



POLICY BRIEF: 2020

Conceptual Alignment: Skills and Knowledge to PSET Policy

Research Chair: Skills and Occupations: Dr Presha Rasarup

1. Overview

BANKSETA has commissioned a series of research within the banking sector under the appointment of a, at the Researching Education and Learning Centre at the University of Witwatersrand focusing on the following areas:

- A) Mapping jobs to occupations: Organising Framework for Occupations; and the development of an open access electronic mapping tool.
- B) Investigating drivers of occupational change within a just transition framing: Digitisation and Sustainability
- C) Unpacking the structural dynamics and use of occupational frameworks: An international collaboration
- D) Analytical and conceptual alignment, gaps and system use in relation to Jobs; Occupations, Knowledge, Qualification and Work
- E) Lessons for the Post School Sector: Occupations and Skills

This policy brief seeks to examine the concepts of skills and knowledge as it is used in PSET policy. It aims to analyse the alignment of these concepts to the selected policies and determine what policy lessons can be learnt from this analysis.

2. Introduction

Terminology used in skills development are vast and one could create a dictionary of the acronyms, jargon and concepts that constitute the skills development language. For this report, the concepts of skills and knowledge are selected for the analysis. These concepts often hold different meaning in varying contexts (national, sectoral, firm and individual) and tend to often be confusing and ambiguous. This report analyses the various meaning and contextual uses of these terms by various philosophers, economists, sociologists and perhaps even politicians at an international level mostly within their use in literature. But is this sufficient? It is important to bring the analysis into the South African landscape by examining how these concepts are used within current policy.

Included in this policy analysis are the White Paper on Post School Education and Training (WP-PSET), the National Skills Development Plan (NSDP), the National Qualifications Framework (NQF) with its three sub-qualifications framework and Skills Planning including the OFO. It is hoped that this policy research will provide a better understanding of skills development policies and improve conversations leading to greater clarity and understanding within skills development debates. If policy is well understood and articulated, implementation is easier since there is precision on knowing what needs to be done.

3. Concepts

Skills

Reddy, et al (2018, p20) explain that the definition of skills in relevant literature propose a number of useful conceptual distinctions as laid out below:

- A skill or set of skills can be seen as a **competence** that an individual hold or an **attribute** of a collective group of people who exercise skills in their workplace interactions.
- Skills can be formally recognised in terms of **formal qualifications**. In informal labour contexts and with respect to workers who are not in a formally recognised category of skilled labour, there is often a high degree of skilful interactions. Informal skills may become formally recognised by means of processes such as the recognition of prior learning (RPL).
- Skills are the result of **formal, non-formal and informal learning**.
 - Formal skills development is that which leads to formal qualifications
 - Non-formal skills development refers to planned educational interventions that are not intended to lead to formal qualifications (or parts thereof).
 - Informal learning occurs in all kinds of daily activities (at work, in family or community life, or leisure) and includes incidental learning.
- The definition of what are core or foundational skills, intermediate and high-level skills, scarce skills, and so forth, is eminently **contextual**.

Other authors provide the following explanations to the concept of skills:

- Clark and Winch (2006, p258): skill is the “**physical and mental dexterity** of an individual in performing a task in the work process. It is neither associated directly with an occupation or industry, nor with the potential of the labour concerned”.
- World Economic Forum (2016; p54): skill is “used to refer to the **work-related capabilities** of people to perform a job successfully”. They distinguish skill from abilities, by defining abilities as that which “refers to more fundamental and enduring attributes of an individual, such as physical or cognitive abilities that are formed over a longer period”.
- Bolisani & Bratianu (2018): skills mean “**knowledge about how to do something (know-how)**. It is based on experiential, action-oriented knowledge obtained by performing repeatedly a certain task and learning by doing it”. For example, we don’t learn swimming by reading in a book about objects floating but by doing it with the whole body and reflecting upon it to improve co-ordination between breathing and moving our arms to stay afloat.
- Green (2011): skill is “**productive, expandable and social**. Skill has productive value; it is enhanced by training and development; and it is socially determined”.
- Allais (2011, p3): in South Africa the term skills “is frequently used to refer to the training that happens under the Sector Education and Training Authorities (SETAs) and the National Skills Fund (NSF)”.
- Winterton, et al (2005, p7): skill is **goal-directed, well-organised behaviour** that is acquired through practice and performed with economy of effort”.

From the above definitions, we can learn that skill develops over time, with practice; it is goal-directed in response to some demand in the external environment; it is acquired when components of behaviour are structured into coherent patterns; and cognitive demands are reduced as skill develops.

