to introduce a program to formalise WPL. We need a budget and we need buy in from the head of the organisation.*
D	*If we set up formalised aides. Making our orientation more detailed to make them transition easily. Our procedures must be updated and available to the new employee. The job processes should be in place. Providing online learning, career paths outlined. These are things that will make work more invitational.*
E	*Rewarding for accomplishments, rewarding through monetary and recognition. By paying for qualifications this would help. Pay the person for his degree in a higher range, let the persons who earns the degree get higher wage than the person doing the same job without the degree.*
F	*By training the management team to see themselves as having a training role as opposed to just monitoring*

WPL and Activity Systems

Earlier in this chapter a quote by Interviewee E provides evidence of activity systems within a public sector organisation, where activity systems more so than CoPs, are engaged in Engestrom's (2001) boundary crossing, and learning to adapt to new patterns of activity, and the formation of new relationships. To be effective the interviewee must engage in '*knotworking'* with Port Authorities, the Industrial Court, and other governmental institutions to achieve success. Evidence of activity systems is also identified in the undermentioned quote by Interviewee F.

> *I have learned the specific legal requirements regarding staff relations, legal requirements for interacting with staff and students and disciplining staff. I learn the intricacies of reporting to the Ministry of Education. Managing the term as a project. Approaching my leadership role from a project position where the project has a beginning middle and an end. I have learned to have projects and sub projects within the school term to effectively lead. I have also learned human development, staff student and community: we need to analyse student and teach needs and implement strategies, training to bring them up to what is necessary. Teacher assessment is important for teachers to do their jobs correctly (Interviewee F).*

This interviewee is engaged in a leadership role and a triad relationship among the school, the MoE and the community in which the school exists.

Respondent D answered the question on the types of learning experiences offered on-the-job by saying the following

> '*It depends on how the employee perceives it. They can go beyond the scope of the job. Going to meetings, interacting with peers, customers, and internal stakeholders. Solving customer complaints are opportunities for learning. Having a mentor relationship is good. If the organisation puts forward a formal mentorship program the opportunity is there.*' *(Respondent D)*

Here respondent D describes an employee engaged in a triad that includes meetings with peers, customers and internal stakeholders. Two different strategies are identified here, an employee engaged in a mentorship relationship which can be explained through CoP and the employee engaged in an activity system where learning about solving customer complaints requires boundary crossing into the domain of the customer. There is opportunity to participate in both CoPs and activity systems in organisations. Young's conclusion when applying activity systems in VET is instructive. Applying expansive learning is situational and not all learning environments or workplace situations require transformational learning (Young 2001). An assumption can be made that what is learned through mentorship and what is learned through engaging in activity

systems are different and how it is learned may also differ. Here we identify problem-solving as a mechanism to solving customer complaints. Respondent D also shared '*networking, use internal and external networks*' which is a pattern adopted by baccalaureate graduates to learn on-the-job and the view is consistent across all interviewees. This theme of learning through internal and external networks threads throughout the interviews and supports the usefulness of both CoPs and activity systems as learning theories that can be syncretised in explaining the WPL and skills-formation phenomena among baccalaureate graduates in T&T. The table VII below identifies CoP and activity systems identified by the responds participating in the interviews.

Syncretised Model Applied

Both CoP and activity systems articulate together to explain WPL learning among baccalaureate graduates. On the one hand the participation model of CoP shows the transition from novice to expert but cannot explain the '*expansive learning process associated with major transformations in activity systems*' (Engestrom 2001 p.142) Rather than draw on two separate models to explain the process of learning from individual to organisation, from agency to structure, from novice to expert, and move toward expansive learning linked to organisational transformation, this research has combined the two models. Learning is a continuous process and the same individuals that engage in apprenticeship and mentorship structures also engage in activity systems that result in both individual and OL. The skills-formation process is driven by individuals transitioning within CoPs and activity systems often simultaneously, that creates OL. What is learned at university is transferred to the workplace. However, what is learned in a CoP is often transferred into an activity system and vice versa. Transfer of learning does not stop and with each new situation learning continues. Quotations from the interviews were placed in the syncretised model in Table VII which will now be explained in greater detail. At the end of each quotation the letter R represents respondent and the following letter represents the interviewees' letter code. For example RA is respondent A.

Table VII Syncretised Model of CoP and Activity Systems

	Communities of Practice as a Unit of Analysis	Activity System as a Unit of analysis	Multi-Voicedness	Historicity	Contradictions	Expansive cycles
			Shared Repertoire, Joint Enterprise, Mutual Engagement			
Who	I learned about the business through Supervisors from various departments, I learned about how they do HR Administration through my subordinates (RA) having a good mentor, having an expert as your mentor (RA)	learning about IR with discussion with IR experts (RA) meeting with a lot of senior persons at the Ministry of Transport, being a part of senior management I was often nominated to attend numerous symposiums (RA)	form a group to brainstorm and problem solve (RA) … more open and receptive to doing new things, they are more confident and share their ideas freely they are not inhibited. Those persons will be more vocal in meeting and more prone to share an idea(RC)	However there are persons who do not have a bachelor and may have institutional knowledge. Such a person may perform better than someone with a bachelor degree(RD) Over time they become experts in the field. Get them into investigative work, doing reports, making recommendations, get them to do research and comparative studies (RD)	They will learn how to be resourceful through networking and how to adapt to varying personalities in order to survive in the workplace. (RA) For older graduates, they are the drivers of the organisation, they are on the forefront and the frontline making things happen whether positive or negative(RE)	The impact will be the ability to take organisation forward to implement changes best practices(RD) It creates a competitive environment. It causes other persons to step up in the sense that they see an opportunity to remain engaged or become change agents in the workforce(RD)
What	learn more about the business, the business model (RA)	I have learnt how to conduct a disciplinary hearing, how to go through the stages of progressive discipline so that when an issue reaches to the Ministry of Labour or Industrial court we have done right. I have learned by working with the IR Consultant, doing research and going to formal training programs with the ECA.(RC)	… learning through interactions with your superiors or persons who have been in the field for a longer time(RD) Sharing ah hah moments, design the work environment in such a way that the work is achieved as a team. Therefore when one person or any member of the team learns something they feel more obligated to share this with other members of the team (RA)	The opportunities emerge from the crises. This is where sharing and networking comes in, you have to network. As you develop you develop a crisis bank of solutions. If the crisis comes again the reaction will not be unskilled or amateur but experienced (RF)	They learn how to do job specific duties and how to handle conflict, survival skills, and power and politics. By power politics I mean learning how to fight for scarce resources(RE) [In] the workplace they learn to have relationship with colleagues, how to navigate through that in the workplace. They learn business acumen ,organisation awareness, how the business works, policies, procedures and core value[s] … They have to adjust to becoming someone that the organisation would value(RC)	…it is how you can come up with succession and continuity in the company. This is how you maximise the vision of the company (RD) Through regular meetings with staff, toolbox meetings (before workmen start work talk about incidents that occurred the day before, new systems information sharing, updates on new processes.

	Communities of Practice as a Unit of Analysis	Activity System as a Unit of analysis	Multi-Voicedness	Historicity	Contradictions	Expansive cycles
			Shared Repertoire, Joint Enterprise, Mutual Engagement			
Why	*WPL offers you experience as well, it causes you to gain experience in a field, you become more competent more knowledgeable and more marketable(RC)*	*They learn job specific skills, e.g software and processes. The learn how to survive in new situations on-the-job. They learn organisational skills. By this I mean the ability to organise their work and their tasks, to keep on top of their work load(RE)*	*To do presentations, act in senior positions, to represent the organisation externally, participate in internal training(RE)* *It is not supposed to be difficult to transition. The task is learning the organisation and its processes. The transition should not take long(RD)*	*The experience gained as they work over the months and years, the competencies developed, in terms of performance management, being excellent performers with high ratings, ...all these things help to bring them to that level of adulthood(RC)*	*The baccalaureate student would be able to accept any challenge and try to prove their worth(RE)*	*it encourages staff to continue learning and thereby improve the organisation (RE)*
How	*trial and error, and prior work experience (RF)* *standard operating practices (RF)*	*Principals, Vice Principals, Heads of Departments, and Deans conduct formal and informal training in the workplace with baccalaureate graduates (RF)* *The Curriculum Officer meets with them and this is an external person. Meetings with the HOD, VP, Dean and Principal. Principal has an informal chat with them to find out how they are going(RF)*	*This is done through department meetings and clinical supervision (RF)* *Departments have their own meetings which would allow employees to contribute at that level. Debrief meetings provide opportunities as well(RE)*	*A lot of meetings, brain storming, learning through mistakes, policies and procedures which are documented and they also have shared drives which is accessible to persons across the organisation so you can learn about other departments(RE)* *Recording i.e; keeping documents and records of everything that is done so that they could refer to it for future reference. If they are a member of a professional body they will refer to source information that they have.(RE)*	*I learned payroll, what not to do in industrial relations, I learned a lot about protocol and government regulations. I learned to adapt to a highly political environment.(RE)* *They work closely with their manager and other senior officers, by taking positive criticisms and feedback and through trial and error, mistakes(RE)*	*The managers try to implement strategic initiatives to impact the company's productivity and profitability. We are few in numbers, our impact is good but would be great if we had more qualified people working at the operational level. The organisation would perform much better if we hired more qualified people. We have to rewrite letters produced by supervisors and some managers.(RC)*

	Communities of Practice as a Unit of Analysis	Activity System as a Unit of analysis	Multi-Voicedness	Historicity	Contradictions	Expansive cycles
			Shared Repertoire, Joint Enterprise, Mutual Engagement			
Where	*It is not that difficult, as long as it is within their field of study. If it is not within their field of study they would have to depend on a good mentor or coach.(RE)*	*At work and through interaction with internal and external stakeholders (RE)* *I learned specific duties of the job, and I learned it from the HR Manager and colleagues in the HR fraternity outside the organisation.(RE)*	*Learning is continuous and interacting with different stakeholders in the organisation, there are always opportunities for learning not just in your own area but the wider organisation as well(RD)*	*For example projects take place through the entire organisation and you learn by participating in them(RD)*	*Once they are bitten by some power play in the organisation they learn, once they were a victim of a negative experience they tend to learn quickly how to adapt (RE)* *They learn how to survive in new situations on-the-job(RE)*	Community Memory
When	*learning through interactions with your superiors or persons who have been in the field for a longer time.(RD)*	*learning about IR with discussion with IR experts (RA) meeting with a lot of senior persons at the Ministry of Transport, being a part of senior management I was often nominated to attend numerous symposiums (RA)*	*They work closely with their manager and other senior officers, by taking positive criticisms and feedback and through trial and error, mistakes(RE)* *Sharing information, focus groups, committee meetings, steering meeting, cross functional teams and team meetings. We are able to transfer learning through those things(RD)*	<u>Adulthood Comment</u> *Baptism by fire…responsibility and accountability, they learn to take ownership, they have someone to account to. They have to grow up fast especially the responsibility of it. Some jobs don't take the time to hold your hand for very long (RD)*	*Once they are bitten by some power play in the organisation they learn, once they were a victim of a negative experience they tend to learn quickly how to adapt (RE)*	Community Memory

The **who dimension** of learning captures workplace learners in both CoPs and activity systems at different and simultaneous points in their WPL journey. Having an expert as a mentor captures the CoP unit of analysis and learning as part of a boundary crossing triad with participating internal and external stakeholders encapsulates the activity system as the unit of analysis. The four additional principles of multi-voicedness, historicity, contradictions, and expansive cycles are part of the WPL learning journey and can be seen as part of the transition from learning in a CoP to learning in an activity system. The novice engaged in the CoP is also engaged in multi-voicedness as they participate in groups, share ideas, hear others ideas, and become more vocal in meetings. The principle of historicity is seen here as providing an opportunity for non-baccalaureate graduates to develop institutional knowledge over time and the competence level to even out-perform a baccalaureate graduate. However, the baccalaureate graduate over time is able to develop and become experts in their field. Contradictions in the example above takes the form of organisation politics which plays a pivotal role in organisation change and transformation. The literature review identified power and politics resulting in either restrictive or expansive outcomes for the organisation. Power and politics are artefacts that create contradictions or '*structural tensions'* and if the status quo is challenged too strongly learning is curtailed. The opposite outcome is that new ideas emerge through power and politics occurring within learning which leads to expansive cycles. The organisation can transition forward and best practices implemented. The creation of a competitive environment keeps the expansive cycle renewable as employees remain engaged as change agents. The who dimension of learning includes both the employee and the organisation, however, the industry learns as well through boundary crossing and the shared repertoire, mutual engagement and joint enterprise among stakeholders from different organisations. This is an area that warrants further research.

Table VII above also captures the **what dimension** of learning: in a CoP participants learn about the business, and in an activity system learning is more expansive including social interaction among internal and external stakeholders. Both organisational and industry awareness are being learned in the activity system and learning is more expansive as participants engage with stakeholders

externally. Historicity in this instance lends itself to the development of crisis management, where over time a crisis bank of solutions is developed. The **what dimension** also captures power and politics as a form of contradictions where learning political acumen, and becoming someone the organisation values is the focal point. Through structural tensions embedded in organisation culture the individual develops identity and connection with organisation values. Expansive cycles are developed over time and this promotes succession, business continuity, and new processes.

Table VII also captures the **why dimension** of learning: the why in a CoP and an activity system includes experience, competence, being knowledgeable and more marketable. Survival is at the crux of learning in this example as new situations are presented and keeping on top of your work through competence in organisation skills is key. Here multi-voicedness promotes learning and the participants are conducting presentations, representing the organisation externally, and internally. Organisational tasks and processes are understood and the speed of learning is increased. With historicity comes a transition to adulthood where over time experience, competence and performance improvement is acquired. While contradictions exist they are seen as challenges to prove one's worth, a literal *driving force of change in activity* (Engesrom 2001 p.133). The expansive cycle is the collective continuous learning and organisational improvement.

