United Nations
Educational, Scientific and
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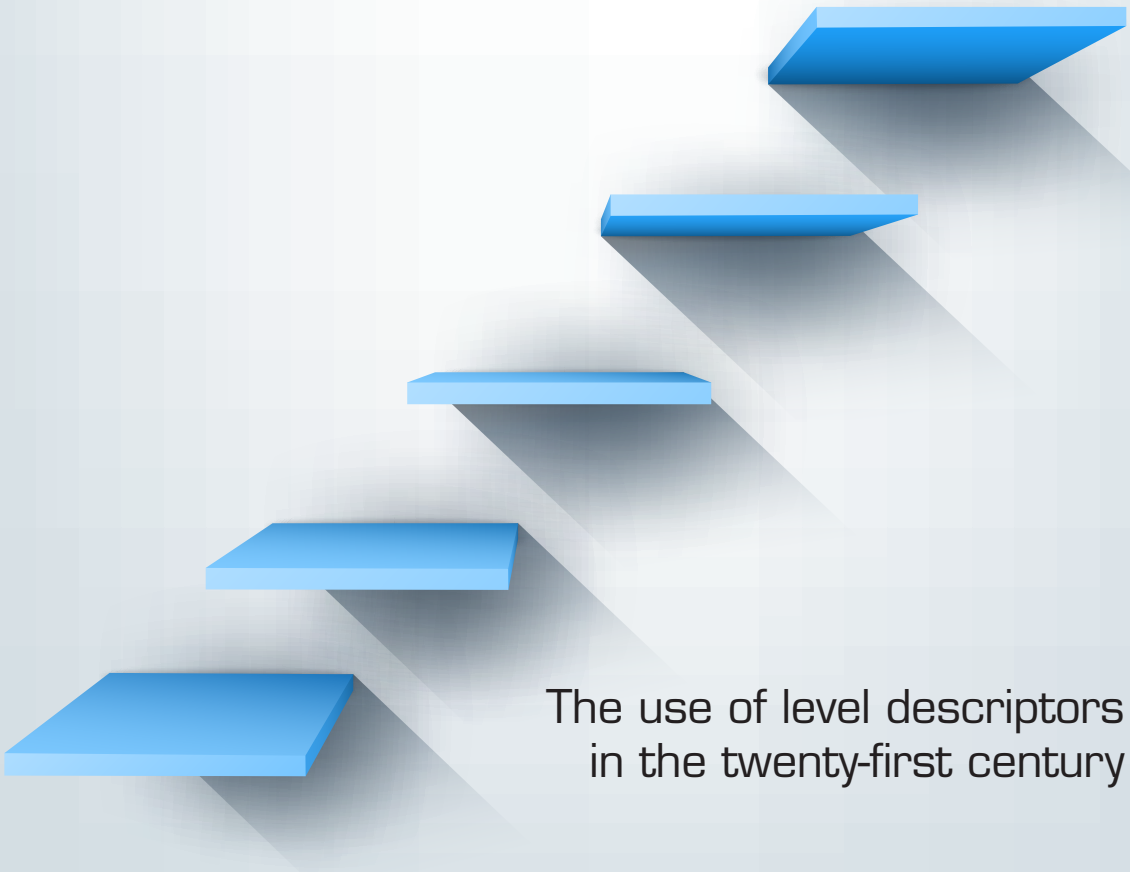
Level-setting and recognition of learning outcomes



The use of level descriptors in the twenty-first century

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Level-setting and recognition of learning outcomes

The use of level descriptors in the twenty-first century

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FOREWORD

I am pleased to present this global study on the use of level descriptors in the twenty-first century. The book includes a comprehensive review of the most current developments in this field. The findings are unique in that they provide for the first time a comprehensive overview of the different ways in which learning is recognized in contemporary education and training systems. More importantly, this study provides key insights into how learning may be recognized in the future. The effort by the authors to map the field, supported by eminent experts from across the globe, is commendable and offers an important basis for the work of UNESCO in this area. Given the diversity of contexts, it is remarkable how many countries around the world are using qualifications frameworks to facilitate the recognition of learning outcomes within a broader lifelong learning perspective.

This study is a direct follow-up to the Third International Congress on Technical and Vocational Education and Training (TVET) which was held in Shanghai in 2012. It will inform the development of international guidelines on quality assurance for the recognition of qualifications based on learning outcomes. Such guidelines will contribute to a better understanding of learning and to reinforcing the ways in which it can be valued and recognized.

This book will be of interest to experts and practitioners working in the field of the recognition of qualifications, including in higher education, and to the broad TVET community. It is intended as a useful reference for qualification systems development and reforms at all levels as well as for the global debate on recognizing learning outcomes.

Qian Tang, Ph.D.
Assistant Director-General for Education
UNESCO

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This report is the result of sustained collaboration between leading experts from around the world. We would like to thank all those who contributed their expertise for the interviews, inputs, peer reviews and feedback.

Earlier drafts of this report benefited from comments and inputs from expert panels of peer reviewers including Arjen Deij, Diane Booker, Jens Bjornavold, Joe Samuels, John Hart, Mike Coles, Megawati Santoso and Volker Rein. We also acknowledge the contributions of reviewers from the Caribbean, Latin America, North America, Africa, Europe, and the Arab States who participated in the peer review workshop held in Paris in September 2014. A full list of interviewees and reviewers is provided in Annex 3.

Special thanks is due to the South African Qualifications Authority, and more recently JET Education Services, for making available the expertise of James Keevy.

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EXECUTIVE SUMMARY

The research presented in this report explores the global phenomenon of learning across boundaries, but with a specific focus on the manner in which the level of learning is recognized through the use of level descriptors. The research draws on the development and application of level descriptors as an integral part of qualifications frameworks internationally, but also considers how the level of learning is determined in other contexts, such as longitudinal studies, international competence assessments and diagnostic reviews. The use of learning outcomes constitutes a common thread that is explored in all the case studies included in the report.

The research was initiated by UNESCO following the Third International Congress on Technical and Vocational Education and Training (TVET), which was held in Shanghai in 2012, where a recommendation was made to explore the possibility of developing international guidelines on quality assurance for the recognition of qualifications based on learning outcomes. This included the proposal that a set of world reference levels be considered to facilitate the international recognition of TVET qualifications. This research report constitutes the first step of an incremental approach that will be followed to respond to the Shanghai Consensus Recommendation. Additional steps will include the conceptual development of the world reference levels, consultation, and a political process that will explore the technical and legal aspects related to the desirability of defining and adopting world reference levels.

The context for this research is unique in many ways. We live in a world in which not only people and jobs, but also programmes and institutions, are increasingly internationally mobile. Qualified people are more mobile as they are increasingly able to transverse borders in an expanding global context. Many jobs are also becoming more internationalized as world trade and production are increasingly structured around global value chains (GVCs) (OECD, 2012*b*), and as transferable skills and competences are identified and agreed on at regional, transnational and even global levels. Education institutions are also engaging in international partnerships and increasingly using new information and communication technologies to provide alternative ways to deliver education services (WTO, 2010). As a direct response to this increased mobility of people and jobs, and to some extent also institutions and programmes, there is an increasing call for fair and valid recognition of learning at national, regional and international levels.

In an attempt to capture this diverse context, the scope of the research has been intentionally broad, to the extent that it could be described as a first attempt to bring together diverse and contemporary learning outcomes-based developments from across education, training and work on a global level. While this broad scope could be described as a weakness, as it has not been possible to provide an extensive review of each individual development, it has been done purposively in an attempt to provide a basis for much needed further conceptual work. In order to support this further conceptual work, the research proposes a conceptual framework organized according to three focus areas: categorizing learning, setting levels of learning, and recognizing learning. Each of these focus areas is further elaborated in terms of specific dimensions. This framework can potentially provide an important point of departure for the development of the proposed world reference levels.

The research also considers future possibilities, as it identifies 'representation' as a concept that attempts to improve transparency by providing more information related to learning and learning outcomes. It notes that this may be difficult to implement at present, but that there are certainly some examples of developments in this direction. The specific examples discussed are the Europass CV and digital badges. The referencing of qualifications frameworks to regional frameworks is noted, and it is emphasized that while this is a relatively new methodology, it is one that will contribute to increased transparency when qualifications systems are compared. Online credentials and international qualifications are discussed as new developments that are gaining traction across the globe and cannot be ignored. The potential emergence of a fourth generation of qualifications frameworks is also discussed.