Grant (2016) organizes skills into the following categories:

- **Essential**—skills that provide a foundation for work and lifelong learning (e.g., reading, writing, document use, numeracy, computer use, thinking, oral communication);
- **Employable**—skills needed to enter, remain at, and progress in work (e.g., personal management skills, adaptability, working with others, having a positive attitude).
- **Knowledge**—awareness and understanding of information, facts, and ideas—often specific to a field of expertise;
- **Technique**—skills related to doing specific tasks (e.g., driving a truck, creating software, drawing, pipefitting, and maintaining an aircraft).

According to the OECD (2016), the indicators measuring skill shortage and surplus are constructed on the basis of signals extracted from five sub-indices:

- wage growth,
- employment growth,
- hours worked growth
- unemployment rate,
- under-qualification growth

Knowledge

A distinction is often made between general knowledge, which is fundamental to basic life knowledge, and knowledge that is specific to a sector or occupations and only likely to be encountered in the workplace. Both general and occupationally specific knowledge play a key role in the workplace when converted into useful information that can be applied in the production process. Friedson (2001; p9) makes the claim that “**all work presupposes knowledge, that it is the practice of knowledge** and that the social and economic organization of practice plays a critical role in determining both what knowledge can be employed in work and how that knowledge can be exercised”.

Below we examine the concept of knowledge, types of knowledge, organisation of knowledge and its distribution. Epistemology was developed as a theory of knowledge, trying to answer the fundamental question: What is knowledge? No clear definition has emerged leaving the concept as an abstract but powerful one as it remains central to the economic and social domain of all human interaction.

Philosophically, knowledge is defined as “justified true belief”. Bolisani and Bratianu (2018, p6) suggest that knowledge is a “justified true belief” if it incorporates the following three conditions:

- *The truth condition*: the proposition one claims to know is true. If the proposition is not true, then that person does not know what he/she claims to know. The truth condition makes the difference between opinion and knowledge.
- *The belief condition*: that condition demands that if one knows a proposition then he/she believes that proposition.

- *The justification condition*: that condition requires a procedure of justifying that the belief one holds is true.

Knowledge can be distinguished according to types:

- Bolisani & Bratianu (2018, p9) describe “**experiential knowledge** which is what we get from the direct connection with the environment, through our sensory system, and then it is processed by the brain”.
- Pritchard (2014, p14) discusses **propositional knowledge**. A proposition is what is asserted by a sentence which says that something is the case. “
- The third type of knowledge is procedural. Kogut and Zander (1992) argue that the process by which knowledge is used in organisations is at the heart of business performance and value creation. **Procedural knowledge** is the understanding of how something is done, the series of steps or actions taken to accomplish a goal.
- Any of the above three knowledge types can take one of two forms- explicit or implicit. Dombrowski et al. (2013; p. 44) provides clarity between **explicit knowledge and implicit knowledge**. Explicit knowledge is easier to pass along because it’s written down and accessible. When data is processed, organized, structured, and interpreted, it forms an explicit body of knowledge. The application of explicit knowledge can be explicit but it can also be implicit.

The three types of knowledge (experiential, propositional and procedural knowledge) are organised in two structures (singular and multiple):

- **Singular organisation refers to disciplinary structure of knowledge**. Disciplinary knowledge contains subject-specific concepts and detailed content of what students learn in specific disciplines. As students acquire disciplinary knowledge, they also become able to connect knowledge across different disciplines (interdisciplinary knowledge, see below), they learn how this knowledge is applied in different situations by practitioners (epistemic knowledge), and they learn about different processes and methods for using this knowledge (procedural knowledge).
- **Interdisciplinary knowledge** involves relating the concepts and content of one discipline/subject to the concepts and content of other disciplines/subjects. Since disciplines influence each other, knowledge is interconnected reflecting the complexities of the world in which we live.
- **Knowledge and innovation**: Roper & Love (2018, p12) clarify the link between **innovation** and the commercialisation of new knowledge or technology.

4. Policy Implications

On the concept of skill:

- Skill as an individual competence relates to the individual’s ability to perform tasks in the workplace whereas skill as an attribute of the collective is a broad term used to cover all the skill required in the labour market. Within the PSET policy, the term skill is used as an attribute of the collective. It refers to the collective skill of the labour market. It does however, ignore the concept of skill from an individual perspective. This is logical as policy is the overarching framework.

Bringing the collective definition from policy to implementation is a challenge for the PSET institutions tasked with policy implementation.