Table VII above also captures the **how dimension** of learning: the how in a CoP is trial and error, prior work experience, and through artefacts of standard operating procedures. Activity systems encapsulates experts conducting formal training and engaging in meetings. These activity systems comprise persons within and outside of the organisation. Multi-voicedness is promoted through department meetings, clinical supervision, and debrief meetings. Historicity is evidence over time with documentation of new or modified artefacts; explicit knowledge in the form of policies and procedures is developed through consistent brain storming. Historicity is also evidenced in the use of shared-drives where explicit knowledge is accessible as learning tools and artefacts. Over time tacit has been translated into explicit through record keeping used as reference material. Some contradictions that occur in the how dimension include taking

positive criticism, and learning to adapt in a highly political environment. Expansive cycles may or may not occur in organisations and in this example we see managers trying to implement strategic initiatives, and improve company productivity and profitability, however the lack of qualified people engaged in CoPs and activity systems could severely affect success. How learning takes place in organisations is significant and the structure element could severely impede an organisation from achieving expansiveness and transformation.

Table VII above also captures the **where dimension** of learning. Learning occurs within the CoP and the activity system. In the CoP learning occurs through coaching and mentoring and with an activity system by engaging within the organisation and boundary crossing. The opportunity to engage in multi-voicedness is identified where there is interaction across the organisation not just in one area or department. Participating in organisation-wide projects *needs to be analysed against the history of the local organisation*, and global and *local procedures and tools employed and accumulated in the local history* (Engestrom 2001 p.137). Contradictions exist where participants learn to adapt quickly through negative experiences arising from power and politics, and learning to survive when new situations arise. As was identified earlier the potential for expansive cycles will be affected by the intensity of power and politics and the extent to which the status quo is challenged, and the composition of qualified to non-qualified staff within the organisation's operations. Expansive cycles are triggered by shared repertoire accessed through community memory. Earlier in this research the benefits of the community memory and its relationship with shared repertoire was identified (Nonaka & Takeuchi, 1995 in (Schenkel & Teigland 2008). This research purports that an added and critical benefit of community memory is expansive cycles.

Finally, Table VII captures the **when dimension** of learning with the six principles at work from CoP as a unit of analysis to expansive cycles. When young workers take responsibility and accountability they are able to transition to adulthood. This is embedded in historicity as they take time to learn norms, rules, roles and responsibilities. Multi-voicedness is captured through Interaction with older workers, mentors and the feedback process required creates the opportunity for transition to be effected. Young baccalaureate graduates engage with experts

and existing workers within the organisation through mutual engagement, joint enterprise and shared repertoire. They engage in dispositional, propositional and procedural learning to make the dual transition toward expertise and adulthood, becoming the kind of employee the organisation values that forms part of the company's history. They develop new skills through contradictions and can collectively participate in community memory leading to expansive cycles within the organisation. This encapsulates '*learning as construction*' and the '*transformative potential*' of expansive learning.

Summary

This research sought to achieve five objectives, the first was to identify skills that graduates learn at university. This data revealed that graduates take a high-skills route underscored by the acquisition of professional jobs. The second objective was to identify skills that graduates learn on-the-job. The research revealed that learning on-the-job through CoPs and activity systems provided skills that were directly related to productive activity and focused on know-how while learning as a student in tertiary education was more theoretical. The third objective was to identify the mechanisms through which graduates learn on-the-job. They are self-directed learners who learn through feedback, teamwork, problem-solving, decision-making, making mistakes and avoiding them. They apply learning and personal strategies to develop job-specific skills and overcome challenging work. Mastery of the full job however, requires the workplace to inject formal training and structured workplace opportunities to achieve success.

The fourth objective was to identify how novice graduates transition to experts and the key ingredient for effective transitioning is access to an expert through a CoP. Some of the other factors that contribute to an effective transition include learning intensive work opportunities, access to situations that allow for dispositional learning, formal training, and developing a mind-set of learning, the cognitive and social domains are both required in the workplace. Participating in a formal orientation was identified as a key factor for effective transitioning. Additionally, the transition to adulthood was encapsulated in the transition to expert and the factors that promote or impede maturity were identified. It is mainly through dispositional learning that the graduate develops the social skills that

promote their change in habitus and the ability to transition to adulthood. The fifth objective focused on identifying organisational (structure) and individual (agency) factors that promote or impede effective WPL and skills-formation. The research revealed that both structure and agency factors affect the skills-formation process however graduates are hardly affected by agency factors when compared to their non-baccalaureate counterparts. Graduates possess the ability to develop skills and perform in spite of restrictive structural practices in the organisation. Full-participation can be achieve in spite of organisational restrictiveness. Non-baccalaureate graduates however are affected by both agency and structure more so than their counterparts.

Perceptions of WPL were elucidated from the qualitative interviews and described as an essential mechanism for skill-formation. Both formal tertiary education and informal learning is required for high-skills-formation, this was identified in both the quantitative and qualitative data sets, however WPL requires additional inputs of formal learning in the form of training to obtain full mastery of the job. The graduate continuously translates explicit to tacit, and tacit to explicit knowledge as part of the skills-formation process and learns through accessing organisational policies and procedures, and translating them into a form that can be understood and applied to the current situation. The graduate codifies information through note taking, thereby translating tacit knowledge from experts into explicit knowledge that can be understood individually and applied situationally.

The learning preferences of interviewees converge with methods of WPL identified in the literature review and the quantitative questionnaire. There is convergence between quantitative and qualitative data regarding the ways graduates learn. Access to WPL opportunities are determined by both structure and agency. Graduates identify opportunities embedded in work itself where 'massive opportunities' are available at the beginning of a new job; this is an agency perspective to opportunity. Another view is that organisations should provide structured opportunities like orientation programs, and special work assignments. There must be congruence between employee and organisation perception of opportunities since opportunities perceived as punishment by the employee are counterproductive. There is a link between WPL opportunity and

performance as the former increases as performance improves. Higher performance yields greater access to WPL opportunities. Equality of WPL opportunities is dependent on structure rather than agency and organisations with orientation programs can provide expansive work environments with widespread accessibility. The data suggests that both the individual and organisation have a responsibility regarding WPL opportunities. Individuals access opportunities based on their perception of work and their performance.

There are agency factors that inhibit WPL which are identified in Table II. Lack of motivation, poor academic background are two key factors that impede the WPL process however these two factors scored very low among the respondents in this study. It appeared higher in non-baccalaureate graduates elucidated from the interviews. There is convergence between the quantitative and qualitative findings in this regard. As novices transition to expert, structure rather than agency affects skill-formation. However, the research revealed that restrictive structural factors can be overcome by agency through performance. To obtain mastery, training and opportunities to gain experience in all aspects of the job is required. The outcome could be partial mastery with competence in only some aspects of the job. Orientation programs also provide significant support in the early part of transitioning from novice to expert.

The transition to adulthood is encapsulated in the transition to expert and dispositional learning is key to developing the relevant social skills to become an adult. Perception of older workers may accelerate or decelerate the graduates' propensity to transition to adulthood. Young workers participate in CoPs which by their very nature are political, therefore, they engage in the political dynamics of the organisation and learn how to fit in. While this research focused on graduates, the qualitative data provided an opportunity to compare them with non-baccalaureate workers. This helps to establish the legitimacy of the high-skills route resulting from possession of HE. However the qualification alone does not necessarily lead to a high-skills route, relevancy of the degree program to the job being performed and access to formal training are also a critical factors in accessing a high-skills route. Factors that lead to an invitational workplace were identified by interviewees and structure rather than agency will allow for the development of the expansive workplace that promotes business continuity. An

invitational workplace is founded in workplace regulation which, though political in nature, must take a balanced approach to serving the interest of the workers and the organisation. While there was evidence of CoPs throughout the research, activity systems were also identified in action.

Theoretical syncretism is the foundation of this study where both CoP and activity systems articulated together to provide one conceptual framework from which WPL and skills formation among baccalaureate graduates in T&T could be understood. While this study discounted the human cognition as the unit of analysis as it could not provide the link between working and learning, the transfer of learning gained from academia was seen as instrumental in accessing a high-skills route especially in the earlier years of the graduates WPL experience. The purpose for combining these two theories was founded on the premise that neither could fully explain WPL in its entirety. Some learning environments or workplace situations did not warrant the transformational element of learning (Young 2001). Some workplaces required simpler interventions where there are '*no existing relationships to transform'.* The syncretised model provides a comprehensive picture of WPL and skills formation and fills the gaps identified in each model when applied in silos.

CHAPTER SIX: WPL and Skills-formation in Practice

Introduction

This research sought to elucidate the relationship between WPL *and skills-formation among baccalaureate graduates in T&T*. The focal point of this study was to explicate the impact of WPL on skills-formation specifically among graduates. This chapter identifies key dimensions of WPL that were measured in and their relationship to theory and methodology. A review of all the chapters is provided, empirical findings from the qualitative and quantitative data elucidated, and synthesis with concepts identified in the literature review discussed.

WPL dimensions were derived from the literature review and the following elucidated: 'who, what, why, where, when, and how. Graduates from T&T institutions of HE represented the **'who'** of learning however, the research also revealed that the 'who' of learning also includes the organisation. While Lave and Wenger's theory of situated learning highlighted the individual engaged in social practice, activity systems focused on the organisation and how the organisation structure itself created expansive or restrictive learning environments. The **'what'** dimension focused on skills-formation and learning at school versus learning at work. The what dimension also centred on prior learning, transferability skills, learning to be an adult, and learning to function as an expert. What is being learnt also addressed the issue of high or low-skills development.

The **'why'** of WPL is multifaceted and has benefit for the graduate, organisation, and the nation. Organisations and the government of T&T must pay particular attention to this dimension. Large investments in tertiary education should result in high-skills-formation as well as some level of national, regional and international competitiveness. The why of WPL should also lead to increases in FDI. For the individual, the why of WPL compliments the acquisition of a degree and unlocks opportunities to pursue a high-skills route.

The workplace is now considered as a legitimate site for learning and the where dimension encapsulated two sites for learning; the university and the workplace. However, through boundary crossing additional sub-sites are also identified and

require further analysis. The different learning pedagogies utilised in these sites revealed that WPL is explained through CoPs and activity systems whereas the university is underscored by cognitive activity. The *where* dimension of WPL therefore focuses on these two different sites for learning.

While undergraduates prepare for the world of work at university, it is not until they obtain a job that WPL begins. WPL cannot authentically take place at the university. Learning-as-participation is the mode of learning utilised in the workplace and employees learn about WPL *when* they are at work at not at university. Graduates enter the workplace and learn how to participate by engaging in CoPs/activity systems through social and productive activity. Students learn at university through cognition dominated education, students learn theory *when* they are at university and practice when they are at work. Another aspect of the *when* dimension is that students use theoretical knowledge from university *when* they begin to engage in productivity at work. When students become workers, prior knowledge and skills culminate into social and productive activity that leads to a unique skills-formation process that is different from that identified in the university. It is how workers learn at work that leads to the workplace's unique brand of skills-formation. Additionally, the organisation and industry learn through activity systems and boundary crossing.

Some of the WPL indicators derived from the literature review that described the *'how'* of WPL include learning from mistakes, experience, self-education, feedback, and problem-solving. Comparisons between learning patterns among students and workers were elucidated and the transfer of prior learning patters to the workplace were also identified. Learning patterns of novices versus experts were also discussed. These indicators made a significant impact on the research design. Some of these dimensions and indicators were evaluated both quantitatively and qualitatively.

WPL and Skills-formation in T&T: Unique Contributions

This research is unique in that it specifies the T&T context of skills-formation among baccalaureate graduates. Investment in education is normally discussed in relation to labour market theory however this study is unique in that it takes a syncretised theoretical approach by applying both social learning theory and activity systems to uncover new insights into baccalaureate graduate skills-formation in the workplace, and overcoming phenomenological challenges by applying a structure-agency approach to achieve a balanced perspective. Delayed gratification and financial investment in education is translated into transferable skills where workers as learners engage in CoPs and activity systems leading to a high-skills route.

As we conclude the findings of this research on 'WPL *and Skills-formation among Baccalaureate Graduates of T&T*' a review of chapter one is instructive. Chapter one engaged in a discussion on the myriad of different definitions of WPL which provided a deepened understanding and an expanded appreciation of the concept. The discussion also contextualised the differences between traditional learning and WPL. Traditional learning and WPL were conventionally described as mutually exclusive, focusing on two different units of analysis. However WPL includes both working and learning which are inextricably linked; working cannot proceed without learning. Issues of formality versus informality and ad hoc versus structured were briefly discussed, and highlighted the multi-dimensional aspects of WPL and the levels of conceptual complexity therein. This chapter revealed that in T&T very little is known about the process of WPL and factors that promote or constrain it, this is a major part of the stimulus for the research.

Chapter one also identified the relationship between WPL and skills-formation specifically among graduates, since the government of T&T makes significant investments in tertiary education and only measures outcomes at university. Outcomes of investment in tertiary education are not measured at work. This research is unique in that it utilises a different location of analysis to identify the skills development process for productive activity and international competitiveness. The government of T&T is seeking to address a laundry list of issues by providing free education to nationals pursuing a baccalaureate degree

however, they look for answers in only one site for learning – the university. This research is distinctive in that it identifies another site for learning where the formation of high-skills in T&T that promote productive activity can be truly identified, developed and sustained. The analytical and methodological frameworks are syncretised to ensure that phenomenological challenges do not skew the research findings and provides a balanced perspective between structure and agency. New insight into the skills development process in the workplace is elucidated and has serious implications for government institutions regarding investment in learning and the locus of analysis. If investment in HE leads to a high-skills route what would be the outcome of investment in WPL and training?