While it is recognized that an Executive Summary cannot do justice to the many nuances and arguments presented in the report, it is useful to note at least some of the main implications coming from this research. Importantly, it was found that knowledge, skills and competences domains were the most widely used, and should be considered also as the most appropriate for the world reference levels. It was found that all three domains can be described using learning outcomes, or sets of learning outcomes. Another important insight gained was that the notions of sustainable development and global citizenship are important aspects that should also be considered when developing the world reference levels. Thematic linkages within a level and across domains, such as used in the ASEAN regional qualifications framework, as well as the need to add exemplars from various countries and regions, and indicative levels were also noted as important considerations for the world reference levels. Referencing processes and methodologies that are increasingly

being used when qualifications frameworks are compared were also identified as a key area that should be analysed to determine the implications for the proposed world reference levels.

The report ends by revisiting the rationale for the world reference levels, and offering some thoughts on the next steps. It is acknowledged that the purpose of the world reference levels lies mainly in their potential to provide a neutral and independent reference point against which a level of learning can be assessed. It is argued that this potential will contribute to improved public understanding of, and confidence in, education, training and work, more so at a time when there are some many new developments on a global scale which are mostly poorly understood (examples include digital badges, qualifications offered across borders, and even a new generation of qualifications frameworks).

The world reference levels should aim at supporting the mobility of learners and workers, participation in labour market and lifelong learning. They could facilitate equity in recognition by including quality assurance principles while addressing the challenges of inter-regional mobility through capacity-building, the development of shared orientation materials and the establishment of networks and communities of practice. They could raise the profile of promising recognition practices among stakeholder groups and highlight the inefficiencies caused by barriers to recognition. They could establish a framework for information provision, which is the basis of building mutual trust, an issue that is amplified at the global level. The world reference levels should complement national and regional qualifications frameworks and motivate monitoring of regional development.

Broadly, the report proposes that the potential value of the world reference levels can be categorized into four scenarios. While the four scenarios are not mutually exclusive, the manner in which they are presented in the report suggests progression from a relative weak role as a reference point, to stronger roles, such as for transparency and recognition.

- Reference point – the world reference levels can contribute by providing a common language and approach to the use of learning outcomes through peer learning and international comparative work;
- Transparency tool – similar to regional qualifications frameworks, specifically the European Qualifications Framework (EQF), the world reference levels could in future make learning and the recognition of learning more transparent across countries and regions;

- Facilitate recognition – ultimately, the world reference levels could impact directly on the recognition of qualifications and learning on a global level;
- Normative – here the world reference levels become a global standard against which countries and regions benchmark their systems.

In terms of next steps, it is proposed that an international taskforce be established to take the work forward. It is also proposed that the world reference levels be developed in close collaboration with another UNESCO initiative on the development of a global standard-setting instrument for the recognition of higher education qualifications. Further research in the areas of, amongst others, the development of learning pathways, the quality assurance of certifications, the limitations of level descriptors, and the application of the Bloom and SOLO taxonomies is proposed. The report concludes by reminding the reader that world reference levels will have to be forward looking, with at least a five-year projection before these levels become a reality. The levels must embrace not only a new understanding of knowledge, skills and competences, but also new ways in which learning can be represented using learning outcomes.

The study is an ambitious attempt to provide a comprehensive review of the state of the art in measuring TVET learning outcomes and lays the conceptual foundations for developing world reference levels. It does not seek to provide all the answers, and it acknowledges the challenges to be faced together with experts and social partners from the international community. As a first study of this nature it constitutes a basis for much needed further work.

CHAPTER 1

INTRODUCTION

> "We all are living in the age of globalization. Migration of skilled and semi-skilled workforce is taking place in most of the countries. Skills quality varies from country to country. Lack of skills, skills gap and skills mismatch are common problems for workforce sending country and workforce receiving country (*sic*). I am working as a principal of a technical training centre. I always think for (*sic*) the global standard of TVET institutions so that I can train my trainees as a global standard. Can anyone help me to identify the global standards of TVET institutions?"
>
> Dr Engr. Md. Sakawat Ali, Principal,
> Bangladesh-Korea Technical Training Centre, Darus-Salam,
> Dhaka, Bangladesh. Comment made on the
> UNESCO UNEVOC Discussion Forum, April 2014.
> *Minor editorial changes made to text.*

This research is about three age-old concepts, but interrogating each from a twenty-first-century perspective, and using contemporary methodologies that have in recent times become available. It is about learning, that is, within a broader lifelong learning perspective; about level, that is, the level at which the outcomes of learning are allocated through the use of level descriptors which constitute an integral component of qualifications frameworks internationally; and lastly about recognition, specifically the recognition of learning facilitated by the development and implementation of learning outcomes-based qualifications frameworks.

Broadly, level descriptors are statements that provide a broad indication of learning appropriate to attainment at a particular level, describing the characteristics and context of learning expected at that level. They are designed to support the reviewing of specified learning outcomes and assessment criteria in order to develop particular modules and units and to assign credits at the appropriate level (Vlasceanu et al., 2007). This understanding is carefully unpacked in the research.

The aim of this research is to support a broader initiative that will explore the possibility of developing international guidelines on quality assurance for the recognition of qualifications based on learning outcomes, including a set of world reference levels to facilitate the international recognition of qualifications. The study focuses specifically on the convergences and divergences across level descriptors used in qualifications frameworks, including the associated terms and concepts, as a first step towards developing the proposed world reference levels.

The idea of a set of world reference levels was considered in May 2012, during the Third International Congress on TVET, held in Shanghai, China. The research included in this report was initiated by UNESCO based on the recommendation from the Congress to the UNESCO Director-General to undertake this work.

The UNESCO TVET Section, in cooperation with the European Commission's Directorate General for Education and Culture and the European Centre for the Development of Vocational Training (CEDEFOP), subsequently invited key organizations in Brussels to deliberate on the Shanghai Consensus Recommendation (UNESCO, 2012) in September 2013. The deliberations included regional developments in Europe, notably the European Qualifications Framework (EQF) and in Asia, notably a common standard for competences developed by the Association of South East Asian Nations (ASEAN), as well as the move towards regional qualifications frameworks (RQFs) in Central America and the Southern African Development Community (SADC). At the national level, the development of national qualifications frameworks (NQFs) was considered across and beyond these regions, including Mercosur (Mercado Común del Sur, the Common Market of the South) in South America and the development of a transnational qualifications framework (TQF) by twenty-nine small states of the Commonwealth (COL and SAQA, 2008). The additional dimension of learning metrics as used in longitudinal studies, international competence assessments and diagnostics reviews was also considered.

The Brussels deliberations concluded that the mobility of people (both learners and workers, including migrant workers) and jobs (including outsourcing and offshoring) constitutes an important driver for the world reference levels (Chakroun, 2013) emanating from the Shanghai Consensus Recommendation (UNESCO, 2012). It was noted that jobs are not always matched to demands during these movements, because of demographic shifts and the differential capacities of economies to create jobs. The cross-border provision of education and training, as well as the technological developments resulting in increased open and distance learning, and online learning, were also identified as important drivers towards world reference levels (UNESCO, 2012). Another important driver identified in the Brussels deliberations was the need for international dialogue, cooperation and capacity-building in the field of the recognition of qualifications. Key questions identified at the time included the following (paraphrased from Chakroun, 2013):

- How can a lifelong learning perspective be applied in the development of a set of world reference levels? While this perspective forms the basis for level descriptors in different types of qualifications framework, the broad scope of the level descriptors makes implementation difficult, and all the more so because it requires the involvement of other actors, such as those in charge of higher education;
- How best can formal, non-formal and informal learning be described by a set of world reference levels? Current level descriptors tend to focus on formal learning only;

- How can the legitimacy of a set of world reference levels be ensured? Conceptual and terminological clarity, as well as consistency and wider consultation, will be needed. The extent to which level descriptors can act as an agreed and credible reference point for all stakeholders in education and training, lifelong learning and the labour market will also be critical.

It was decided that a four-staged incremental approach be followed to respond to the Shanghai Consensus Recommendation: (1) a technical review of level descriptors at national and regional levels; (2) a conceptual development of the world reference levels; (3) broad consultation; and (4) a political process that will explore the technical and legal aspects relating to the desirability of defining and adopting world reference levels (Chakroun, 2013).