- There seems to be strong bias for formal learning in PSET policy. The fact that 80% of the PIVOTAL grants payments by SETAs confirm this notion. There is a need to recognise and support non-formal and informal learning as well. This is especially applicable with future skills. Formal qualification seems to always be developed on historical information.
- The concept of skill on its own is often vague as its meaning is clearer when used contextually. It is easier to understand the concept of skill when placed in context, like skill gaps or skills shortages. SETAs need to understand the contextual use at sector, sub-sector and industry level. This will lead to better data collection and skills planning.
- Skill is productive, expandable and social: It is difficult to interpret if the use of the terms skill when used in specific contexts, adhere to the PES concept. The NSDP must include skill in all three aspects as productive skill is important for the economy, expandable for the growth of individuals and the firm and social to ensure co-dependence of workers within the work environment
- Essential Skills are skills that provide a foundation for work and lifelong learning (e.g., reading, writing, document use, numeracy, computer use, thinking, oral communication). Academic education provides a solid foundation for the development of essential skills. Weak foundation skills inhibit economic growth and development. The PSET system must provide mechanisms to improve the essential skills of all citizens. The concept of lifelong learning is embedded in the NSDP.
- Employable skills are skills needed to enter, remain at, and progress in work (e.g., personal management skills, adaptability, working with others, having a positive attitude). Data collection via SETAs need to be improved to develop a rich and detailed understanding of employable skills at the sector, sub-sector and industry level.
- The level of skill is directly correlated to the level of complexity. This is reflected in the OFO where level of skill is aligned to the major occupational groups. The more the complexity of the skill, the greater is the level of skill and the knowledge required. This relates to the shift from a low skill to a high skill economy.
- Informal education and training are equally important to formal education and training especially through work experience and mentorship. The skills planning system must be flexible to include and acknowledge learning gained from a multiple of influences. This more than RPL. It involves finding some system to acknowledge the skills of employees that are acquired through informal learning.
- Skills shortages and skill gaps are forms of mismatch that are potentially driven by factors such as technological change, there may exist some correlation. More education and training initiatives could simultaneously reduce skill obsolescence and skill shortages by lowering a firm's reliance on external hiring.
- Skills mismatch exist at varying levels and extend beyond just occupational shortages and skills gaps. The current skills mismatch concepts are too narrow. The concept of skill mismatch is multi-

dimensional and encapsulates a number of measures of both education and skill, some of which are very loosely connected to each other. The form of mismatch that is to be addressed, the interdependence between various forms of mismatch should also be understood and measures designed to address them are key activities that SETAs must focus on.

On the concept of knowledge:

- Experiential knowledge, procedural knowledge, disciplinary knowledge is important for the development of skill. Hence, they must be incorporated into curricula and qualification development. They need to be clearly articulated in the three qualification sub-frameworks that support the implementation of the NQF.
- Explicit and Implicit Knowledge: Explicit knowledge is the most basic form of knowledge and is easy to pass along because it's written down and accessible. When data is processed, organized, structured, and interpreted, the result is explicit knowledge. Explicit knowledge is easily articulated, recorded, communicated, and most importantly in the world of knowledge management, stored. Explicit knowledge is something we learn in schools, from reading or listening to speakers at a conference. This is part of the foundational learning system and is already embedded in the NQF.
- Knowledge as status. Higher education is understood as preparation for work and career and that education itself is the starting point for an explanation of career outcomes and earnings. Therefore, many people acquire qualifications and strive to achieve a doctorate or professorship for the status it holds. The acquisition of knowledge as a social tool has its merits and can lead to economic benefits.

Recommended Policy Guidelines:

Narrowly focused sector skills plans do not allow for the flexibility needed in a fast-changing economic environment. Currently, economic and developmental priorities are not being adequately addressed in the individual sector skills plans prepared by SETAs. There is a strong need to produce labour market information, and to coordinate government-wide processes to determine skills needs, address those needs with relevant and high-quality programmes, and fund and support skills development that is accessible in all parts of the country especially rural areas.

Qualification mismatch arises when workers have an educational attainment that is higher or lower than that required by their job. If the education level of workers is higher than that required by their job, such workers are classified as over-qualified; and vice-versa. Field-of-study mismatch arises when workers are not employed in a different field from what they have specialised in. Change in under-qualification arises when employers who face difficulties finding workers with the right skills resort to hiring workers who are underqualified for the job, that is workers' qualification level is lower than what is required. Occupations in which the share of underqualified workers increases faster than economywide share signal skill shortages, while occupations in which a change in the share of underqualified workers is lower than across the economy signal surpluses. These must also form an important part of the measurement of mismatch.

The WP-PSET makes many references to the skills development system which is the organisations that make up the system. A large portion of the WP-PSET places much emphasis on the system players/organisations and maps out guidelines and processes to improve the operational performance of these organisations. One of the goals makes reference that these organisations “*must remain keenly aware of the skills challenges facing industry, commerce and government institutions as well as those of individual in need of skills development especially the youth*” (WP-PSET, 2013). However, no other aspect of the policy provides any further guidelines for implementation, yet this statement is the most critical for the advancement of skills and knowledge generation for economic growth and personal development of the citizens.