Findings and Literature Review

Chapter two addressed the following areas: transition from novice to expert, transition from youth to adulthood, high and low-skills routes, patterns of WPL, prior college learning and speed of skills-formation, the convergence between tertiary and WPL in the workplace, how workers learn at work, and power and politics in the workplace. The discourse on transition from novice to expert highlighted Dreyfus and Dreyfus (1980) key stages through which the novice must journey to achieve mastery. In this research none of the respondents identified themselves as novices but were at different points along the other four stages. Daley's (1999) two key differentiators between novices and experts were organisational and individual factors. Evidence from the research revealed that organisational encumbrances that normally affect experts can be overcome by the graduates' individual agency and motivation to perform. Novice learning that was influenced by agency and feelings was mostly evidenced when interviewees described low-skill workers. Evidence of constructivist and self-directed learning among graduates was prevalent in the research.

Eraut's (2004) five interrelated stages of transfer of learning was elucidated and evidence of all five stages were identified in the research. There is evidence of taking notes in the workplace while extracting relevant knowledge from experts, and from explicit knowledge sources derived from formal education and/or

workplace documents. Graduates engaged in transforming information from tacit to explicit and vice versa to fit the new situation and used behaviours and attitudes derived from dispositional learning to adapt to new situations.

I learned to adapt to a highly political environment. (Interviewee
E)

In addition to Eraut's (2004) five interrelated stages of transfer of learning there is a culmination of prior and current learning taking place and the research revealed that workers engage in three types of learning simultaneously; dispositional, propositional and procedural learning purported by Billett (1993) As the novice transitions to expert there is an engagement in the transition from youth to adulthood. While situated learning theory did not address the latter transition (Goodwin 2007), an exploration using the work of Norbert Elias (1961) elucidated this process. Empirical evidence from this study revealed that the development of identity as an adult and a professional is directly related to the obligations and responsibilities that underscore the job role. Additionally, just as a novice requires collaboration with experts to transition, so the youth requires social interaction with adults that culminates in dispositional learning to transition to adulthood.

The discussion on high and low-skills in the literature review highlighted Finegold (1991), Streek (1989), and Brown (2009) view that HE leads to a high-skills route. Evidence of the high-skills route accessed by graduates permeated this research. The learning opportunities, types of jobs, and professional identities identified from the research support the view that a baccalaureate degree leads to a high-skills route. However, this must be underscored by formal training opportunities and organisations must play a role in providing access to learning intensive opportunities. Smith (2001) indication that lack of HE resulted in a reliance on common sense, intuition, and tacit knowledge to perform was also evidenced by this research. The interviews revealed that certain job roles could only be filled by employees with HE since the low-skills worker could not 'keep up' and required hand holding, as they are not self-directed learners.

The discussion on patterns of WPL among graduates highlighted Collin and Tynjala (2003) perspective on whether there is a seamless link between theory and practice on-the-job. When knowledge from tertiary education is unrelated to practice there is a lack of seamlessness. This was also evidenced from empirical research conducted in this study, where in the teaching profession for example, a baccalaureate degree that is unrelated to teaching provides little value to the graduate's performance on-the-job and novice to expert transition. This research also revealed that the only way to develop expertise required for the job is to learn the required skills while at work. A university degree provides width of knowledge rather than depth on different aspects of the workplace, and outfits the graduate with employability and transferable skills that make a difference in their ability to communicate and conduct research when compared with their non-baccalaureate counterparts. From the research however, it is clear that the graduate adapts quickly to the work environment, performs at a high level, produces better reports, and requires less supervision and hand-holding. In another scenario Interviewee D identified a seamless flow between theory and practice when a master's student is working and engaged in tertiary education simultaneously. However a student pursuing a master's degree who is not in the work environment is not able to make connections between theory and practice quickly. Transfer of knowledge from the university to the workplace is based on the nature and complexity of work, and relevance of the degree to the current job determines the extent of seamlessness for transfer of learning.

From this research it is evident that graduates research skills set them apart from their non-baccalaureate counterparts. Mari Murtonen *et al* (2008) highlighted the importance of positive conceptions on the link between research skills and relevance of future work. These positive conceptions result in a deeper learning approach at school, promoting greater preparedness for work, and the utilisation of strong research skills on-the-job. Generally, this research provides evidence of graduates with strong research skills that allow them to engage in learning strategies that effectively support the transition from novice to expert.

In the discussion on converging WPL and formal HE learning for effective skills-formation, the literature review highlighted Eraut (2004) four types of productive

activity that give rise to learning. All four types of activities were evidence in this research. Graduates engaged in learning as part of a team, engaging in CoPs, participating in challenging work, and working with clients. Interviewee D for example, indicated that learning experiences offered on-the-job include *interacting with peers customers and internal stakeholders.* Additionally, the seven learning conditions necessary to classify work as learning intensive and lead to a high-skills route (Skule 2004) were evidenced in this empirical research. Since 50% of respondents from the quantitative questionnaire perceived themselves as experts the learning opportunities they identified were more learning intensive than learning deprived. Aspects of learning depravity that was obvious in the quantitative research were lack of access to and provision of mentoring opportunities. From the qualitative research two factors can be categorised as learning deprived, including lack of leadership support for learning, and organisational politics that challenge too strongly the organisations status quo.

This research purports that WPL is a significant contributor to skills-formation, and high performance work. From this research an assumption can be made that the impact of WPL on skills-formation for productive activity is greater than that of HE. A comparison between the skills learned at university versus the skills learned at work shows that it is the latter that causes employees to gain expertise and mastery. The graduate enters the workplace as a novice and develops expertise through WPL. The baccalaureate degree provides the worker with an early advantage, their advanced employability skills, allows them access to greater learning intensive opportunities and entrance into the high-skills route. However, this research purports that the intended and unintended learning curriculum at work superimposes the university curriculum as it pertains to real work, productive activity and job/industry related skills-formation.

Ways in which workers learn on-the-job were discussed in the literature review and Gerber (1998) identified the most common practices of learning at work. Evidence of these practices were identified in the research. Boud *et al* (1993) EBL is underscored by five assumptions that focus on the whole person. It is not just the intellect engaged in learning but the feelings and senses; and learning

becomes values based. Aspects of EBL were evidenced in the research where graduates engaged in internships, on-the-job training, and special individual and group assignments. These types of learning opportunities are directly related to skills-formation and encapsulates intended learning.

Organising gives rise to power and politics, another key area addressed in the literature review and has a significant impact on WPL. While performance was identified as a mechanism through which graduates access greater learning opportunities, power and politics is another vehicle through which graduates can move from peripheral to full-participation (Yandell and Turvey 2005). This research revealed that exposure to organisational power and politics is a learning vehicle for graduates. They learn how to negotiate for scarce resources and how to adapt to politics in the workplace. Graduates address power and politics in the workplace through networking, developing survival skills and adapting to personalities. It is through dispositional learning that this adaptation occurs and employees develop political acumen. The research also shows how baccalaureates learn behaviours described as 'cut throat', 'cunning', and 'conniving' to gain access to learning opportunities.

Theoretical Syncretism

The main aim of chapter three was to identify the contribution of conceptual and theoretical frameworks to gain an understanding of the relationship between WPL and skills-formation. Lave and Wenger's situated learning framework and Engestrom's activity systems emerged as two key theories apt to explain the unique relationship between WPL and skills-formation. This research converged both theories into one framework by incorporating Wenger's (1998) three dimensions of community with Engestrom's four principles of multi-voicedness, historicity, contradictions, and expansive cycles. The gaps identified in each theory was addressed by applying the other. Engestrom's model was expanded to include the CoP as a unit of analysis, and when are where dimensions were added to the form a new syncretised model Factors in the individual and factors in the organisation that promote or impede WPL were addressed by both theories

however, activity systems focused on structure whereas situated learning concentrated on agency, some level of structure, and the transition from novice to expert. This research utilised theoretical triangulation where more than one theory was used to interpret the data (Denzin 1970) and has added greater depth of understanding on WPL and skills-formation among graduates. Both situational learning theory and activity systems were syncretised and applied and the latter focused on the structure side of WPL where the former elucidated the agency side. A more holistic perspective of the structure-agency dynamics in WPL were elucidated.

This chapter also explored key metaphors, epistemologies and ontologies of WPL to gain a firmer understanding of the interrelationship between working and learning and the associated outcomes. Metaphors like acquisition versus participation were elucidated and epistemology and ontology of WPL were addressed. The unique relationship between tacit and explicit knowledge and how they flow during the WPL process was explored and evidence of these flows were identified during the qualitative interviews. Empirical research from this study shows that explicit knowledge from the workplace and the university are transformed into tacit knowledge that is applied to the current situation. Additionally tacit knowledge is also translated to explicit knowledge by the graduate to fit the current situation. Issues of formality and informality were also addressed in this chapter and the research revealed that both formality and informality are key aspects of WPL and a prerequisite for effective skills-formation. Some aspects of WPL are highly structured, for example, an orientation program, however others are ad hoc and incidental, characteristic of Lave (1990) learning curriculum. Formal training was a key factor identified in the research that is necessary for effective skills-formation and the development of expertise.

Methodological Syncretism

Chapter four focused on the methodology and research design. The mixed-method approach used in this study provided an opportunity to conduct research from two perspectives the organisational leader and the graduate. Key concepts and metaphors identified in the literature review and theoretical chapters

informed the research design and provided a more holistic view on WPL and skills-formation among graduates in T&T. Using mixed-methods was a successful approach that allowed for an in-depth understanding of WPL; who is learning, what is being learnt, why it is being learnt, when it is being learnt, how it is being learnt, and where it is being learnt. The qualitative interviews provided a deeper level of understanding of WPL dimensions and indicators measured in the quantitative instrument. There is significant convergence between the findings from the two data sets and some level of complementarity where different constructs were measured and yielded a resolute image of reality (Erzberger and Prein 1997).

Since theoretical triangulation was applied using both activity systems and situation learning that addressed both structure and agency, a combined structure-agency approach overcame phenomenological challenges: the research had a balanced perspective, not overly focused on the individual viewpoint. The structure-agency research strategy used in this dissertation resulted in a balanced perspective between the individual and the organisation. Individual behaviour and organisation behaviour that promote or impede WPL were clearly identified. This structure-agency method, combined with the mixed-method approach was succinct and provided a deeper connection and understanding of social structure and individual subjectivity (Hewege 2010).

Research Conclusions

Chapter five provided the results of the data collected from the self-completion survey which are identified below and elucidated that graduates avoid low-skills job as their HE qualifications results in access to learning intensive jobs. Graduates develop key employability skills while at university, especially their ability to write and to conduct research. A key mechanism through which WPL ensues is CoPs, however full-participation also requires additional inputs into CoPs in the form of formal training. Graduates learn on-the-job through feedback which functions as an external motivator for improved performance. CoPs that exist in expansive learning environments provide for newcomers to transition from the periphery to full-participation faster than in restrictive environments.

Expansive environments provide opportunities to learn on-the-job through decision-making and problem-solving. Additionally graduates are self-directed learners who continue to utilise explicit knowledge from formal education as part of their learning at work. These self-directed activities allow for the renewal of CoPs as new knowledge and information is injected.

CoPs also facilitate learning through teamwork on-the-job. Teamwork within CoPs allows for engagement with formal objectives set by the organisation. Teamwork that occurs within CoPs provide structured opportunities for participants to discuss and collaborate on specified organisational goals and objectives, to participate in multi-voicedness, shared repertoire, and mutual engagement. Understanding team norms, and accepting and providing feedback must underscore effective teamwork. Teamwork and feedback are ways graduates learn on-the-job, they are inextricably linked and enhance performance. Learning occurs when steps are taken to correct errors made on-the-job. However, errors concealed negate an opportunity for knowledge sharing in, it is only those exposed or learning from the mistakes of others that can facilitate learning. Prevention of repeat mistakes requires mental identification of the error and how it occurred thereby creating tacit knowledge and expertise development. Trial and error is a requirement for learning new tasks therefore making mistakes when performing tasks is a fundamental aspect of WPL.

Graduates learn on-the-job through completing new tasks and applying past experience by collaborating with others, attending formal meetings and observing how others work. Social interaction with others is the key mechanism through which learning occurs on-the-job. Learning by doing requires taking notes which is also a practice prevalent in formal education. Generic formal education practices are incorporated into learning-as-participation, and by practising a task improved knowledge and competence is achieved. Keeping a personal collection of reference material is a practice that aids in WPL. Therefore explicit knowledge in the form of reference materials supports the WPL process.

Personal learning strategies require the utilisation of both tacit and explicit knowledge as well as formal and informal learning practices. Explicit knowledge from academia is combined with tacit knowledge from practice and translated in

know-how and skills-formation. Company procedures, performance management system, reward and recognition initiatives, company reports and job-aids facilitate the transition to full-participation however, individual agency is required to take advantage of these company provided initiatives. Explicit knowledge in the form of company job aids, reports and other documents provided by the organisation support the WPL and skills-formation process.

Learning through self-education is a critical aspect of WPL. However, the CoP facilitates dialogue and knowledge transformation from explicit to tacit. CoPs provide the mechanism for self-directed cognitive oriented education to be translated into know-how. Overcoming challenging work is both self-directed and collaborative; social learning, access to explicit knowledge and self-education are critical aspects of overcoming challenging work.