The research presented in this report constitutes the first stage of the work outlined above. UNESCO (TVET Section) initiated a review of the use of level descriptors at global level in March 2014. The aim has been to build an overview of existing level descriptors at national and regional levels, and the way they are used for defining learning outcomes and classifying qualifications. A broad mapping of level descriptors used in other contexts, such as longitudinal studies, international competency assessments and diagnostic reviews, was also included. The technical review, as presented in this report, provides the basis for a first analysis of the level descriptors and the learning outcomes terminology used in different countries and regions. The review further allows for the identification of the extent to which cross-region descriptors converge and/or differ. In addition to the work on descriptors, clarification is also provided on what is meant by 'qualification' and how this concept relates to reference levels and learning outcomes. UNESCO (TVET Section) commissioned the South African Qualifications Authority (SAQA) to undertake the global study. This report is the outcome of the study, and has been jointly developed by the two authors, James Keevy from SAQA and Borhene Chakroun from UNESCO.

The report comprises the following sections: an overview of the research design employed for the study (Chapter 1); the research design (Chapter 2); a detailed discussion of the conceptual framework that underpins the study, specifically understandings of learning, the determination of the level at which learning takes place, and the recognition of learning (Chapter 3); a review of future possibilities and how these can inform the development of the world reference levels (Chapter 4); implications of the research findings for the world reference levels; and concluding comments in which the rationale for the world reference levels is revisited and some suggestions for future steps are made (Chapter 5). Annexes provide references, and lists of acronyms and abbreviations, a glossary of key terms, a mapping of level descriptor domains and progression, a list of the interviewees that participated in the study and the interview schedule.

CHAPTER 2

RESEARCH DESIGN

The aim of this research was to conduct an overview of existing level descriptors at national and regional levels and the way they are used for defining learning outcomes and classifying qualifications. The research will form the basis for further steps that will be taken as part of the four-staged incremental approach to be followed in response to the Shanghai Consensus Recommendation (UNESCO, 2012) to develop international guidelines on quality assurance for the recognition of qualifications based on learning outcomes, including a set of world reference levels to facilitate the international recognition of TVET qualifications.

The research was conducted in the first half of 2014 using a mixed methods approach. The broad mapping of level descriptors used in different types of qualifications frameworks, as well as in other contexts, such as longitudinal studies, international competence assessments and diagnostic reviews, was conducted through a desktop review of available documentation. The desktop review was supplemented by interviews with key experts and role-players. A list of interviewees is included as Annex 3.

The questions identified during the Brussels deliberations served as a basis for the identification of research questions for the study, but these were refocused for the first stage of the work required, namely the technical review of level descriptors at national and regional levels. As a result, two central research questions are explored in this study:

- What are the convergences and divergences across level descriptors used in different types of qualifications frameworks, and other contexts, such as in international surveys?
- What are the key terms associated with level descriptors and how are they defined?

Underlying these two questions is a range of cross-cutting themes organized primarily around three key concepts: (1) learning, (2) level and (3) recognition. An exploration of these themes forms the conceptual framework in which the research was conducted. This framework draws on current and emerging understandings of learning within a broader lifelong learning perspective, the recognition of learning facilitated by the development and implementation of learning outcomes-based qualifications frameworks, and the level at which the learning is recognized through the use of level descriptors. Because these concepts lie within the global development of qualifications frameworks, a brief overview of the status and scope of qualifications frameworks internationally is also included. The extent to which level descriptors are able to capture learning of a non-formal and informal nature was also considered as an important related dimension of the study.

The research draws on extensive related research in the field of qualifications and the recognition of learning, as captured in the list of references. In this regard it is important to note that several related initiatives were under way at the same time as this research. As far as possible these existing initiatives, as well as those that had already been completed, were drawn upon through a review of literature. Several of the individuals involved in the initiatives were also directly consulted through interviews and the sharing of resource materials. Examples include, but are not limited to, research into the use of learning outcomes within the context of NQFs in EU member states (CEDEFOP, 2014*a*), Modelling of Vocational Excellence (MOVE) (WorldSkills Foundation, 2012), early work on the Dublin descriptors that later informed the EQF level descriptors (Joint Quality Initiative, 2003), the Scottish Credit and Qualifications Framework (SCQF) Employer Levelling Tool (SCQF, 2013), and a new initiative by the International Labour Organization (ILO) to research into the impact and relevance of qualifications frameworks to the labour market (ILO, 2014). A comprehensive list of these and other initiatives is provided in the references at the end of this report.

A deliberate attempt was made to ensure that the research explored the convergences and divergences across level descriptors used in the global context, and not only in certain regions or countries. For this reason documents were sourced, and interviews were conducted, across SADC, ASEAN, Mercosur, Central America, the Caribbean Community (CARICOM), the Pacific and the European Union. The selection of countries, considering the scope of the research, was based on the level of development of qualifications frameworks, with an attempt to include first, second and third-generation frameworks. The differences between these generations of qualifications frameworks are explained briefly in the section below, but in essence it was posited that the level descriptors that form part of the early qualifications frameworks would differ quite substantially from level descriptors developed as part of more recently developed qualifications frameworks, which have been influenced by both the early NQFs and the existence of RQFs.[1]

Although the impetus for the research was strongly vocational, in conformance to the Shanghai Consensus Recommendation (UNESCO, 2012), the decision was made to not limit the study only to TVET. This decision was based on the argument that level descriptors are generally used for all levels and sectors of education and training, and hence, the findings of the study would be of wider applicability. Recommendations for the proposed world reference levels to facilitate the international recognition of TVET qualifications would therefore be improved through the wider scope.

1 Pers. comm., J. Bjornavold, 20 March 2014.

As mentioned earlier, the sample of qualifications frameworks selected for the research was based on the need for global representation, as well as the need to include first, second and third-generation qualifications frameworks. The following NQFs were included: Africa: South Africa; Central and South America: Chile and Costa Rica; Europe: Poland, Germany and Scotland; Asia: Indonesia, Malaysia and South Korea; Arab States: United Arab Emirates; Australasia: Australia. All existing RQFs were also included: the SADC RQF, the CARICOM TVET Qualifications Framework (TVET QF), the ASEAN RQF, the EQF, the Qualifications Framework for the European Higher Education Area (QF-EHEA) and the Pacific Qualifications Register (PQR).

Descriptors used in other contexts, such as longitudinal studies, international competence assessments and diagnostic reviews, were included in this study in an attempt to benchmark the use of level descriptors in other contexts with those in qualifications frameworks. These included:

- The Programme for the International Assessment of Adult Competencies (PIAAC) and the Programme for International Student Assessment (PISA) conducted by the Organisation for Economic Co-operation and Development (OECD);
- The International Standard Classification of Education (ISCED) and Literacy Assessment and Monitoring Programme (LAMP) overseen by the UNESCO Institute for Statistics (UIS);
- Skills Towards Employment and Productivity (STEP) overseen by the World Bank;
- WorldSkills International, a politically neutral forum that promotes excellence in TVET among youth;
- The Learning Metrics Task Force (LMTF), which involves UIS and the Centre for Universal Education at the Brookings Institution;
- Occupational Information Network (O*NET) sponsored by the United States Department of Labour and developed by the National Centre for O*NET Development, North Carolina State University;
- The Tuning Project, which started in Europe as a project linked to the Bologna process and the Lisbon Recognition Convention, but which has subsequently expanded to Latin America, the USA, Russia and Africa;
- The Transnational Skills Standards (TnSS) project implemented by the International Skills Standards Organisation (INSSO).

The selection of these case studies was based on available information. All well-known international studies were considered in the desktop review. Interviews with representatives from international and regional agencies involved in education and training, such as UNESCO, the European Training Foundation (ETF), the ILO, the World Bank and the OECD, were also included in the study.

The findings of the study, as presented in this report, have been submitted for peer review. Reviewers include key experts in the field and representatives from the organizations that participated in the study.

CHAPTER 3

THE USE OF LEVEL DESCRIPTORS IN THE TWENTY-FIRST CENTURY

Two research questions are posed in this study:

- What are the convergences and divergences across level descriptors used in qualifications frameworks?
- What are the key terms associated with level descriptors, and how are they defined?