On the section on Universities, the WP-PSET commences with an explanation of the role of universities as envisaged by the NDP. However, the rest of the section provides information on the differentiated system, establishing partnerships, student support and research. It is not clear how universities will support the growth of graduates in scarce skills areas. University programmes take a fairly long time to register whilst occupational shortages change rather quickly to match adjusting changes in industry. The NSDP should have provided greater clarity on how this would be achieved. In addition, the NDP mentions that the role of the university environment is to provide people with “*high skills for the labour market*”. The granting of bursaries is not the only contributing factor to the development of scarce and priority skills. The development of programmes that address occupational shortages as reflected in the Occupations in High Demand List and skills gaps would also contribute to addressing priority skills needs.

The structuring of the WP-PSET makes it clear that the different parts of the training system fulfil different functions and address different needs of the citizens. The introduction of CET Colleges brings in the social context of the development of knowledge and skills whilst the TVET and UoTs focus more on technical skills and the Universities on knowledge generation. This co-ordinated but differentiated system is able to provide the varying types of knowledge and skill required for economic and social growth of the country and its citizens.

The structuring of the NQF provides an integrated framework for access and progression. The NQF and its sub-frameworks adequately deal with the formal recognition of qualifications across ten levels of learning. However, although articulation is mentioned in the WP-PSET, NSDP and OFO, there is no clearly defined matrix to display knowledge and skill articulation as part of career development. Even where SETAs invest in career development interventions, they do so in Silos. An example is the career guidance work of the BANKSETA. Although many of the occupations have information and communications technology activities embedded in them, there is no joint SETA intervention with the MICT SETA to address this.

The WP-PSET and the NSDP are both written from a national, broad perspective. This is understandable as these are framework documents. However, skills imbalances occur because the individuals within the labour market system do not possess the skill required by industry and the economy. It is therefore important to bring into the discussions, ways to measure the competence of individual to aid skills planning.

The WP-PSET and the NSDP make very little reference to knowledge. It seems as if knowledge is included and embedded in the manner in which the concept of skill is used. However, the literature on knowledge discusses the existence of several types of knowledge including experiential knowledge, procedural knowledge, propositional knowledge, explicit and implicit knowledge, disciplinary knowledge, interdisciplinary knowledge and epistemic knowledge. Skill is the application of knowledge and work is the practice of knowledge. Therefore, conversations on skills development that excludes reference to knowledge is limiting in developing strategies to address skills shortages, skills gaps, skills surpluses, skills imbalances, skills mismatches, etc. Addressing all these concepts requires a deep dive into both skill and knowledge.

Much of the policy documents provide some framework for linking education and work or the workplace. A key requirement for this is the linkages and partnerships between industry and training institutions especially in the development of curricula and training materials. The WP-PSET states that *“one of the most serious weaknesses within the PSET system is in the area of skills planning”*. The fundamental weakness lies in the SETAs inability to develop SSPs that are able to implement the broad principles and actions stated in the WP-PSET and the NSDP. The entire section in the WP-PSET on *“linking education and the workplace”* is premised on the need for proper skills planning. This system needs to address skills needs at national, sectoral, firm and individual levels. The establishment of a skills planning unit at DHET will only address national priorities. Clarity is required on how skills planning will address the needs of other beneficiaries in the system.

The contextualising of skill is only possible if employers register their customised learning interventions to the requirements of the NQF and its sub-frameworks. At present, this is a difficult task to perform with the current accreditation processes and systems. A more dynamic model is required. To understand the concept of skill best, it must be viewed from the perspective of the firm and the individual. It is at this level that skill mismatches and imbalances occur and it is only at this level that they can be managed. If skills planning does not collect data at this level, then the planned interventions will meet quantitative targets but not address the imbalances in skills supply and demand. For the firm and the individual, skills must be essential and contribute to making them employable; that is, they are in a better position to be promoted or to find employment.

On the principle of *“understanding skills demand”* SETAs need to analyse sectoral growth by determining required skills and occupations to very occupations in high demand and skills gaps. The current WSP and WSS process does not provide adequate data collection to provide meaningful data for analysis. On the principle of *“steering supply”*, the explanation within the NSDP focuses on the role of Quality Council. This is where a clear mismatch occurs as in terms of the demand side as the supply side should focus on mechanisms to meet the demand. The clearer the demand is in terms of knowledge and skill required by the sector; the supply side will have a clearer picture on what skills and knowledge to focus on.

There are several reasons why it is difficult to align skills to labour market need. Grant (2016, p8) explains that *“skills are developed over a long time period, whereas labour market needs are immediate”*. Employers are concerned about meeting the current demand of their skills needs, whereas labour market participants are concerned about positioning themselves for stable employment over the long term as they seek job security. People invest heavily in specialized skills in

areas that have a solid track record of providing good employment and earnings. Or they may specialize once they have had an opportunity to develop a secure relationship with an employer. Alternatively, people may develop broad-based skills that they believe position them for a wide range of jobs over time.