Access to formal training while working on-the-job enhances the skills-formation process and levels of formality and informality are required to ensure a holistic WPL process. Lack of relevant training is seen as a deterrent to effective skills-formation and the achievement of full mastery. Once the organisation provides relevant training in key skills, full rather than partial expertise can be achieved. Experience is a key factor in expertise development and enhances the skills-formation process. If time is not allocated by the individual or the organisation to develop mastery in all aspects of the job, full mastery can be truncated. If the graduate does not have relevant experience full mastery can be abridged. If the organisation does not provide the relevant tools to complete certain aspects of the job then full mastery can be averted. Graduates in the workplace do not see the value in HE beyond a master's degree. While CoPs are not structured by the organisation, organisational restrictiveness or expansiveness determine the efficacy of CoPs in transitioning newcomers from the periphery to the core and has a significant impact on the skills-formation process.

Perceptions of WPL

Learning on-the-job occurs through CoPs and activity systems where graduates engage in   trial and error, utilise prior work experience, standard operating procedures, coaching, mentorship, experimentation, collaborating with subject-matter-experts, teamwork, collaboration meetings, information sharing, reviewing

templates and research. Feedback is a key mechanism through which WPL ensues in the workplace and can be seen as an established mechanism of WPL pedagogy. WPL is both ad hoc and structured characterised by levels of formality and informality.

Graduates codify information and translate this into both tacit and explicit knowledge that can be applied to new situations. WPL requires the transformation of information from tacit to explicit and explicit to tacit until it is translated into a form where it can be used by the learner in a particular situation. WPL transcends CoPs and boundary crossing allows activity systems to impact the WPL process through knotworking; and engaging in triad relationships that are extra-organisational. Graduates perceive WPL as valuable; the key mechanism through which they acquire organisation specific skills. WPL toggles between levels of formality and informality where employees develop skills that they could not have acquired anywhere else, especially not at university.

Opportunities for Learning: Structure and Agency

Opportunities for learning are derived from both structure and agency. Several opportunities are available in the workplace to engage in learning and skills-formation. At times the opportunities are embedded in both structure and agency simultaneously. The mistakes of others elucidated through participation in CoPs is seen as an opportunity for learning in the workplace. Opportunities for learning is embedded in daily work however, the worker must conceive that the opportunity is embedded the work or they may not identify the opportunity therein.

From a critical-realist perspective opportunities exist in spite of the worker's conception of it. However, this research supports the constructivist epistemological position which dictates that learning outcomes are greater when the worker conceives the learning opportunity. The worker by his own agency identifies daily work as opportunities for learning, however from a structure perspective it is the organisation that provides the work assignments. Crises that occur on-the-job are opportunities for learning and consistently addressing crises results in expertise development. Daily work provides opportunities to solve problems, identify and implement solutions. Opportunities for learning are dependent on the structure of the organisation and the worker's ability to conceive

opportunities in work. Working and learning are inextricably linked they are not mutually exclusive.

Further learning opportunities are fuelled by performance on-the-job, individual agency through performance can create learning opportunities. Individual agency is a factor that creates opportunities for learning based on performance. Conceiving daily work and challenges as opportunities for learning has a positive impact on employee performance. Factors that impede WPL include the following: poor or mediocre academic background, changes in leadership, lack of union buy-in, CoPs with few graduates, unqualified and low-skills employees, and graduates with low employability skills.

How Novice Graduates Transition to Experts

Novices transition to experts through CoPs by collaborating with and emulating expert employees. Novices must have a mind-set of learning to transition. They must have the conception that they are learning to effectively transition. Formal training organised through the workplace significantly supports the transition from novice to expert. Transitioning from novice to expert requires the ability to look beyond organisation structure as an encumbrance and focus on performance to obtain opportunities to develop expertise. Prior knowledge from education that is specific to the current job will have a positive impact on the transition from novice to expert. Novices transition to expertise by documenting what is learned from the expert, conducting investigative work and research, and presenting findings. Transitioning from novice to expert requires access to learning opportunities without which development of expertise will be truncated. A baccalaureate degree that provides the knowledge directly related to the job will result in faster transition from novice to expert.

One of the characteristics of peripheral-participation is lack of training in all aspects of the job. Some aspects of the job, left undeveloped or not mastered will prevent the graduates from transitioning to full expertise. Orientation is a perquisite to effective transitioning from novice to expert. Organisation fit is a key mechanism for effective transitioning from novice to expert.

Part of the transition from novice to expert includes a simultaneous journey from youth to adulthood. The development of identity as an adult worker is directly

related to the obligations and responsibilities that come with the job role. Organisation culture is a factor that determines speed of transition from youth to adulthood. Immaturity in young workers can be overcome when they join CoP and collaborate with adults.

The development of identity as an adult worker is directly related to the obligations and responsibilities that come with the job role. The transition from youth to adulthood is underscored by exposure to power and politics in the organisation. Dispositional learning is the key learning mechanism for transitioning from youth to adulthood. Structural factors in the workplace may have an impact on the adoption of or disregard for rules and regulations that are necessary for the development of the social characteristics of adulthood. If interacting with older workers is a central mechanisms for change of habitus, a poor perception of older workers may decelerate the uneducated worker's ability to transition to adulthood.

What is learned on-the-job

Graduates learn institutional knowledge, job specific skills, and industry knowledge through WPL; three areas that cannot be readily learned while at university. Graduates learn political acumen on-the-job during their transition from novice to expert. Political acumen requires networking, and adapting to different personalities to achieve survival in the workplace. Individual agency and the development of the political acumen skill can ensure survival and access to learning opportunities. Graduates learn how to participate in political games and utilise cut-throat, cunning, and conniving behaviours to access participation and learning opportunities. Graduates access the high-skills route through their accessibility to learning intensive jobs that provide decision-making and problem-solving opportunities both as a learning process and as a skill. They learn a battery of skills on-the-job, these are identified in Table IV in chapter five. OL also takes place and the community memory facilitates expansive cycles and the ability for organisations to transform.

High or Low-Skills Route: Bachelor versus Non-Bachelor

Job roles or positions have a capacity and full capacity for some roles may not be achievable without formal education. Possession of a baccalaureate degree

provides a greater opportunity for an individual to pursue a high-skills route in the workplace. The relevance of the baccalaureate degree to the job being performed may affect skills-formation, performance outcomes, and the transition from novice to expert. While a baccalaureate degree leads to a high-skills route it must be underscored by formal training. Formal education and training in a specific field directly related to the job results in skills-formation that leads to high performance. If the baccalaureate degree is not specifically related to the job high performance on-the-job may not be realised.

The low-skill worker when compared to the graduate lacks the ability to participate in self-directed learning, problem-solving, and takes a less structured approach to learning. Low-skills workers require hand holding, have limited communication skills, and are unable to problem solve without supervision, they are less self-regulated and self-directed than graduates.

The Invitational Workplace

The invitational workplace focuses on widening access to learning opportunities. An invitational workplace must be championed by the leadership of the organisation. Organisations are required to commit to the provision of investment in formal training for their employees to yield an invitational workplace. Organisations must recruit adequate numbers of graduates to fuel CoPs/activity systems and stimulate learning and performance. Insufficient numbers of graduates to participate in CoPs/activity systems reduce learning effectiveness, and militate against organisational transformation and expansive cycles. There is a negative impact on quality of learning outcomes and, performance. Invitational workplaces are underscored by structured and intended learning opportunities.

Policy and Further Research Implications

The government of T&T continues to make significant investments in tertiary education where nationals pursuing a baccalaureate degree at a local HE institution or campus receives free tuition. This research has shown that graduates access a high-skills route based on individual agency and employability skills developed through tertiary education. While organisations provide learning opportunities through structure, greater access to invitational

strategies and formal training will result in a higher quality of WPL. The role of the organisation is to ensure that there are expansive learning opportunities and accessibility is structured. Equality of opportunity is a characteristic of the invitational workplace and organisational leaders must design the organisation such that the workplace is expansive rather than restrictive. Workplace expansiveness strategies through structuring workplace opportunities, providing equal WPL opportunities, and investment in formal training is a three pronged policy recommendation for workplaces in T&T seeking to develop and sustain a high-skills route.

This research has shown that skills developed in the university are useful but real learning for productivity occurs at work. Graduates are novices until they begin to develop job-specific skills in the workplace: a greater degree of synergy between learning and working while at university is a policy issue for universities to address in their curriculum. A greater level of EBL should be incorporated in to the university curriculum to bridge the gap between learning at school and learning at work.

From a national perspective, greater emphasis should be placed on investments in WPL rather than just HE. The government's investment in HE is producing novices who depend heavily on organisations to provide structured opportunities for WPL to achieve expertise. Should the government leave the WPL curriculum solely in the hands of workplaces or should a partnership approach be stipulated by policy? Graduates that are absorbed into restrictive workplaces may not be able to access a high-skills route therefore a policy decision should be taken regarding additional investments in WPL especially for industries that the government has earmarked to *drive innovation and production through a highly skilled workforce.*

In chapter one a laundry list of issues the government is seeking to overcome by the heavy investment in HE is listed. However investment in HE alone will not yield these outcomes. Government research should not solely focus on the education institution as a unit of analysis but look to the workplace and WPL for solutions. There are serious implications for the development of policy regarding the weak accountability systems for education outcomes in T&T. The true

outcomes of education investment will only be realised by tracking the performance of graduates in the workplace. The voice of the workplace will provide a more accurate picture of reality for HE outcomes.

On the government's laundry list of outcomes from investment in HE is bridging the gap in the labour market between qualified and underqualified human resources. From this research the evidence suggests that the quality of baccalaureate employability skills is significantly superior to those of non-baccalaureates. However, the level, nature and depth of skills that can be developed through WPL is accessible mainly to graduates. An identification of baccalaureate employability skills levels versus those of the non-baccalaureate requires further inquiry. The gap between these two areas should be evaluated to determine a formal training curriculum for workers who do not possess HE qualifications and universities, as far as practicable, embedding workplace skills-formation into their academic curricula.

Noteworthy is that the unintended learning curriculum may not be certifiable since it is tacit knowledge being developed and transmitted. However the aspects of WPL that are more explicit should be certified to provide a true reflection of skills-formation developed through WPL. While the National Training Agency (NTA) in T&T is leading a National Vocational Qualification (NVQ) intervention, workplaces are generally unaware of its role and function and the government has not integrated this sufficiently into an overarching national HR development plan. Workplaces in conjunction with the government should drive certification for both non-baccalaureate and graduates.

Greater collaboration between the government, workplaces and institutions of higher learning must be engendered to achieve national success toward a high-skills route. Further inquiry on the relationship between retention and expansiveness is required to determine the extent to which organisations are able to retain graduates and to identify movement of graduates between jobs. Further research is also required to determine both entrance and sustaining requirements for active to full-participation in a CoP.

The ability to look beyond organisational structure as an encumbrance and focus on performance to obtain opportunities for additional learning is an aspect of expert learning that also requires further research.

Implications for Practice

The research revealed that social interactions and structures within and among organisations promote learning that leads to skills-formation, expertise development, and organisation transformation. While the teleology of the workplace in not learning but productivity and profitability, it is through learning that the organisation's human resources develop expertise to become productive, and the organisation develops its distinctive competencies. HR professionals can strategically develop WPL strategies to ensure that newcomers make a smooth transition from novice to expert. While informal learning is often ad hoc and the curriculum unintended the HR practitioner can deliberately structuring WPL opportunities.

Implications for practice focus on building the invitational workplace. Power and politics in organisation could curtail or promote expansive cycles and transformation, it is the role of HR to ensure that in building the invitational workplace, the status quo is changed in a manner that fosters learning for effective rather than destructive change. Another factor that HR must consider is the injection of baccalaureate graduates and qualified workers into the organisation. Insufficient numbers of graduates to engage in activity systems and CoPs reduce learning effectiveness, the quality of learning outcomes and, performance. The ratio of structured to unintended learning opportunities must be determined to ensure that accessibility and equal opportunity is available.

This research showed the importance of orientation programs as a social learning process and a key mechanism to transition from novice to expert. HR professionals may also implement mentorship programs which can formalise the newcomers' transition from novice to expert and monitor outcomes. Other initiatives that create expansive learning opportunities include internship programs that foster transition from novice to expert and build professional identity. Specialised group work assignments, company sponsored training, and

attendance at conferences are all expansive learning opportunities for fostering WPL and building expertise.

While orientation program, mentorship programs, and structuring learning opportunities internally are key features of an invitational WPL program, the challenge exists in structuring external opportunities and activity systems through boundary crossing. The HR professional has some level of control over structuring internal opportunities for learning however, when boundary crossing is a prerequisite for a professional to be successful in their role how can HR assist in ensuring that learning outcomes are met? Does HR even know what the learning objectives are? Boundary crossing must be given serious consideration. Do CoPs exist within activity systems and when a professional engages with stakeholders in other organisations is there any semblance of a core and a periphery. When a newcomer engages in boundary crossing what is learned, how does the learning impact the organisation, why is it learned? Further research is required in the area of boundary crossing to determine its efficacy and what skill are developed as a result. How the organisation and industry learns through boundary crossing, and the overall impact on the organisation pertaining to expansive cycles has serious implications for practice and requires further research.

Key Conclusions and Recommendations

This research has built on Engestrom's activity theory and syncretised this with situational learning theory to provide an analytical framework and fresh perspective for understanding WPL and skills-formation among baccalaureate graduates in T&T. This research has identified the impact of WPL individually, and organisationally, using a structure-agency approach; and unearthed the need for further research into how the industry learns as a result of boundary crossing. From an individual perspective the graduate enters the organisation with the employability skills to immediately access a high-skills route, their readiness to engage in CoPs, and learning intensive workplace activity is high. This research concludes that possession of tertiary education leads to a high-skills route however, the workplace is the institution that develops key skills for productivity activity, not the university. Additional investments in formal training is required to

enhance the skills-formation process without which full expertise and development of mastery could be truncated.