In order to respond to these questions it is first necessary to contribute to conceptual clarity in an area that has become more mainstream in recent years. This growing emphasis on learning outcomes to describe knowledge, skills and competences (KSC), and the recognition methodologies in which these concepts are used, has resulted in a wide range of publications and studies. These recognition methodologies range from the more recent developments, such as qualifications frameworks, to methodologies that have been used for longer, such as regional conventions, credential evaluation, occupational classification systems and learning metrics. Professional and occupational standards are also included in this basket of methodologies. Despite more being written on these methodologies in recent years, the common use of learning outcomes to describe KSC across all these methodologies remains largely under-researched outside of Europe. As a result, the literature remains vague on the interrelationships, and application in practice has become mired with confusing and overlapping terminology.

This study, which is a first step towards developing international guidelines on quality assurance for the recognition of qualifications based on learning outcomes, including a set of world reference levels, required a careful interrogation of the literature and practices associated with recognition methodologies. As described in the earlier section on the research design of this study, this included a review of a range of qualifications frameworks, learning metrics and other methodologies through a desktop study and interviews with key experts.

The conceptual framework consists of six interrelated dimensions which are broadly based on the three focus areas of this study: learning, level, and recognition, which are summarized on the next page.

FOCUS AREA – CATEGORIZING LEARNING

Dimension 1 **Learning in a lifelong learning context**

This includes the growing emphasis on learning outcomes as well as an explicit description of emerging understandings of learning in a lifelong learning context that includes all forms of learning: formal, non-formal (structured learning that lies outside of the formal system), and informal learning (learning that results from daily activities).

Dimension 2 **Domains of learning**

This includes the different domains (also referred to as types of learning) used in recognition methodologies, notably in qualifications frameworks and learning metrics, but also in other contexts. The main influences on our understanding of learning outcomes to describe KSC are explored. These influences are interrogated in an attempt to provide some insights into the relationships between KSC, to inform the proposed world reference levels.

FOCUS AREA – SETTING LEVELS OF LEARNING

Dimension 3 **The level of learning**

This includes how learning can be allocated to a level. Starting with a consideration of how learning has been 'levelled' prior to the advent of qualifications frameworks, such as through the well-known Bloom taxonomy, the section focuses specifically on the intricacies of formulating level descriptors using learning outcomes.

FOCUS AREA – RECOGNIZING LEARNING

Dimension 4 **Qualifications and qualifications frameworks**

This includes a reflection on the early uses of qualifications, different understandings of qualifications, as well as the development of different types of qualifications frameworks on sectoral, national and transnational levels.

Dimension 5 **The application of learning outcomes to describe KSC for measurement and recognition**

This includes a review of the different applications of learning outcomes to describe KSC in recognition methodologies such as in qualifications frameworks, but also in credential evaluation, regional conventions, professional standards and learning metrics.

Dimension 6 **Assessment of learning outcomes**

This includes a review of the assessment criteria and methods, the responsibility for defining the assessment criteria, the stakeholders involved, in particular private sector representatives, and the centralization/decentralization of assessment.

While an attempt is made to reflect on the use of learning outcomes to describe KSC across multiple recognition methodologies, the main focus of the research is on the specific use in the context of qualifications frameworks.

The conceptual framework hinges on three key tenets that are explored in the following sections of the report:

1. There exists an interrelationship between knowledge, skills and competences and the manner in which each is described using learning outcomes. While it is important to recognize the distinct origins of the different approaches, their interrelationship is based on the use of groups or clusters of learning outcomes to describe KSC, and also the common affinity for overly behaviouristic formulations. It is proposed that more socio-constructivist approaches, including the notion of communities of practice (Wenger, 2005), be explored to counter this weakness in the formulation of learning outcomes, including how they are used in level descriptors.

2. Several 'recognition methodologies' exist through which learning is recognized across the world. These include more traditional approaches, such as are evident in credential evaluation methodologies, regional conventions, and professional and occupational standards. Learning metrics, such as those conducted by the OECD, the World Bank, UNESCO and others, are also important to consider when investigating how learning is recognized. More contemporary methodologies, such as qualifications frameworks, constitute the main focus of this study, however. In particular, the study investigates how level descriptors used in the context of qualifications frameworks provide a useful means of identifying the level of learning at a global level.

3. A set of world reference levels must have a meaningful purpose, must be forward-looking, and must take into account the strengths and limitations of level descriptors used in the context of qualifications frameworks and other recognition methodologies.

The conceptual framework, together with the key tenets elaborated above, is discussed in the sections that follow.

FOCUS AREA: CATEGORIZING LEARNING

Dimension 1: Learning in a lifelong learning context

Lifelong learning takes place through informal learning in homes, communities and workplaces and organized learning programmes delivered by education and training providers. Lifelong learning may be non-formal or formal, public or private, provided online, or in communities and life situations such as intergenerational, peer-based and self-directed learning. With the penetration of information and communications technology (ICT), including mobile technologies and broadband, people are increasingly able to access learning resources anywhere, any time, and to use them in an integrated and discontinuous way. This makes it difficult to identify learning periods as distinct from other social times. Informal, peer-based and self-directed learning should be also acknowledged.

In looking at learning in a lifelong learning context, it is important to build upon the heritage of past works, in particular the work of UNESCO in this field. The 1972 Faure Report (Faure et al., 1972), for instance, established the two interrelated notions of the *learning society* and of *lifelong learning*, at a time when traditional education systems were being challenged. As technological progress and social change accelerated, no one could expect that an initial education would serve throughout life. School, while remaining the essential means for transmitting organized knowledge, would be supplemented by other aspects of social life, institutions, working environment and leisure, as well as by the media. The report advocated the right and necessity of each individual to learn for their social, economic, political and cultural development. It considered lifelong learning to be the keystone of educational policies in both developing and developed countries.

The Delors Report (UNESCO, 1996) later proposed an integrated vision of education based on two key paradigms: lifelong learning and the four pillars of learning. It was not a blueprint for educational reform as such, but rather a basis for reflection and debate about the choices that must be made in formulating policies. The report argued that such choices about education are determined by choices about the kind of society in which we wish to live. The report proposed a holistic conceptual framework of learning, that of the 'four pillars of learning'. It argued that

formal education tends to emphasize the acquisition of knowledge to the detriment of other types of learning essential to sustaining human development. It stressed the need to think of learning over the life course, and to address how everyone can develop relevant skills, knowledge and attitudes for work, citizenship and personal fulfilment.

- Learning to know – includes learning to learn, an instrumental learning skill inherent to basic education, which allows individuals to benefit from educational opportunities that arise throughout life;
- Learning to do – emphasizes the acquisition of vocational skills necessary to practise a profession or trade. In addition to learning an occupation, people need to develop the ability to adapt to a variety of often unforeseeable situations and to work in teams;
- Learning to be – 'to develop one's personality and to be able to act with growing autonomy, judgment and personal responsibility and exercise greater independence and judgment combined with a stronger sense of personal responsibility for the attainment of common goals' (UNESCO, 1996, p. 37);
- Learning to live together – by developing an understanding of other people and an appreciation of interdependence. Such understanding 'would provide a basis for the creation of a new spirit which, guided by recognition of our growing interdependence and a common analysis of the risks and challenges of the future, would induce people to implement common projects or to manage the inevitable conflicts in an intelligent and peaceful way' (UNESCO, 1996, p. 20).