It is the social and situated nature of learning in the workplace that played the most significant role in the skills-formation process. The WPL curriculum and teaching strategies are ad hoc yet structured with learning taking place during the course of productivity. Workers continuously switch roles between teaching and learning, and learning arises no just through cognition engaged in text books but from engaging in CoPs and activity systems.

Baccalaureate graduates' research, writing, problem-solving and decision-making skills set them apart from their non-baccalaureate counterparts. Focus should be placed on developing these gaps for other workers toward a comprehensive high-skills route. To develop speed of transition from novice to expert universities have a role to play in embedding certain aspects of the WPL curriculum into their academic curriculum. A cross fertilisation between the WPL curricular and the university curricula should result in greater synergy between the workplace and HE institutions. This has the potential to result in faster and deeper expertise development that results in sustainable high-skills-formation. The government of T&T should identify opportunities to create synergies from the university to the workplace and from the workplace to the university that results in a comprehensive skills-formation system that can yield competitive advantage. The research findings contribute to an understanding of participation at work and learning through participation. However, the culmination of learning through acquisition combined with social learning through CoPs and activity systems, creates a brand of WPL that results in a high-skills route.

Appendix 1 WPL Quantitative Questionnaire

1. What is your gender?
   ☐ Male   ☐ Female

2. What is your current age?
   ☐ 18-25   ☐ 26-34   ☐ 35-43   ☐ 44-55   ☐ 56-65

3. In what year did you attain a Bachelor Degree? _____

4. Have you completed a Master's Degree?
   ☐ Yes   ☐No   ☐ In Progress

5. Have you completed a Doctoral Degree?
   ☐ Yes   ☐No   ☐ In Progress

6. From which institution did you attain your bachelor degree?
   _____

7. What is the title of your baccalaureate degree
   _____

8. How many positions have you held since graduating from College / University?
   ☐ 1   ☐ 2   ☐ 3   ☐ 4   ☐ 5   ☐ 6   ☐ 7   ☐ 8   ☐ 9   ☐ 10

9. How many years post baccalaureate experience do you have?
   ☐ 0-2 yrs   ☐ 3-4yrs   ☐5-6 yrs   ☐7-9 yrs   ☐ 10 – 12 yrs ☐
   over 13 yrs

10. What is your current job title?
    _____

11. In what grade is your current job categorized?
    ☐ Administrative   ☐ Para Professional ☐ Professional   ☐
    Managerial
    ☐ Technical   ☐ Executive   ☐
    Other_____
12. In which industry are you currently employed?
    _____

13. Name the company where you currently work?
    _____

14. How many years have you been working at the above company?
    ☐ 0-2 yrs   ☐ 3-4yrs   ☐5-6 yrs   ☐7-9 yrs   ☐ 10 – 12 yrs ☐
    over 13 yrs

15. Within your current profession as a_____ (insert job
    title), which of the following best describes your level of competence

    a. ☐ **Master:** the real expert among experts. This person sets the standards
       for others
    b. ☐ **Expert :** one who can do both routine and non-routine cases of work
    c. ☐ **Experienced Specialist:** one who has done the work repeatedly and
       can perform it with ease

d. ☐ **Specialist:** One who can reliably perform the work, but the range is limited
e. ☐ **Novice**: One who is new to the work and lacks the ability to meet requirements

No	Question	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
16	*In completing my bachelor degree I developed the following basic academic skills*					
a	Develop a PowerPoint Presentation					
b	Prepare document using word processing software					
c	Prepare a spreadsheet using software					
d	Surfing the Internet					
e	Using email					
f	Writing skills					
g	Presentation skills					
h	Oral communication					
i	Team working					
j	Time Management					
k	Numeracy and computation skills					
l	Research skills					
No 17	Question	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
	As part of my work experience I participated in the following activities					
a	Internship program as an intern					
b	Mentorship program as the mentee					

183

c	Mentorship program as the mentor					
d	Leadership development program					
e	Special individual work assignment					
f	Special group work assignment					
g	On-the-Job Training Program (OJT)					
h	Company Orientation Program					
i	Company Sponsored Training					
j	Company Sponsored Conference					
No. 18	**Question** *As part of my work experience I learned through receiving feedback*	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a	I receive feedback on tasks I perform on-the-job					
b	I seek feedback on the quality of the tasks I perform					
c	Feedback inspires me to improve my performance					
d	Feedback de-motivates me					
No. 19	**Question** *As part of my work experience I learned through problem-solving and decision-making*	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

No	Question	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a	My job requires me identify problems					
b	My job requires me to recommend solutions to problems					
c	My job requires me to be creative and develop new ideas					
d	My job requires me to make decisions and implement them					
No 20	**Question** *As part of my work experience I engage in self-directed learning*	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a	I develop ideas and seek to implement them on my own					
b	I consult digital sources					
c	I consult texts, journals and other reading materials					
d	I conduct internet searches					
e	I motivate and energize myself to become highly productive					
No 21	**Question** *As part of my work experience I learned through teamwork*	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a	I conduct work tasks following team norms and values					
b	I listen to team members ideas and provide feedback					

No	Question	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
c	I share ideas with the team and listen to their feedback					
d	I conduct team tasks collaboratively					
No 22	**Question** ***I learn at work when the following learning strategies are adopted***	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a	I complete new tasks					
b	I apply past experience					
c	I work and collaborate with others					
d	I attend formal meetings					
e	I observe how others work					
No 23	**Question** ***As part of my work experience I develop personal strategies for learning at work***	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a	I keep a personal collection of reference materials that are essential for my work task(s)					
b	Rather seeking assistance I try to understand something better by trying it out in practice					
c	When I learn something new in the course of my daily work, I take notes					
No 24	**Question** ***As part of my work experience I learned through using***	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

	company job aids and company documents					
a	I refer to company policies and procedures to complete work tasks					
b	I execute and monitor my work tasks in accordance with the company's performance appraisal system					
c	I am motivated to meet and exceed job targets by the company's reward and recognition initiatives					
d	I review company reports and other documents as inputs to complete my work tasks					
No 25	**Question** *How have I learned on-the-job through using internet research*	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a	I search the internet for work samples					
b	I search the internet for methods and processes for completion of a task					
c	I search the internet for how to guides					
d	I search the internet for standards and benchmarks					
No 26	**Question** *I learn to overcome the most challenging areas of work by*	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a	Consulting with other workers					

		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
b	Consulting company documents and files					
c	Conducting research via the internet					
d	Conducting research via reading a book or journal					
No 27	**Question** **_There are aspects of the job that I have never mastered. I have not been able to master these tasks because..._**	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a	I do not have the academic background to complete the task effectively					
b	I do not have the relevant training to complete the task effectively					
c	I do not have the relevant experience to effectively perform the tasks					
d	I do not have the time to focus on the task					
e	I do not have access to the relevant tools to complete the task					
f	I am not motivated to complete the task					
No 28	**Question** **_How do I learn from mistakes I make on-the-job?_**	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
	When I make a mistake I seek to cover it up					

	When I make a mistake I take steps to correct the error				
	I take a mental note of how the error occurred to ensure that it does not happen again				
	I make mistakes when I learn by trial and error				

Appendix 2 Raw Quantitative Data

Table 1 Gender

#	Answer		Response	%
1	Male		40	32%
2	Female		86	68%
	Total		**126**	**100%**

Statistic	Value
Min Value	1
Max Value	2
Mean	1.68
Variance	0.22
Standard Deviation	0.47

Table 2 Age

#	Answer		Response	%
1	18-25		6	5%
2	26-34		33	26%
3	35-43		39	31%
4	44-55		40	32%
5	56-65		8	6%
	Total		**126**	**100%**

Statistic	Value
Min Value	1
Max Value	5
Mean	3.09
Variance	1.02
Standard Deviation	1.01

Table 3 Grouped Completion Year of Baccalaureate Degree

No	Answer	Response	%
1	1981-1985	3	2%
2	1986-1990	14	11%
3	1991-1995	10	8%
4	1996-2000	22	18%
5	2001-2005	20	16%
6	2006-2010	32	26%
7	2011-2014	23	19%
		124	100%

Table 4 Completion of a Master's Degree
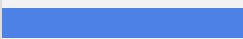
#	Answer		Response	%
1	Yes		64	51%
2	No		37	29%
3	In Progress		25	20%
	Total		126	100%

Statistic	Value
Min Value	1
Max Value	3
Mean	1.69
Variance	0.62
Standard Deviation	0.78

Table 5 Pursuing a Doctoral Degree

#	Answer		Response	%
1	Yes		4	3%
2	No		114	90%
3	In Progress		8	6%
	Total		126	100%

Statistic	Value
Min Value	1
Max Value	3
Mean	2.03
Variance	0.09
Standard Deviation	0.31

Table 6 Universities or Campuses Attended

No	Answer	Response	%
1	UWI	94	75%
2	USC	9	7%
3	SBCS	2	2%
4	SITAL College	2	2%
5	SAM	6	5%
6	Nazareen College	1	1%
7	Offshore	9	7%
8	ROYTEC	2	2%
	Total	125	100%

Table 7 Degree Categories

No	Answer	Response	%
1	Engineering	6	5%
2	Computer Science and/or Mathematics	5	4%
3	Languages Literature Linguistics	9	7%
4	Agricultural Science	7	6%
5	Natural Science	4	3%
6	Environmental Science	2	2%
7	Law	2	2%
8	BA BBA or BSC	17	14%
9	History /Economics	4	3%
10	Media and Communication Studies	5	4%
11	Behavioural Sciences	21	17%
12	Government and Politics	2	2%
13	Management (HRM, Marketing, Accounting etc.)	40	32%
14	Religion and Theology	1	1%
		125	

Table 8 No of Years Post Baccalaureate Positions Held
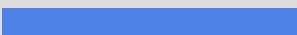
#	Answer		Response	%
1	1 to 3		77	62%
2	4 to 6		36	29%
3	7 to 9		9	7%
4	10 or more		2	2%
	Total		**124**	**100%**

Statistic	Value
Min Value	1
Max Value	4
Mean	1.48
Variance	0.50
Standard Deviation	0.70

Table 9 No of Years Post Baccalaureate Experience

#	Answer		Response	%
1	0 to 2		23	19%
2	3 to 5		21	17%
3	6 to 8		19	15%
4	9 to 11		15	12%
5	12 or more		46	37%
	Total		**124**	**100%**

Statistic	Value
Min Value	1
Max Value	5
Mean	3.32
Variance	2.43
Standard Deviation	1.56

Table 10 Positions Held by Respondents

	Job Titles in the Sample				
1	Regional Manager Learning and Development	43	student/private tutor	85	Research and Development Officer 2
2	Human Resource Officer	44	Entrepreneur	86	Regulatory Program Manager
3	Human Resource Manager	45	N/A -	87	Senior Regional Underwriter
4	Market Analyst/Economist	46	Director Corporate Communications	88	Part time teller
5	Teacher 111	47	Mortgage Officer	89	Client Services Officer
6	Principal	48	IT Manager	90	unemployed
7	Human Resource Manager	49	Manager, Information Management Svcs	91	Communications Consultant
8	Project Analyst	50	Systems Architect	92	Pastor
9	Senior State Counsel	51	Teacher III - English	93	managing director / house wife
10	Director Marketing and Public Relations	52	Clerical Assistant	94	Communications Specialist
11	Assistant Manager	53	Human Resource Manager	95	Operation Clerk
12	Ag. Head of Department	54	Youth Education Manager	96	Human Resource Manager
13	psychologist/nurse	55	Director	97	Senior Human Resources Officer
14	Real Estate Co-Ordinator	56	Senior Human Resources Officer	98	Manager
15	Communications Assistant	57	Marketing Officer	99	Senior Group IR Officer
16	Training officer	58	Computer systems management expert	100	Consultant
17	CEO & Principal Consultant at LCT Consulting & Associates Limited	59	Attorney at law	101	Planning Officer
18	Training & Development Specialist	60	Scientific Officer	102	Customer Relations Co-ordinator
19	Investment Analyst	61	Facilities and Maintenance Officer	103	Teacher One Primary
20	Quality Assurance Officer	62	ICT Engineer	104	Drilling Cost Controller
21	Learning and Development Assistant	63	Clerk II	105	Branch Manager
22	Manager - Conservation and Agency Services	64	Vice President	106	Freelance Writer/Editor
23	Insurance Sales Representative	65	HR Coordinator - Training and Development	107	Checker
24	general manager	66	Assistant	108	HR Officer
25	Administrative Assistant	67	Manager	109	Plant Director
26	Research & Development	68	Lecturer	110	Asset Integrity Manager
27	Principal	69	Business Success Coach. Speaker and Trainer in Leadership and Communication	111	Auditor
28	Regional Maritime Adviser (Caribbean)	70	Manager	112	Communication Officer
29	educator	71	Market Development Manager	113	Manager - Information Services
30	secondary school teacher	72	Entrepreneur -	114	Statistical Assistant II
31	PROJECT MANAGER	73	Assistant Manager Marketing	115	Operations Manager
32	unemployed	74	Account Manager -	116	IT Manager
33	Research Officer	75	Teacher II, Secondary	117	Quality System Officer
34	Marketing Officer	76	Real estate co-ordinator	118	Insurance Agent / Financial Advisor
35	Manager	77	Research Assistant	119	HSEQ Officer
36	Financial Consultant	78	Brand Ambassador	120	Project Management Office Analyst
37	Managing Director	79	Freelance Surveyor	121	Manager Credit Administration
38	Administrative Assistant	80	Teacher III / Head of Department (Acting)	122	Brand Officer
39	Manager Enterprise Risk Services	81	CEO	123	Principal Consultant
40	Manager - Human Resources	82	Freelance Instructor	124	Attorney at Law
41	Freelancer - Audiovisual Industry - Script Supervisor	83	Technology Instructor	125	Market Analyst
42	Lecturer	84	Post Graduate Coordinator		

Table 11 Grade of Current Job
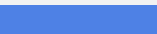
#	Answer		Response	%
1	Administrative		16	13%
2	Para Professional		7	6%
3	Professional		41	33%
4	Managerial		32	26%
5	Technical		8	6%
6	Executive		7	6%
7	Other (please specify)		13	10%
	Total		**124**	**100%**

Statistic	Value
Min Value	1
Max Value	7
Mean	3.66
Variance	2.86
Standard Deviation	1.69

Table 12 Other Positions Held

Other Positions Held
International Government
Owner/Manager
Marketing
Owner/CEO
Unemployed
Entrepreneur
Small Business owner
Senior Professional
Consultant
Freelance
Senior Professional
Own law firm
Sales

Table 13 Industry in which Positions Exist

No	Industry	Response	%
1	Banking Insurance and Financial Services	25	20%
2	Public Sector	20	16%
3	Tourism	7	6%
4	Agriculture	2	2%
5	Education	23	19%
6	Health	5	4%
7	Real Estate	3	2%
8	Management Consulting	8	7%
9	Oil and Gas	9	7%
10	Manufacturing	6	5%
11	Telecommunications	3	2%
12	NGO	3	2%
13	Port Maritime and Shipping	2	2%
14	Other (Construction Security Airline Retail etc)	5	4%
15	Unemployed	1	1%
		122	100%

Table 14 No of Years Work Experience with Current Employer

#	Answer		Response	%
1	Less than 1 year		20	16%
2	2 to 3 years		30	24%
3	4 to 5 years		15	12%
4	6 to 8 years		22	18%
5	9 to 12 years		8	7%
6	Over 12 years		28	23%
	Total		123	100%

Statistic	Value
Min Value	1
Max Value	6
Mean	3.42
Variance	3.23
Standard Deviation	**1.80**

Table 15 Competence Level in Current Job

#	Answer		Response	%
1	Master: the real expert among experts. This person sets the standards for others		17	14%
2	Expert : one who can do both routine and non-routine cases of work		61	50%
3	Experienced Specialist: one who has done the work repeatedly and can perform it with ease		33	27%
4	Specialist: One who can reliably perform the work, but the range is limited		12	10%
5	Novice: One who is new to the work and lacks the ability to meet requirements		0	0%
	Total		**123**	**100%**

Statistic	Value
Min Value	1
Max Value	4
Mean	2.33
Variance	0.70
Standard Deviation	0.83

Table 16 Academic Skills Developed During Baccalaureate Studies

#	Question	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	Develop a PowerPoint presentation	31	43	8	31	13	126	2.62
2	Prepare document using word processing software	44	53	8	14	7	126	2.10
3	Prepare a spreadsheet using software	24	44	16	29	13	126	2.71
4	Surf the Internet	44	29	16	23	14	126	2.48
5	Use email	42	29	14	26	15	126	2.55
6	Writing skills	61	54	5	4	1	125	1.64
7	Presentation skills	49	51	11	14	1	126	1.94
8	Oral communication	48	50	12	15	1	126	1.98
9	Team working	40	63	11	8	3	125	1.97
10	Time management	35	66	11	12	2	126	2.05
11	Numeracy and computation skills	31	54	26	12	3	126	2.22
12	Research skills	56	59	4	5	1	125	1.69

Table 16a

Statistic	Develop a PPT	Prepare document using word processing software	Prepare a s/sheet using software	Surf the Internet	Use email	Writing skills	Presentation skills	Oral Comm.	Team W/king	Time Mngt	Numeracy and computation skills	Research skills	Other
Min Value	1	1	1	1	1	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5	5	5	5	5	5
Mean	2.62	2.10	2.71	2.48	2.55	1.64	1.94	1.98	1.97	2.05	2.22	1.69	2.70
Variance	1.85	1.36	1.68	2.00	2.06	0.60	1.00	1.03	0.89	0.89	1.01	0.62	2.06
Standard Deviation	1.36	1.17	1.30	1.41	1.43	0.78	1.00	1.02	0.94	0.95	1.00	0.79	1.43
Total Responses	126	126	126	126	126	125	126	126	125	126	126	125	72

Table 17 Other Skills Developed During Baccalaureate Studies

Other Skills Developed During Baccalaureate Studies	
Critical thinking/Analytical skills	Listening and attention to detail
Study skills	Design teaching materials, courses and programs
Self confidence	Strategic and systems thinking
Analytic Experiments	Analytical skills
Project Management	Financial Management
Self-reliance	Strategic planning
Ability to work with other cultures and nationalities	Note taking skills
Organizational/management	Report writing
Marketing and distribution knowledge for film	Advocacy
Leadership	Appreciation of statistics
Preparing reports	Drafting
Measurement	Public Speaking

Table 18 Work Experience and participation in work activities

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	Internship program as an intern	21	29	7	38	28	123	3.19
2	Mentorship program as the mentee	14	27	12	47	23	123	3.31
3	Mentorship program as the mentor	16	34	11	46	18	125	3.13
4	Leadership development program	24	40	18	31	11	124	2.72
5	Special individual work assignment	46	54	10	11	4	125	1.98
6	Special group work assignment	38	58	12	13	3	124	2.07
7	On-the-Job Training Program (OJT)	17	37	12	32	26	124	3.10
8	Company Orientation Program	27	48	15	20	15	125	2.58
9	Company Sponsored Training	38	55	8	14	10	125	2.22
10	Company Sponsored Conference	30	47	13	24	10	124	2.49

Table 18 a

Statistic	Internship program as an intern	Mentorship program as the mentee	Mentorship program as the mentor	Leadership development program	Special individual work assignment	Special group work assignment	On-the-Job Training Program (OJT)	Company Orientation Program	Company Sponsored Training	Company Sponsored Conference
Min Value	1	1	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5	5	5
Mean	3.19	3.31	3.13	2.72	1.98	2.07	3.10	2.58	2.22	2.49
Variance	2.12	1.72	1.73	1.64	1.10	1.04	1.95	1.73	1.50	1.62
Standard Deviation	1.46	1.31	1.31	1.28	1.05	1.02	1.40	1.31	1.22	1.27
Total Responses	123	123	125	124	125	124	124	125	125	124

Table 19 WPL through Feedback

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	I receive feedback on tasks I perform on-the-job	39	67	11	5	2	124	1.90
2	I seek feedback on the quality of the tasks I perform	35	69	15	3	2	124	1.94
3	Feedback inspires me to improve my performance	47	65	10	1	1	124	1.74
4	Feedback de-motivates me	7	11	21	53	31	123	3.73

Statistic	I receive feedback on tasks I perform on-the-job	I seek feedback on the quality of the tasks I perform	Feedback inspires me to improve my performance	Feedback de-motivates me
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.90	1.94	1.74	3.73
Variance	0.71	0.65	0.50	1.23
Standard Deviation	0.84	0.80	0.71	1.11

Table 20 WPL through Problem-Solving and Decision-Making

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	My job requires me to identify problems	69	50	4	1	1	125	1.52
2	My job requires me to recommend solutions to problems	78	39	6	1	1	125	1.46
3	My job requires me to be creative and develop new ideas	65	45	10	3	2	125	1.66
4	My job requires me to make decisions and implement them	58	45	13	7	2	125	1.80

Statistic	My job requires me to identify problems	My job requires me to recommend solutions to problems	My job requires me to be creative and develop new ideas	Make & Implement Decisions
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.52	1.46	1.66	1.80
Variance	0.46	0.49	0.73	0.90
Standard Deviation	0.68	0.70	0.85	0.95

Table 21 Self Directed Learning and Work Experience

#	Question	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	I develop ideas and seek to implement them on my own	53	13	9	3	124	1.95
2	I consult digital sources	55	10	7	1	124	1.81
3	I consult texts, journals and other reading materials	57	9	7	1	124	1.81
4	I conduct Internet searches	44	5	4	1	124	1.56
5	I motivate and energize myself to become highly productive	48	8	3	0	124	1.59

Statistic	I develop ideas and seek to implement them on my own	I consult digital sources	I consult texts, journals and other reading materials	I conduct Internet searches	I motivate and energize myself to become highly productive
Min Value	1	1	1	1	1
Max Value	5	5	5	5	4
Mean	1.95	1.81	1.81	1.56	1.59
Variance	0.99	0.76	0.74	0.62	0.52
Standard Deviation	0.99	0.87	0.86	0.79	0.72

Table 22WPL through Teamwork

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	I conduct work tasks by following team norms and values	28	57	29	9	1	124	2.18
2	I listen to team members ideas and provide feedback	42	72	8	2	0	124	1.76
3	I share ideas with the team and listen to their feedback	46	66	9	3	0	124	1.75
4	I conduct team tasks collaboratively	37	64	19	4	0	124	1.92

Statistic	I conduct work tasks by following team norms and values	I listen to team members ideas and provide feedback	I share ideas with the team and listen to their feedback	I conduct team tasks collaboratively
Min Value	1	1	1	1
Max Value	5	4	4	4
Mean	2.18	1.76	1.75	1.92
Variance	0.80	0.41	0.48	0.58
Standard Deviation	0.89	0.64	0.69	0.76

Table 23 Learning Strategies in the Workplace

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	I complete new tasks	50	72	3	0	0	125	1.62
2	I apply past experience	65	55	3	2	0	125	1.54
3	I work and collaborate with others	48	68	6	2	1	125	1.72
4	I attend formal meetings	40	63	10	11	1	125	1.96
5	I observe how others work	35	69	17	4	0	125	1.92

Statistic	I complete new tasks	I apply past experience	I work and collaborate with others	I attend formal meetings	I observe how others work
Min Value	1	1	1	1	1
Max Value	3	4	5	5	4
Mean	1.62	1.54	1.72	1.96	1.92
Variance	0.28	0.40	0.49	0.83	0.54
Standard Deviation	0.53	0.63	0.70	0.91	0.74

Table 24 Personal Strategies for Learning at Work

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	I keep a personal collection of reference materials that are essential for my work	60	55	6	2	1	124	1.62
2	I try to understand something better by practicing the task	50	65	6	3	0	124	1.69
3	When I learn something new I take notes	56	55	9	3	0	123	1.67

Statistic	I keep a personal collection of reference materials that are essential for my work	I try to understand something better by practicing the task	When I learn something new I take notes
Min Value	1	1	1
Max Value	5	4	4
Mean	1.62	1.69	1.67
Variance	0.53	0.46	0.52
Standard Deviation	0.73	0.68	0.72

Table 25 WPL through Company Job Aids and Documents

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	I refer to company policies and procedures to complete work tasks	38	60	18	5	1	122	1.94
2	I execute and monitor my work tasks in accordance with the company's performance appraisal system	30	57	22	9	4	122	2.18
3	I am motivated to meet and exceed job targets by the company's reward and recognition initiatives	21	43	21	23	13	121	2.70
4	I review company reports and other documents as inputs to complete my work tasks	22	69	18	11	2	122	2.20

Statistic	I refer to company policies and procedures to complete work tasks	I execute and monitor my work tasks in accordance with the company's performance appraisal system	I am motivated to meet and exceed job targets by the company's reward and recognition initiatives	I review company reports and other documents as inputs to complete my work tasks
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.94	2.18	2.70	2.20
Variance	0.70	0.99	1.59	0.80
Standard Deviation	0.84	1.00	1.26	0.90

Table 26 WPL through Internet Research

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	I search the Internet for work samples	47	62	5	8	1	123	1.81
2	I search the internet for methods and processes for completion of a task	51	50	10	11	1	123	1.87
3	I search the Internet for how to guides	46	55	11	9	2	123	1.91
4	I search the internet for standards and benchmarks	48	54	8	12	1	123	1.89

Statistic	I search the Internet for work samples	I search the internet for methods and processes for completion of a task	I search the Internet for how to guides	I search the internet for standards and benchmarks
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.81	1.87	1.91	1.89
Variance	0.73	0.92	0.90	0.91
Standard Deviation	0.85	0.96	0.95	0.96

Table 27 Learning Strategies for Overcoming Challenging Work

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	Consulting with other workers	39	65	12	5	2	123	1.91
2	Consulting company documents and files	25	58	24	11	5	123	2.29
3	Conducting research via the Internet	44	62	7	8	2	123	1.88
4	Conducting research via reading a book or journal	33	55	21	13	1	123	2.14

Statistic	Consulting with other workers	Consulting company documents and files	Conducting research via the Internet	Conducting research via reading a book or journal
Min Value	1	1	1	1
Max Value	5	5	5	5
Mean	1.91	2.29	1.88	2.14
Variance	0.72	1.04	0.81	0.92
Standard Deviation	0.85	1.02	0.90	0.96

Table 28 Aspects of my job I have never mastered

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	I do not have the academic background to complete the task effectively	4	19	21	42	37	123	3.72
2	I do not have the relevant training to complete the task effectively	4	38	26	27	28	123	3.3
3	I do not have the relevant experience to effectively perform the tasks	6	39	23	28	27	123	3.25
4	I do not have the time to focus on the task	8	41	23	33	18	123	3.1
5	I do not have access to the relevant tools to complete the task	8	41	29	27	17	122	3.03
6	I am not motivated to complete the task	3	22	32	36	30	123	3.55

Table 28a

Statistic	I do not have the academic background to complete the task effectively	I do not have the relevant training to complete the task effectively	I do not have the relevant experience to effectively perform the tasks	I do not have the time to focus on the task	I do not have access to the relevant tools to complete the task	I am not motivated to complete the task
Min Value	1	1	1	1	1	1
Max Value	5	5	5	5	5	5
Mean	3.72	3.30	3.25	3.10	3.03	3.55
Variance	1.32	1.49	1.57	1.45	1.39	1.25
Standard Deviation	1.15	1.22	1.25	1.20	1.18	1.12
Total Responses	123	123	123	123	122	123

Table 29 WPL through Making Mistakes

#	Question	Strongly agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Total Responses	Mean
1	When I make a mistake I seek to cover it up	1	4	8	66	44	123	4.20
2	When I make a mistake I take steps to correct the error	48	71	1	2	0	122	1.65
3	I take a mental note of how the error occurred to ensure that it does not happen again	50	67	4	2	0	123	1.66
4	I make mistakes when I learn by trial and error	19	57	37	9	1	123	2.32

Appendix 3 WPL Qualitative Semi-structured Interview
Semi-structured Interview Guide

1. **Greeting**

    a. Thanks and introductions

    b. Purpose of the Study and the Interview

    c. Identification of Ground Rules: anonymity, timing, cell phone,

    d. Assurance of Confidentiality

2. **Interviewee Data**

    a. How long have you been in the company?

    b. What position do you hold?

    c. Are you the holder of a baccalaureate degree?