It is important to note that the four pillars of learning were envisaged against the backdrop of the notion of 'lifelong learning', itself an adaptation of the concept of 'lifelong education' as initially conceptualized in the 1972 Faure publication *Learning to Be* (see Tawil and Cougoureux, 2013). In the lifelong learning perspective, learning is about the development of the whole person:

> [Learning] is about allowing every individual to participate in society and making our society more cohesive. Learning enables people to develop to their full potential and to play an active role in their environments. It allows them to try new things and to harness untapped talents. Along with enhancing employment opportunities and professional standing, learning lays the groundwork for fulfilment in life. (Stiftung, 2010 cited in Tawil and Cougoureux, 2013, p. 5)

While the Faure and Delors reports have undoubtedly inspired thinking about education worldwide, it is important to recognize that the global context has undergone significant changes since the 1970s and the 1990s. There has been an increasing recognition of the importance of lifelong learning in the twenty-first century. The difference in the current context, though, is that this recognition of the need for lifelong learning is no longer confined to specific countries, or even regions. At international level, this is illustrated through the shifts from 'Education for All', as adopted at Jomtien in 1990 and reaffirmed at Dakar in 2000, to 'Lifelong Learning for All' (UN, 2013; UNESCO-UNICEF, 2013; UNESCO, 2014*a*). Increasingly, the right to lifelong learning is recognized in education and labour market policies and regulations (Daelman and Chakroun, forthcoming). Stimulating the shift to learning outcomes-based qualifications is decisive in this context because it allows learning happening in non-formal and informal contexts to be effectively blended into lifelong learning. It is also essential for education systems, in particular TVET, to provide potential for future learning. The knowledge, skills and attitudes required for lifelong learning are evolving. These range from foundation knowledge and skills, such as literacy and numeracy, to more complex skills and attitudes, such as entrepreneurship, problem-solving and learning to learn.

At present, the process of setting the post-2015 development agenda has prompted significant reflection and discussions over the kind of education the world needs and wants for the twenty-first century. While increasing access to education is still a major challenge in many countries, improving the quality and relevance of education is now receiving more attention than ever, with due emphasis on the importance of values, attitudes and skills that promote mutual respect and peaceful coexistence. Beyond cognitive knowledge and skills, the international community is urging an education that will help resolve the existing and emerging global challenges menacing our planet, while wisely tapping into the opportunities it provides. In this context, there is growing interest in skills for sustainable development and global citizenship education (GCE), signalling a shift in the role and purpose of education to that of forging more just, peaceful, tolerant and inclusive societies. In this regard the Brundtland report of the World Commission on Environment and Development (WCED, 1987, p. 8) provides a useful description of sustainable development:

> A development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains two key concepts: the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

In this context, new skills are required by all to live within the limits of what the environment can provide, understanding the many interconnections between economy, society and the environment, and the equal distribution of resources and opportunities (New South Wales Government, 2014). This view is supported by Fien in his review of education for sustainable development in TVET (2014, p. 1):

> Significant work has been undertaken to conceptualize, clarify and contextualise terms such as 'green economy', 'green jobs', 'green skills', 'skills for sustainability' and ESD within TVET. This work has been led by international agencies, especially UNESCO, UNESCO and ILO, regional bodies such as CEDEFOP, and a number of national governments. An extensive literature of advocacy documents, policies, conference proceedings and research reports is now available to guide all key stakeholders in the reorientation of TVET for sustainability and a green economy.

Several other reports (CEDEFOP, 2009*c*; ILO, 2011; OECD, 2010*a*) also emphasize that specific skills profiles for working in the green economy are necessary. Examples of these are knowledge of sustainable materials, relevant traditional skills, carbon footprinting skills, environmental impact assessment skills and a sound understanding of the sciences and the social and economic contexts in which they are applied (CEDEFOP, 2009*c*). The skills required are those necessary for improving energy and resource efficiency, complying with environmental legislation, and reducing environmental pollution and waste (see ILO, 2011).

The United Nations Secretary-General's Global Education First Initiative (GEFI), launched in 2012, has been instrumental in raising awareness of the importance of global citizenship to building a better future for all. UNESCO, in response to the increasing demand from its Member States for support in empowering learners to become responsible global citizens, has made GCE one of its key education objectives for the next eight years (2014 to 2021).

Although GCE is well recognized as a key dimension of education for dealing with the challenges and opportunities posed by globalization, consensus about what global citizenship means, and consequently what GCE should promote, is yet to be reached. While GCE can take different forms, it has some common elements, which include fostering in learners the following competences (UNESCO, 2014*b*):

- An attitude supported by an understanding of multiple levels of identity, and the potential for a collective identity that transcends individual cultural, religious, ethnic or other differences (such as a sense of belongingness to common humanity, and respect for diversity);
- A deep knowledge of global issues and universal values such as justice, equality, dignity and respect (such as understanding of the process of

globalization, interdependence/ interconnectedness, the global challenges which cannot be adequately or uniquely addressed by nation states, sustainability as the main concept of the future);

- Cognitive skills to think critically, systemically and creatively, including adopting a multi-perspective approach that recognizes different dimensions, perspectives and angles of issues (such as reasoning and problem-solving skills supported by a multi-perspective approach);
- Non-cognitive skills, including social skills such as empathy and conflict resolution, and communication skills and aptitudes for networking and interacting with people of different backgrounds, origins, cultures and perspectives (such as global empathy, sense of solidarity); and
- Behavioural capacities to act collaboratively and responsibly to find global solutions to global challenges, and to strive for the collective good.

Dimension 2: Domains of learning

The key concepts associated with learning and the recognition of learning, as well as the level at which learning is recognized, are complex and for the most part highly contextual. What is meant by 'learning outcome', 'skill', 'competence' or even 'knowledge' in one country or region is often different from, though related to, the use of the terms in another country or region. This complexity permeates the language of qualifications frameworks, despite the strong underlying intrinsic intent of qualifications frameworks to promote common national and regional nomenclature. This situation is partly a result of the origins of qualifications frameworks. They emerged from two complementary education and training discourses in the late 1980s: the competence approach to vocational education, and the shift to learning outcomes, embedded within the broader concept of lifelong learning. As a result, the interrelationship between competences and learning outcomes was not only firmly embedded in qualifications framework thinking from the very outset, but was also used in a hybridized form. The emergence of work-based learning as a central tenet of skills development in recent years, and the strong emphasis on a knowledge-based society, have also influenced the understandings and applications of the concepts. As will be shown in this section, concepts are often used interchangeably, resulting in confusion when countries work together on a regional level, and even more so on a global scale. While this section does not necessarily attempt to resolve the longstanding confusion between knowledge, skills and competences, it does attempt to map the different origins and main influences.

This mapping is then used as a basis for a more consistent interpretation within the proposed world reference levels being investigated by UNESCO following the Third International Congress on TVET held in Shanghai in 2012.

Learning outcomes

Learning outcomes are increasingly being used in global context 'as a dynamic tool for modernisation and reform' (CEDEFOP, 2009*a*, p. 16). The key mechanism (also referred to as a recognition methodology in this report) through which the learning outcomes approach is being implemented is qualifications frameworks, but there are also others, such as within curriculum reform on both national and international levels. The Tuning Project, which started in 2000, stands out as a good example of the introduction of learning outcomes (the project is discussed in more detail later in this report) outside of, but nonetheless related to, qualifications frameworks. Learning outcomes are used in the formulation of qualifications, and also in the formulation of level descriptors, and hence need to be well understood.

Definitions of the concept of learning outcomes vary across contexts, although some common elements can be identified. Here are some examples:

- Describe what students will know and be able to do upon successful completion of a course or programme. (University of Adelaide, 2014)
- The contextually demonstrated end-products of specific learning processes which include knowledge, skills and values. (SAQA, 2014, p. 38)
- Statements of what a learner knows, understands and is able to do after the completion of learning. (CEDEFOP, 2009*a*)
- A statement of what students should know, understand and can do upon the completion of a period of study. (MQA, 2011, p. ii)
- Knowledge, skill, and aspects of competence that a learner is expected to know and be able to do. (NQAUAE, 2012, p. 98)

From a review of the interpretation of learning outcomes it is evident that learning outcomes are understood to be statements that describe mainly three major domains: knowledge (learning to know), skills (learning to do) and competences (learning to be) (also see CEDEFOP, 2009*a* and UNESCO, 1996). These three domains are in themselves contested concepts, and interpretations vary across contexts. Each of these is unpacked in greater detail in subsequent sections of this report.

A word of caution is also necessary. In some countries, notably South Africa and Malaysia, and to some extent also Australia, outcomes-based education (OBE) is often used as an overarching concept. OBE came to the fore in the late 1990s as an alternative to content-based learning (Spady, 1994, in Lawson and Askell-Williams, 2007). The conflation between learning outcomes and OBE has resulted in some confusion, as the particular approach to the design of learning outcomes embedded in OBE is often viewed as the only approach to be taken. The difficulties faced with the implementation of OBE, notably in the development of schooling curricula, as has been the case in South Africa, are then generalized to cover all learning outcomes, including the use in qualifications frameworks.