3. **Interviewee Perception of Learning**

    a. Explain the value that you place on WPL?

    b. How does learning take place on-the-job?

    c. In which ways do you prefer to learn?

    d. What have you learned on-the-job and what skills have you developed?

    e. Think about your current and recent workplace(s) and consider your opportunities for learning.

    f. What have you learnt 'on-the-job', how did you learn it and who else was involved in this working–learning process?

4. **Who is learning?**

    a. What differentiates a new baccalaureate employee from a new employee who does not have tertiary education, both in the same role?

    b. Why would you recruit a person with a bachelor degree as opposed to someone who does not have a degree?

    c. Who else is involved in the learning process of baccalaureate graduates?

    d. Consider who could potentially be involved in supporting a baccalaureate graduate employee learning in your workplace.

5. **What is being learnt?**

    a. What prior skills do baccalaureate graduates transfer to the workplace?

    b. What new skills do baccalaureate graduates learn through work related activity?

    c. How does the prior knowledge of university graduates impact their learning during work?

    d. How do baccalaureate graduates transition from novice to expert worker in the workplace?

    e. What is the process through which young baccalaureate graduates transition to adulthood in the workplace?

    f. What types of learning experience have employees been offered on-the-job?

    g. What opportunities have been provided for employees to think and talk about the experiences they have had?

    h. How valuable are the contributions of baccalaureate graduates to organisational performance?

6. **Why is it being learned?**

    a. What impact do baccalaureate graduates have on workplace productivity?

    b. What impact do baccalaureate graduates have on the learning of less qualified employees?

7. **Where**

    a. How difficult is it for baccalaureate graduates to transition from learning at university as opposed to learning at work?

    b. What do baccalaureate graduates learn in the workplace as opposed to the university?

    c. What does workplace-based learning seem to offer that 'classroom-based' learning does not?

8. **How**
    a. How do baccalaureate graduates learn in the workplace?
    b. What are the learning patterns or techniques used by baccalaureate graduates to learn on-the-job?
    c. What differentiates the way in which baccalaureate graduates learn at work from those who have not completed tertiary education?

9. **The Workplace**
    a. How can you make your workplace more 'invitational' from a learning perspective?
    b. What strategies can you use to ensure equal opportunities to participate and learn from workplace activity
    c. What opportunities for learning does your workplace offer on a day-to-day basis?

Bibliography

Acevedo, J.,M., & Yancey, G.,B., (2011) 'Assessing new employee orientation programs', *Journal of Workplace Learning*, Vol. 23 No. 5 pp. 349 – 354.

Andresen, L., Boud, D., & Cohen, R. (1995). Experience based learning. In G. Foley (Ed.), Understanding adult education and training (pp. 207-219). Sydney: Allen & Unwin Publication.

Appelbaum, S.H. & Gallagher, J. (2000) 'The competitive advantage of organisational learning: Journal of Workplace Learning: Employee Counselling Today Vol. 12, No.2, pp. 40-56.

Ashton, D.N. (2004) 'The impact of organisational structure and practices on learning in the workplace', International Journal of Training and Development Vol. 8, No. 1, pp. 43-53.

Baert, H., Govaerts, N., (2012) 'Learning patterns of teams at the Workplace', *Centre for Research on Professional Learning and Development*, Corporate Training and Lifelong, KU Leuven – University of Leuven, Leuven, Belgium.

Bamberger, P. (2008). Beyond contextualization: Using context theories to narrow the micro-macro gap in management research. Academy of Management Journal, 51(5), 839-846.

Battaglia, M. P. (2011) 'Non Probability Sampling', Sage Publications, Retrieved 28th January 2014,http://www.sagepub.com/chambliss4e/study/chapter/encyc_pdfs/5.2_Nonprobability%20Sampling.pdf.

Bauer, J., and Mulder, R.H., (2006) 'Upward feedback and its contribution to employees' feeling of self-determination', *Journal of Workplace Learning*, Vol.18 No.7/8, pp. 508-521.

Bauer, J., Festner, D., Gruber, H., Harteis, C., and Heid, H. (2004) 'The effects of epistemological beliefs on workplace learning', *The Journal of Workplace Learning*, Vol. 16 No. 5, 2004 pp. 284-292.

Becker, Karen L. and Hyland, Paul (2004) 'When Lifelong Learning Isn't Enough: The Importance of Individual and Organisational Unlearning'. In Danaher, Patrick and Macpherson, Colin and Nouwens, Fons and Orr, Debbie, Eds. Proceedings International Lifelong Learning Conference, pp. 389-395, Yeppoon, Australia.

Biggs, J. and Tang, C. (2007) 'Teaching for Quality Learning at University', 3rd edition, New York, Society for Research into Higher Education.

Billett, S. & Somerville, M., (2004), 'Transformations at work: Identity and learning', *Studies in Continuing Education*, Vol. 26 No. 2 pp. 309-326.

Billett, S. (2004) 'Workplace participatory practices: Conceptualising workplaces as learning environments'. *Journal of Workplace Learning*, Vol.16 No.6 pp. 312-324.

Billett. S. (2004) 'Adult and Vocational Education Studies', Griffith University, Brisbane, *Australia Journal of Workplace Learning* Vol. 16, No. 6, pp. 312-324.

Birnbaum, M. H. (2004) 'Human research and data collection via the Internet'. *Annu. Rev. Psychol.*, Vol. 55, pp. 803-832.

Boud, D, Garrick, J (1999) 'Understanding learning at work', Routledge, London.

Boud, D. & Solomon, N. (2003) 'I don't think I am a learner: acts of naming learners at work' *Journal of Workplace Learning* Vol. 15, No. 7/8, pp. 326-331.

Brown, A. (2009) Higher skills development at work: A Commentary by the Teaching and Learning Research Programme. London: ESRC, TLRP

Bryman, A. (2001) Social Research Methods, New York: Oxford University Press.

Bryman, A. and Cramer, D. (1990) 'Concepts and their measurement', Chapter 4 of Quantitative Data Analysis for Social Scientists, London: Routledge, pp 61-74.

Chinowsky, P. & Carrillo, P. (2007) 'Knowledge Management to Learning Organization Connection', *Journal of Management in Engineering*. American Society of Civil Engineers.

CLMS (2002) 'Research Methods and Dissertation Guidelines' (Version 8) MSc In Training/HRM/Performance Management, *Centre for Labour Market Studies. University of Leicester*

CLMS (2003) Doctorate in Social Sciences Module 1 (Version 1) Unit 4 *Centre for Labour Market Studies. University of Leicester*

CLMS (2003) Doctorate in Social Sciences Module 2C (Version 1) *Centre for Labour Market Studies. University of Leicester*

CLMS (2004) Doctorate in Social Sciences Module 1 (Version 1.2) Unit 2 *Centre for Labour Market Studies. University of Leicester*

Colley, H., James, D. Dimen, K. and Tedder, M. (2003) 'Learning as becoming in vocational education and training: class, gender and the role of vocational habitus', Journal of Vocational Education and Training, Vol. 55 No.4, pp 471-498

Collin, K. and Tynjala, P., (2003), 'Integrating theory and practice? Employees' and students' experience of learning at work', *Journal of Workplace Learning* Vol. 15 No. 7/8, pp 338-344, MCB UP Limited

Confederation of British Industry (CBI) (2009), 'Future Fit: Preparing Graduates for the World of Work', CBI.

Crouch, M. and Mc Kenzie, H. (2006) 'The logic of small samples in interview-based qualitative research', *Social Science Information*, Vol. 45 No.4, pp. 483–499; *SAGE Publications.*

Dale, M., & Bell, J. (1999). Informal learning in the workplace. London: Department for Education and Employment.

Daley, B. J. (1999) 'Novice to Expert: An Exploration of How Professionals Learn', Adult Education Quarterly, Vol. 49, No. 4, pp 133 – 147.

Danielle, S.W., and Buckley, M.R. (1998) 'The evolution of the performance appraisal process', *Journal of Management History'*, Vol. 4 No. 3, 1998, pp. 233-249, *MCB University Press.*

Denzin, N. K. (1970) 'The research act; a theoretical introduction to sociological methods', Chicago: Aldine Pub. Co.

Denzin, N.K. and Lincoln, Y.S. (2003) 'The Discipline and Practice of Qualitative Research'. In Denzin, N.K. and Lincoln, Y.S (Eds) Collecting and Interpreting Qualitative Materials (pp. 1-60). London: Sage Publications.

Dolnicar, S., Laesser, C., and Matus, K. (2009) 'Online Versus Paper: Format Effects in Tourism Surveys', *Journal of Travel Research* Vol. 47, No. 3, pp. 295-316.

Easterly, W., (1998) 'The Quest for Growth: How we wandered the tropics trying to figure out how to make poor countries rich', The World Bank.

Ellström, P-E. (2001), 'Integrating learning and work: problems and prospects', Human Resource Development Quarterly, Vol. 12 No. 4, pp. 421-35.

Engeström, Y. (2001) 'Expansive Learning at Work: toward an activity theoretical reconceptualization' Journal of Education and Work Vol. 14, No. 1, pp.133-156.

Engeström, Y., and Kerosuo, H. (2007) 'From workplace learning to inter-organizational learning and back: the contribution of activity theory', Journal of Workplace Learning, Vol. 19, No.6, pp. 336-342.

Eraut, M (2004: 'Transfer of knowledge between education and workplace settings, in Workplace learning in context', eds H Rainbird, A Fuller and A Munro, Routledge, London, pp.201-221.

Eraut, M, Alderton, J, Cole, G and Senker, P (1999) 'The impact of the manager on learning in the workplace', in Coffield, F (ed.) Speaking Truth to Power: Research and Policy on Lifelong Learning, Bristol: Policy Press.

Eraut, M. (2000) 'Non-formal learning and tacit knowledge in professional work.' *British Journal of Educational Psychology* Vol. 70, No.1, pp. 113-136.

Eraut, M. (2004) 'Informal learning in the workplace' *Studies in Continuing Education*, Vol. 26, No.2, pp.247-273.

Erzberger and Prein (1997). 'Triangulation: Validity and empirically-based hypothesis construction'. *Quantity and Quality* Vol.3, pp.141-154, Kluwer Academic Publishers, Printed in the Netherlands.

Etzkowitz, H., Webster, A. and Gebhardt, B. (2000), 'The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm', Research Policy, Vol. 29, pp. 313-30.

Felstead, A. *et al* (2004) 'Applying the Survey Method to Learning at Work: A Recent UK Experiment', September 2004, Chapter Presented to the European Conference of Education Research (ECER) Rethymon Campus, University of Crete, Greece 22-25 September 2004.

Felstead, A. *et al* (2005) 'Surveying the scene: learning metaphors, survey design and the workplace context', *Journal of Education and Work*, Vol. 18, No. 4, pp. 359-383.

Finegold, D. (1991) 'Institutional Incentives and Skill Creation: Preconditions for a High-Skill Equilibrium', in Ryan, P. (ed.) International Comparisons of Vocational Education for Intermediate Skills, The Falmer Press: London.

Fuller, A., Hodkinson, H., Hodkinson, P., and Unwin, L. (2005) 'Learning as Peripheral Participation in Communities of Practice: A reassessment of key concepts in workplace learning', *British Educational Research*, Vol. 31, No. 1, pp. 49 – 68.

Fuller, A., Hodkinson, H., Hodkinson, P., Unwin, L. (2005) 'Learning as Peripheral Participation in Communities of Practice: A reassessment of key concepts in workplace learning', *British Educational Research*, Vol. 31, No. 1, pp 49 – 68.

Geertshuis,S.A., Fazey,J.A., (2006) 'Approaches to learning in the workplace', *Journal of Workplace Learning*, Vol.18, No.1, pp.55 – 65.

Gerber, R., (1998) 'How do workers learn in their work?', 'The Learning Organization', Vol. 5, No, 4, pp.168-175, MCB University Press.

Giddens, A. (1979). Central problems in social theory: action, structure, and contradiction in social analysis. London: Macmillan.

Glaserfeld, E.V. (1984) 'An introduction to radical constructivism'. In P. Watlawick (Ed.), The invented reality. New York: W.W. Norton.

Goodwin, J. (2007) 'The Transition to Work and Adulthood: Becoming Adults via Communities of Practice' in Hughes, J, Jewson, N., and Unwin, L. (2007).

Goodwin, J. and Horowitz, R., (2002) 'Introduction: The Methodological Strengths and Dilemmas of Qualitative Sociology, Vol 25, No.1, pp 33 - 47.

Govaerts, N., Kyndt, E., Dochy, F., Baert,H., (2011) 'Influence of learning and working climate on the retention of talented employees', *Journal of Workplace Learning*, Vol. 23, No.1, pp. 35–55.

Government of T&T (2006) 'Vision 2020 operational plan 2007-2010'. Port of Spain: Ministry of Planning.

Gray, F.E, Emerson, L., and MacKay, B., (2005) 'Meeting the Demands of the Workplace', Science Students and Written Skills Journal of Science Education and Technology, Vol. 14, No. 4, pp. 425-435.

Hager, P., (2004) 'Lifelong learning in the workplace? Challenges and issues', *Journal of Workplace Learning*, Vol. 16, No. 1/2, pp. 22-32.

Hara, N. (2000). Social construction of knowledge in professional communities of practice: Tales in courtrooms. Unpublished doctoral dissertation. Indiana University, Bloomington.

Hewege, C. R., (2013) 'In Search of Alternative Research Methods in Marketing: Insights from Layder's Adaptive Theory Methodology', Contemporary Management Research, Vol. 9, No. 3, pp 343-360.

Hicks, E., Bagg, R., Doyle, W., Young, J.D., (2007) 'Canadian accountants: examining workplace learning', *Journal of Workplace Learning*, Vol. 19, No. 2, pp.61- 77.

Higgins, D., Mirza, M., and Drozynska, A., (2013) 'Power, politics & learning: a social enactment of the SME owner/manager, *Journal of Small Business and Enterprise Development*, Vol. 20, No. 3, pp. 470-483.

Hoadley, C. (2012) 'What is a community of practice and how can we support it?', Theoretical foundations of learning environments Jonassen, D., & Land, S. (Eds.), Routledge, pp.287-300.

Hodkinson *et al* (2004) 'The significance of individual biography in workplace learning' Studies in the Education of Adults, National Institute of Adult Continuing Education Vol. 36, No. 1, pp. 6-24.

Hodkinson, P. (2005) 'Reconceptualising the relations between college-based and workplace learning', *Journal of Workplace Learning*, Vol. 17, No. 8, pp. 521-532.

Hoekstra, A., Korthagen,F. ,Brekelmans, M., Beijaard, D., Jeroen, I., (2009) "Experienced teachers' informal workplace learning and perceptions of workplace conditions", *Journal of Workplace Learning*, Vol. 21, No. 4,pp.276- 298.

Holman, D., Epitropaki, O, and Fernie, S. (2001) Short research note. Understanding learning strategies in the workplace: A factor analytic investigation. *Journal of Occupational and Organizational Psychology* Vol.74, No. 5, pp. 675-681.

Hughes, J., Jewson, N., and Unwin, L. (Eds.). (2013). Communities of practice: Critical perspectives. Routledge.

Irvine, A., Drew, P., Sainsbury, R, (2012) 'Am I not answering your questions properly?' Clarification, adequacy and responsiveness in semi-structured telephone and face-to-face interviews, *Qualitative Research*, Vol. 13, No.1, pp. 87-106.

Jacobs, R. L., and Washington, C. (2003). Employee development and organizational performance: A review of literature and directions for future research. *Human Resource Development International*, Vol. 6, pp.343-354.

Jacobs, R.L., and Park, Y. (2009) 'A Proposed Conceptual Framework of Workplace Learning: Implications for Theory Development and Research in Human Resource Development', *Human Resource Development Review* 2009; Vol. 8; No.2, pp. 133-150.

Kitching, J., (2008) 'Rethinking UK small employers' skills policies and the role of workplace learning', *International Journal of Training and Development*, Vol.12, No. 2, pp. 100-120.

Lahteenmaki S., Toivonen, J., Mattila, M., 'Critical Aspects of Organizational Learning research and Proposals for Its Measurement', British Journal of Management, Vol. 12, pp.113-129.

Lantz, A. and Friedrich, P. (2003) Learning in the workplace – an instrument for competence assessment, The Learning Organization Vol. 10, No. 3, pp. 185-194.

Lave J (1993) The practice of learning. In S Chaiklin and J Lave (eds) Understanding practice: perspectives on activity and context. Cambridge, UK: Cambridge University Press, pp 3-32.

Lave, J. (1987). Cognition in practice. New York, NY: Cambridge University Press.

Lave, J., and Wenger, E. (1991). Situated learning: Legitimate peripheral participation. New York: Cambridge University Press.

Lee, T., Fuller, A., Ashton, D., Butler, P., Felstead, A., Unwin, L. and Walters, S. (2004) Workplace Learning: Main Themes & Perspectives. Learning as Work Research Paper (2). (Unpublished)

Le Maistre Anthony Paré, C. (2004), 'Learning in two communities: the challenge for universities and workplaces', *Journal of Workplace Learning*, Vol. 16 No. 1/2 pp. 44 – 52.

Maaranen, K., Kynäslahti, H., Krokfors, L., (2008) "Learning a teacher's work", *Journal of Workplace Learning*, Vol. 20, No. 2, pp.133- 145.

Malcolm. J. *et al* (2003) 'The interrelationships between informal and formal learning', *Journal of Workplace Learning*, Vol. 15, No. 7/8, pp 313 – 318.

Marton, F. and Saljo, R. (1997), 'Approaches to learning', in Marton, F., Hounsell, D.J. and Entwistle, N.J. (Eds), The Experience of Learning, 2nd ed., Scottish Academic Press, Edinburgh.

Mason, J. (2002) 'Qualitative Researching', Sage Publications.

Matthews, J.H., and Candy, P.C., (1999) New dimensions in the dynamics of learning and knowledge. In Boud, D. and Garrick, J. (Eds.) Understanding Learning at Work. Routledge, London, U.K, pp. 47-64.

Matthews, P. (1999). Workplace learning: Developing an holistic model. The Learning Organization, Vol. 6, No. 1, pp. 18–29.

McEvoy, P., and Richards, D. (2006), A critical realist rationale for using a combination of quantitative and qualitative methods. *Journal of Research in Nursing*, Vol.11, No.1, pp. 66-78.

Melville, J.A, (2002). 'The Impact of Structural Adjustment on the Poor' Eastern Caribbean Central Bank Conference, November 21-22, 2002, Basseterre, St Kitts and Nevis: Caribbean Development Bank, Retrieved 31st May 2014, http://www.caribank.org/uploads/publications-reports/staff-papers/StrucAdj[1].pdf.

MSTTE (2011) Final Report, Gender Study on the Factors Affecting Male Re-Entryinto the Post-secondary and Tertiary Education System, The Ministry of Science, Technology and Tertiary Education, http://www.stte.gov.tt/Portals/0/Publications/MSTTE%20Gender%20Study%20-%20Final%20Report.pdf.

MSTTE, (2010) 'Policy on Tertiary Education, Technical Vocational Education and Training, and Lifelong Learning in T&T, Retrieved 9th November 2014, http://www.stte.gov.tt/Portals/0/Policies/TEWhitePaper.pdf No. 134, DfEE.

Nonaka, L, and Takeuchi, H. (1995) 'The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation.' New York: Oxford University Press.

Odegard, Atle (2003), Methodological triangulation: a favorable scientific approach or an impossible adventure? Institute of Health Sciences - Molde University College, viewed 2nd July 2013. http://org.uib.no/vnn-fu/documents/VNNFUessay2003AtleOdegaard.pdf.

OECD, (2012) Education Indicators in Focus, What are the returns on higher education for individuals and countries?, Retrieved 2nd December 2014, http://www.oecd.org/edu/skills-beyond-school/Education%20Indicators%20in%20Focus%206%20June%202012.pdf.

Patton, M.Q. (1990) Qualitative evaluation and research methods. Sage Publications Inc.

Pillay, H., Boulton-Lewis, G., Wilss, L. & Lankshear, C. (2003) 'Conceptions of Work and Learning at Work: impressions from older workers', *Studies in Continuing Education* Vol. 25, No1, pp 95-111.

Qualtrics (2005) Provo, Utah, USA.

Rambally, R. (2011, July 25) 'New standards for hiring of teachers', T&T Guardian Online, Retrieved from http://www2.guardian.co.tt/news/2011/07/25/new-standards-hiring-teachers on 21.02.2015.

Rambally, R. (2011, July 25) 'New standards for hiring of teachers', T&T Guardian Online, Retrieved from http://www2.guardian.co.tt/news/2011/07/25/new-standards-hiring-teachers on 21.02.2015.

Reeve, F. and Gallacher, J. (1999) 'How are the discourses of work-based learning influencing practice?' Researching Work and Learning: A first International Conference, 10th – 12th Sept 1999, Trinity and All Saints College, University of Leeds.

Resnick, L.B. (1983). Mathematics and science learning: A new conception. Science, Vol. 220, pp.477-478.

Roschelle, J. (1995) Learning in Interactive Environments: Prior Knowledge and New Experience, In J.H. Falk and L.D. Dierking, Public institutions for personal learning: Establishing a research agenda. Washington, DC: American Association of Museums, 37-51.

Sambrook, S. (2005). Factors influencing the context and process of work-related learning: Synthesizing findings from two research projects. *Human Resource Development International*, Vol. 8, No.1, pp 101-119.

Schenkel, A, and Teigland, R. (2008) 'Improved organizational performance through communities of practice', *Journal of Knowledge Man*agement Vol. 12, No. 1, pp 106-118.

Sfard, A. (1998). 'On two metaphors for learning and the dangers of choosing just one.' *Educational Researcher*. Vol. 27, No.3, pp. 4-13.

Sim, J., and Wright, C. (2000) 'Recording and Organizing in Data from Exploratory Studies In: Julius Sim CW, editor. Research in health care: Concepts, designs and methods. Cheltenham: Stanley Thornes (Publishers) Ltd

Skule, S. (2004) 'Learning conditions at work: a framework to understand and assess informal learning in the workplace', *International Journal of Training and Development*, Vol. 8. No. 1, pp. 8-20.

Smith, E.A. (2001) 'The role of tacit and explicit knowledge in the workplace', *Journal of Knowledge Management* Vol. 5, No. 4, pp. 311-321.

Smith, P., J., Henry, J., and Munro, G., (2002), 'Training young people through school/ enterprise partnership: a longitudinal study', Education + Training, Vol. 44, No. 6, pp. 281-289.

Snell, A. (2011) 'TT is a developed country' T&T Newsday, Retrieved 9th November 2014, http://www.newsday.co.tt/commentary/0,149813.html.

Songge Ma, (2012) "Struggling with involuntary expressive behaviours: Chinese doctors' professional learning in working contexts", Journal of Workplace Learning, Vol. 24, No. 7/8, pp.447- 460.

Soobrayan, V. (2003) 'Ethics, Truth and Politics in Constructivist Qualitative Research', Westminster Studies in Education 26, No.2, pp. 107–23.
SSIP, (2013) Stimulating Growth, Generating Prosperity, Retrieved 12th December 2014, http://finance.gov.tt/wp-content/uploads/2013/11//Social-Sector-Investment-Programme-2013.pdf.

Stern, A. and Sommerlad, E. (1999) 'Workplace Learning, Culture and Performance',
Institute of personnel and Development, London.

Streek, W. (1989) Skills and Limits of Neo-Liberalism: The Enterprise of the Future as a Place of Learning', Work, Employment and Society, Vol. 3, No. 1, pp. 92-101.

Tsang, E.W.K. (2002) Acquiring knowledge by foreign partners from international joint ventures in a transition economy: learning-by-doing and learning myopia. *Strategic Management Journal* Vol.23, No. 9, pp 835-854.

Tucker, A., L., Edmondson, A., C., and Spear, S., (2002), 'When problem solving prevents organizational learning', *Journal of Occupational Change Management*, Vol. 15. No. 2, pp. 122-137.

Tynjälä, P., Välimaa, J., and Sarja, A. (2003) 'Pedagogical Perspectives on the Relationships between Higher Education and Working Life, Higher Education, Vol. 46, No. 2 (Sep., 2003), pp. 147-166.

University of Leicester (n.d.). Student and Academic Services, Student Feedback. Retrieved March 09, 2014 from http://www2.le.ac.uk/offices/sas2/quality/student-feedback.

Vince, R., (2001) 'Power and emotion in organizational learning', Human Relations, Vol.54, No. 10, pp. 1325 – 1351.

Wallow, A. (2008) 'The Leader as a Facilitator of Learning at Work A study of learning-oriented leadership in two industrial firms', Department of Behavioural Sciences and Learning, Linköping University.

Warhurst, R.P., (2012) 'Learning in an age of cuts: managers as enablers of workplace learning, Journal of Workplace Learning'. Vol. 25 No. 1, pp. 37-57, Emerald Group Publishing Limited.

Wenger, E. C., and Snyder, W., M. (2000) 'Communities of Practice: *The Organizational Frontier, Harvard Business Review*, Vol. 78, No. 1 pp. 139 - 145.

Wiese, D. S., and Buckley, R. M. (1998) "The evolution of the performance appraisal process", Journal of Management History, Vol. 4 No. 3, pp.233 – 249.

Wofford, M.G., Ellinger, A.D. Watkins, K.E., (2013) "Learning on the fly: exploring the informal learning process of aviation instructors", *Journal of Workplace Learning*, Vol. 25, No. 2, pp.79 – 97.

Yandell, J., and Turvey, A. (2005) 'Standards or communities of practice? Competing models of workplace learning and development', *British Educational Research Journal*, Vol. 33, No. 4 pp. 533 - 550.

Young, M. (2001) 'Contextualising a new approach to learning: some comments on Yrjo Engestrom's theory of expansive learning', Journal of Education and Work, Vol. 14, No. 1, pp 157-161.

Zuboff, S. (1988) In the age of the smart machine the future of work and power (New York, Basic Books).