The interrelationship between learning outcomes and competences

All qualifications frameworks are learning outcomes-based. In qualifications frameworks, qualifications are developed using learning outcomes, and the set of hierarchical levels they consist of are described with a set of level descriptors. These descriptors are also formulated using the same learning outcomes language, yet they are divided into different domains, again based on specific contextual decisions. These domains are mostly referred to as sets of like competences (or in some cases, competen*cies*[2]) which describe progression across the levels. As will be discussed further on, this notion of the grouping of learning outcomes into competences

2 The use of 'competence' (plural: competences) and 'competency' (plural: competencies) may come across as a simple contextual preference in language. While this may sometimes be the case, it is important to note that there is a different in emphasis based on the underlying thinking behind the two concepts. A competen*cy* approach can be described as strongly behaviourist, as it describes skills in relation to a task, usually explicitly described using written and spoken language. In this instance learning is primarily, although not exclusively, described as learning to produce systematized knowledge, such as in a specific discipline. An example of learning theory with an underlying competency approach can be found in transformational OBE, championed by Spady (1999, in SAQA, 2000, p. 11). This development took place at the same time that qualifications frameworks were coming to the fore. In both cases the link between learning outcomes and competen*cies* (not competen*ces*) was being explored through the development of a new approach. A competen*ce* approach, on the other hand, focuses on the underlying structural capacity, taking into account the conditions under which learning is cultivated. Competences take into account that not all learning is explicit, in that it can be described using language. Learning in this instance is described as learning to skill workers in the workplace. Of course there are limitations to describing tacit learning, and competences can at best be an approximation of some skills. The trade-off here is that an attempt is made to describe the conditions in which the learning takes place. Examples of learning theories with this orientation are Lave and Wenger's communities of practice (see Wenger, 2005, 2007), and Engeström's continuum of learning (Engeström, 2001). Illeris's notion of learning as competence development (Illeris, 2003) also falls into this category.

precedes qualifications frameworks. More recent examples include competence profiles and competence-based assessments. Looking further back, individuals who displayed certain competences were grouped together as civilizations developed and the role of social class and caste received more emphasis. This interrelationship between learning outcomes and competences is common across all qualifications frameworks, and warrants closer inspection (see e.g. De Anda, 2011; Winterton et al., 2005; UNESCO, 2013; Jansen, 1999).

A recently developed NQF, the German Qualifications Framework (Deutsche Qualifikationsrahmën, DQR), proposes the following relationship between learning outcomes and competences. This relationship is useful in that it resonates with the application of the concepts in other qualifications frameworks, most of which do not necessarily make the relationship explicit (German Qualifications Framework Working Group, 2011, pp. 14-15):

> Learning outcomes describe what learners know, understand and are able and ready to do on completion of a learning process. The DQR describes learning outcomes which have been bundled to form competences.
>
> Competence is the ability and readiness of the individual to use knowledge, skills and personal, social and methodological competences and to behave in a considered, individual and socially responsible manner. Competence is understood in this sense as comprehensive action skills.

The specific vocational origin of competences results in their being described as 'skills', 'ability to use knowledge' and 'behaviours'. Learning outcomes on the other hand, with a broader lifelong learning origin, tend to be more about 'knowledge', 'understanding' and 'ability to do'. The important point here is that specific learning outcomes (that is, those that describe how knowledge can be used) can be grouped to form competences. Other learning outcomes (those that focus more on knowledge and skills) are often presented as something separate from competences, although not exclusively so.

A similar view, but from another context, on the distinction between learning outcomes and competences is found in the Tuning Project, which started in Europe, but has subsequently expanded to other continents. In Tuning the distinction between learning outcomes and competences is made to emphasize the different roles of academic staff and students (Lokhoff et al., 2010, p. 21):

> A learning outcome is a measurable result of a learning experience which allows us to ascertain to which extent / level / standard a competence has been formed or enhanced.

> Competences represent a dynamic combination of cognitive and meta-cognitive skills, demonstration of knowledge and understanding, interpersonal, intellectual and practical skills, and ethical values.

Learning outcomes can be used to describe many things, including knowledge, skills and competences, in the context of qualifications frameworks. Looking farther afield, learning outcomes can also be used to describe competences in learning metrics, professional and occupational standards. This interrelationship between learning outcomes and competences is however best illustrated in qualifications frameworks.

This feature is both a strength and a weakness of qualifications frameworks. On the one hand, the hybridization has led to a lack of conceptual clarity in many countries and regions, with a few notable exceptions such as the German example mentioned above. On the other hand, the hybridization has enabled the complementary nature of learning outcomes, originating from the lifelong learning school of thought, and competences, originating from the competence-based approach, to be maximized. It is not evident that this hybridization was an overt attempt within the early qualifications frameworks, although the thinking that education and training would become more integrated was mooted (Mukora, 2007). The implications of this embeddedness of the hybridization are not well documented in qualifications framework literature, but this is, in our view, a critically important aspect to consider when developing level descriptors. It is even more so when developing a set of world reference levels. The potential complementary nature of these two concepts is an important feature that is embedded in level descriptors used in qualifications frameworks, but also in other contexts.

An important question to ask here is to what extent the hybridization of learning outcomes and competences should be disentangled. On a conceptual level there is a clearly a need to understand the origins of each concept, but it is of more importance, perhaps, to understand the current hybrid manifestation. The discussion below presents an initial attempt at exploring the interrelationship between learning outcomes and competences, including the shortcomings and strengths of each concept.

Competences are often criticized for being too vocationally orientated, too job specific and too focused on observable behaviours;[3] learning outcomes are criticized for being overly behaviourist (Moll 2009) and too generic to implement. Drawing on Jansen (1999), Moll supports the notion that outcomes-based education and training has many disputed sources, including Bloom's taxonomy and the associated

3 J. Shackleton, written response to interview questions.

notion of the mastery of learning, Tyler's curriculum objectives and the competence education drive in the United Kingdom, all of which 'have a direct lineage back into behaviourist conceptions of the operationalization of learning outcomes!' (Moll, 2009, p. 10). Moll, in his reflection on understanding learning, assessment and the quality of judgements in the South African NQF, confirms the notion that both learning outcomes and competences are strongly behaviourist in origin, and more so in their operationalization in qualifications frameworks. While some attempts may have been made to follow a more constructivist approach, there is reasonable consensus that the behaviourist approach has dominated, specifically in the qualifications framework discourse. As noted by Moll (2009, p. 2), this situation has 'undermined the basis on which expertise and quality in assessment practices can be developed'. According to Moll this limits the judgements of the community of assessment practice, which is critical to the process, as an increasing technicist tendency develops that attempts to operationalize everything.

Moll's (2009) analysis provides an important challenge for our understanding and application of learning outcomes, be it in level descriptors or elsewhere. Following Moll, an attempt should be made to counter the overly behaviouristic tendency evident in the formulation of learning outcomes. He proposes that this can be done by including more of the constructivist thinking. Examples include the Biggs and Collis (1982) Structure of the Observed Learning Outcome (SOLO) taxonomy, where outcomes refer to 'the underlying structures of thought that give rise to the product' rather than the product of the process. According to Moll the distinction made by Biggs and Collis in the SOLO taxonomy between *unistructural* and *multistructural* approaches should also be applied to our understanding of learning outcomes. So for example, in a multistructural approach, multiple actions could be used as evidence of achievement, rather than a single observable and measurable action.

Another example of introducing constructivist thinking is the inclusion of embedded knowledge, also referred to as critical cross-field outcomes (King, 2007), key competences (Lokhoff et al., 2010), core competences or transferable skills. According to Moll, the inclusion of these concepts signals the recognition that learning should not be limited to discrete and measurable skills, but that the 'underlying, generative human competence that can enable participation across a range of social and work domains' (2009, p. 9) has value. In a third example, Moll refers to the work of Bellis (1998), where an integrated understanding of performance and knowledge is proposed by considering performance criteria that are 'cognitive rather than behavioural' (Bellis, 1998, in Moll, 2009, p. 9). In conclusion Moll (2009) argues strongly for the work of Wenger (2005, 2007) on

communities of practice to be considered as an approach through which assessment practices can be better understood.

A related view is presented by Bohlinger (2008), in her review of competences as the core element of the EQF. Drawing on Chomsky's distinction between 'linguistic competence' as the speaker-hearer's knowledge of the language, and 'performance' as the use of the language in concrete situations, she argues that subsequent interpretations by Backe have added a behavioural dimension to understandings of competence. Further elaborating on the concept, Bohlinger argues that the main factor distinguishing qualifications from competence is 'that qualifications constitute knowledge and skills that can be objectively described, taught and learned, and are functional [Erpenbeck and Heyse, 1996, in Bohlinger, 2008], while the concept of competence also embraces individual aspects of personality that are directed towards (vocational) utility' (Bohlinger, 2008, p. 104). Here she also makes an important connection to assessment practices, in that competence cannot be expressed solely through individual behaviour. These insights have important implications for our understanding of competences in the context of level descriptors.

Concerns about the overly behaviouristic formulation of learning outcomes are not limited to the qualifications frameworks literature. The WorldSkills Foundation (2012) has recognized the same limitation, and has attempted to moderate it by focusing on excellence.[4] Here also the work of Wenger (2005) is cited as important, together with research coming from Nordic countries on self-regulation, talent development and multiple intelligence areas (see Zimmerman, 2002, Gagné, 2010, and Gardner, 1999, as interpreted by Nokelainen, in WorldSkills, 2012).

There is however also a risk in the proposed shift towards contextualized learning, as it can result in limitations to the extent to which codification of competences can be done, which is an important consideration for the development of qualifications. While this shift to contextualization is partly a response to the criticisms of the overly behaviourist approach elaborated above, it has become a concern that the extent to which learning can be codified will be limited. The emphasis on context, represented mainly through communities of practice, may limit the extent to which learning can be recognized, and as a result, also the extent to which learning is transparent and internationally transferable.

The challenge in attempting to draw on the complementary nature of learning outcomes, influenced by the lifelong learning discourse, and competences, influenced by the competency-based approach, is embedded in the formulation of learning outcomes. Some learning outcomes need to focus more on knowledge,

4 Also noted by J. Shackleton, in a written response to interview questions.

understanding, skill and the *ability to do*; while other learning outcomes (or in some cases, sets of learning outcomes) need to focus more on the *application* of the knowledge and skills – also referred to as competences. The challenge is made more difficult by the incommensurability of the behaviourist and constructivist influences which have impacted on the formulation of both learning outcomes and competences.

These complexities have important implications for the formulation of the proposed world reference levels. There are also more factors that need to be considered. In the remainder of this section we explore the notion of competence in greater detail, specifically the differences between competences and competencies, but also different types of competences, and what is meant with core competences, as well as different types of knowledge, influenced by the emphasis on knowledge-based economies. This is followed by a similar interrogation of the concept of skills, in this case influenced by the growing importance of work-based learning. At the end of this section we provide an overview that attempts to provide conceptual clarity across all these areas as a basis for the proposed world reference levels.

Different categorizations of competences

If we understand competences as sets of learning outcomes that focus on the *application of knowledge and skills in context*, then it is important to also consider the different types of grouping that are used. Several categorizations of competences can be found in the literature. One categorization of competences, used by developmental psychologists, proposed three analytically distinct domains (Winterton et al., 2005):

- Conceptual competence: rule based, abstract knowledge about an entire domain;
- Procedural competence: procedures and skills needed to apply conceptual competences in concrete situations;
- Performance competences: required to assess a problem and select a suitable strategy for its solution.

According to Winterton and colleagues (2005), this approach has been criticized for its limitations, as it is overly behaviouristic and unidirectional. Considering the earlier discussion on the need for more constructivist approaches in the formulation of learning outcomes, this categorization may be too limited to consider for a set of world reference levels.

Another categorization also identified by Winterton and colleagues (2005, drawing on Sternberg and Kolligian, 1990) suggests a distinction between objective competence (performance and potential performance measured with standard tests) and subjective competence (assessment of abilities and skills needed to master tasks and solve problems relevant to performance). Again, this distinction comes across as overly focused on performance and measurement.

In the context of the ASEAN Qualifications Reference Framework the notion of competence is also interpreted as going beyond the possession of knowledge and skills. It includes cognitive competence (involving the use of theory and concepts, as well as informal tacit knowledge gained experientially), functional competence (skills that a person should be able to perform when working in a given area), personal competence (involving how to conduct oneself in a specific situation), and ethical competence (involving the possession of certain personal and ethical values) (Coles and Werquin, 2006, p. 23).

Considering these and similar categorizations of competences, and also the need for including more constructivist thinking, it is important to reflect on the earlier discussion in this section. Examples mentioned were to consider principles contained in the SOLO taxonomy, the inclusion of embedded knowledge (also referred to as critical cross-field outcomes, key competences and transferable skills), and an integrated understanding of performance and knowledge based on the notion of communities of practice. Based on these principles three groupings (or subdomains) of competences are described below: applied competence, core competence and affective competence. These groupings are not necessarily mutually exclusive, but they do provide some useful insights that attempt to take seriously the limitations identified in existing categorizations.

Applied competence is a useful concept that explicitly focuses on the application of knowledge and skills in specific contexts (SAQA, 2012b). Applied competence includes three constituent elements:

- Foundational competence, which focuses on intellectual/academic skills of knowledge together with analysis, synthesis and evaluation, and which includes information-processing and problem-solving;
- Practical competence, which focuses on the operational context (also referred to as support competence, or discipline competence);
- Reflexive competence, which focuses on learner autonomy.

Core competence presents another useful categorization of learning outcomes. Core competences are also referred to as 'key competences' (Lokhoff et al., 2010; Winterton et al., 2005), 'critical cross-field outcomes' (King, 2007), 'generic skills' (Adam, 2014) and 'transferable skills'. Core competences can be described as 'underlying, generative human competence that can enable participation cross a range of social and work domains' (Moll, 2009, p. 9). The key driver for core competences is the notion that some competences are universal in that they can be recognized across contexts, including across countries. Professional and occupational standards developed through international collaboration are good examples of how core competences and transferable skills can be developed (see e.g. Gallie and Keevy, 2014).

According to Griesel and Parker (2009) this notion of transferable skills received significant attention in the 1990s. Examples include the Dearing Report in the United Kingdom (Dearing 1996) and the Mayer Report (1992). Their research initially suggested that a distinction between context-dependent and context-independent skills was necessary, but this was soon found to be too simplistic. A more cognitively grounded approach that focused on capabilities and dispositions of graduates was proposed. This is an important consideration for the proposed world reference levels, which will be discussed again in the last chapter of this report.

Affective competence is a third subdomain of competence, which attempts to make personal qualities, behaviour and attitudes more explicit in the formulation of learning outcomes. This subdomain attempts to include a specific focus on those competences that may be best assessed collectively. Affective competence is also related to the notions of 'learning to live together' and 'learning to be' espoused in the Delors Report (UNESCO, 1996), as well as global citizenship education.

The three categorizations of competences presented here are not mutually exclusive, nor are they intended to be prescriptive. They each present a different focus, but with a common emphasis on the context in which they are applied.[5]

Different categorizations of skills

In a review of the use of concepts of knowledge, skills and competence in Europe (in particular England, France, Germany and the Netherlands) in the context of the EQF (Brockmann et al., 2011), the notion of skills underlying the vocational education and training system in England is described in detail. The authors note

5 Comment by M. Coles, 4 April 2014.

the domination of 'skills' in the policy agenda – from sector skills councils (SSCs) to the Leitch Review (HM Treasury, 2006) on *World Class Skills*. They conclude that:

> The English concept of skill, as it is used in the labour market, expresses the view that to possess a skill is to have mastered a technique for carrying out a type of task within a work situation, traditionally within the context of a trade but nowadays in more technically-oriented occupations as well. Winch criticizes the depersonalisation of skill and emphasises that 'learning a skill, when it is done properly and within a carefully constructed and comprehensive form of VET, can be an important part of one's personal development'. (Winch et al., 2011, p. 100)

The prominence of the term 'skill' in international education and training discourse reflects trends in linking education and training systems with the labour market, and the policy focus on employability. It is increasingly becoming a persistent theme of the international discourse on the development agenda, and the central place of youth employment, formulated as 'skills for work and life' (UN, 2013; UNESCO-UNICEF, 2013; UNESCO, 2014*a*).

The OECD Skills Strategy (OECD, 2012) considers skills as 'the new global currency'. In the Strategy, 'skill' and 'competence' are used interchangeably, and collectively defined as:

> The bundle of knowledge, attributes and capacities that can be learned and that enable individuals to successfully and consistently perform an activity or task and can be built upon and extended through learning. (OECD, 2012, p. 12)

The Strategy also refers interchangeably to key skills and foundation skills, defined as 'problem solving in [a] technology-rich environment; literacy; numeracy and reading components' (OECD, 2012, p.10). The key message of the Strategy regarding skills is that 'direct measures of skills are a much more reliable basis for policy development than indirect proxies such as qualification attained' (OECD, 2012, p. 12).

The Education for All (EFA) Global Monitoring Report (GMR) proposes a simple taxonomy, underlying a conceptual and a practical framework of the 'pathways to skills', defined around three categories (UNESCO, 2014*a*):

- Foundation skills, which emphasize literacy and numeracy, and are considered as the main learning outcomes of formal basic education, as well as a prerequisite for continuing in education and training, and for acquiring transferable and technical and vocational skills;

- Transferable skills, such as communication and problem-solving, required to adapt to different life and employment contexts;
- Technical and vocational skills, which encompass the specific technical know-how to do jobs.

The ILO has also emphasized in its work the importance of skills and skills development. At its 97th Session in 2008 the International Labour Conference called for a holistic approach to skills development encompassing the following features:

1. Continuous and seamless pathways of learning, starting with pre-school and primary education that adequately prepares young people for secondary and higher education and vocational training, going on to provide career guidance, labour market information and counselling as young women and men move into the labour market, and offering workers and entrepreneurs opportunities for continuous learning to upgrade their competences and learn new skills throughout their lives;
2. Development of core skills – including literacy, numeracy, communication skills, teamwork, problem-solving skills and learning ability – which, along with awareness of workers' rights and an understanding of entrepreneurship, are not linked to performance in specific occupations but form the building blocks for lifelong learning and adaptability to change;
3. Development of higher-level skills – professional, technical and human resource skills – enabling workers to profit from or create opportunities for high-quality and/or high-wage jobs;
4. Portability of skills, based first on core skills, so that workers can apply their existing knowledge and experience to new occupations or industries, and second on systems that codify, standardize, assess and certify skills, so that levels of competence can be easily recognized by social partners in different labour sectors across national, regional or international labour markets;
5. Employability (for wage work or self-employment), which results from all these factors – a foundation composed of core skills, access to education, availability of training opportunities, motivation, ability to take advantage of opportunities for continuous learning and support in doing so, and recognition of acquired skills.

Transferable skills are traditionally clustered under personal and professional competences, and defined by levels of autonomy and responsibility. The interpretation of core competences is of particular importance for developing and agreeing on level descriptors at national and regional levels. Importantly, knowledge,

cognitive skills and transferable skills are not atomized entities which can be judged in isolation from each other; individuals have to combine and apply them in the concrete contexts provided by work and learning. A growing concern in education systems is the focus on accumulation of knowledge and cognitive skills at the expense of transferable skills. Here the valuable experience of the Asia-Pacific in integrating non-cognitive/transferable skills and competences into education policy provides a good example. Cultural bias cannot be ignored either, as some types of skill are appreciated according to specific contexts.

A recent UNESCO review of the use of transferable skills in TVET in the Asia-Pacific region concluded that there is emerging agreement that transferable skills play an important role in the workplace. It is emphasized that this development should be reflected in TVET. The review also found that while the extent to which transferable skills are integrated in TVET varies, reference to transferable skills can be found in most policy frameworks across the region (UNESCO, 2014*c*). The review further notes that there is no clear-cut agreement on the definition or understanding of the scope of transferable skills within regions or countries. However, according to the review, country experiences reveal some skills that fall under the transferable skills umbrella and are common to most, if not all, countries in the region. These include communication, collaboration, problem-solving, entrepreneurship and learning to learn.

As an example, transferable skills in the Republic of Korea are understood as vocational basic competences (VBC) and career development competences (CDC). VBC are contained in the Korean National Competency Standards (KNCS). In Japan, the transferable skills defined include (1) solving problems that stretch widely beyond one's area of expertise; (2) understanding elements of problem-solving including human aspirations and perspectives of business and social problems; (3) the ability to identify latent problems and set issues to tackle; and (4) the abilities to work with people in different fields and to find solutions. These examples illustrate the need for 'generic skills' that can be applied in various social activities, not only specific skills required for research and development.

The UNESCO review (2014*c*) also notes that there are key trends related to skills:

- Transferable skills encompass work-related competences and those relevant in any life situation;
- Traditions, beliefs and values play an important role in skills development in most societies in the region;
- In many countries, transferable skills are currently being discussed as a general concept focusing on general or higher education;

- In some countries, progress on national frameworks for transferable skills is hampered by the absence of university faculties conducting research in TVET to determine the extent of the framework needed in the national context;
- Some countries have adapted Australia's model to their own needs and requirements, while others have used the EFA concept as a basis for defining transferable skills in their policies;
- In the absence of national frameworks, international skills projects shape the development of transferable skills.

Different categorizations of knowledge

Interpretation of what constitutes knowledge and the different forms that knowledge can take, also referred to as epistemology, is not a task that can be undertaken in a meaningful manner in a study with limited scope such as this one. At best it is possible to provide a broad overview of the main categorizations as they relate to the context of this research into the use of level descriptors. In this regard it is also important to note that knowledge is probably the least contested domain used in the formulation of level descriptors. Even so, it is important to briefly consider this domain so as to enable comparison with the previously discussed domains of competences and skills.

The following broad categorizations of knowledge are found in literature:

- Empirical, where the focus is on experience through senses (promoted by early Greek philosophers, referred to as Sophists);
- Idealist, where the focus is on intuition rather than on the knowledge gained through experience (promoted by Kant);
- Rational, where the focus is on reason as the source and test of knowledge (promoted by Plato);
- Constructivist, where the focus is on the creation of knowledge through experience and ideas (also see the earlier discussion on the interrelationship between learning outcomes and competences) (promoted in particular by Piaget);

- Socio-constructivist, which emphasizes the active involvement of the learner in the learning process (promoted by Vygotsky and Bruner);
- Behaviourist, where the focus is on the individual's response to stimuli and the ability to demonstrate competence (promoted by Skinner).

Just as with competences and skills, learning outcomes can be used to describe different forms of knowledge. Examples include explicit, tacit and embedded knowledge. In most instances learning outcomes for the knowledge (or cognitive) domain tend to avoid any explicit orientation to the categorizations of knowledge listed above. Just as was the case with competences, as discussed earlier, it is apparent that there is however a tendency towards overly constructivist formulations of knowledge in the qualifications framework environment. An important point to consider here is that the knowledge domain is also well developed in terms of the classification or hierarchy of levels. These points are further elaborated later on this report, but it should be noted here that there is a risk of the relatively less developed hierarchies of competences and skills relying too much on the hierarchy in the cognitive domain.

With an increased focus on developing a knowledge-based society, there is also a need to support teaching and learning with recognition of different settings, while thinking beyond the current understandings of knowledge used in existing qualifications frameworks:

> If we are to move towards a knowledge-based society, we need to focus more upon supporting the processes of learning and development, and to adopt a more expansive view of the nature of skills, knowledge and competence than that enshrined in the current manifestation of the NQF levels. This more expansive view will pay particular attention to the need to address issues of transfer of skills, knowledge and experience between different settings; how to support individuals in developing a frame of mind whereby they continually look to improve their own performance through learning and development and to support the learning and development of others; and to recognise that in any organisation a commitment to continuing growth and development of its members is strategically important. (Brown, 2008, p. 17)

There are many overlaps between the debates related to knowledge and those related to skills and competences, and more broadly to learning outcomes. These overlaps are the result partly of the overall conceptual confusion between the terms and their applications, but also of the strong interrelationships between

them. So for example, the notion of embedded knowledge (mentioned above) is very similar to the notion of key competences, and also to that of transferable skills. The overlap is both a strength and a weakness; these issues cannot be ignored in the development of a set of world reference levels. On the positive side it is apparent that there are some common trends that need to be understood, and where necessary adapted. On the negative side, the confusion results in the development of weak methodologies that rely on contradictory theories, often without even being aware of the contradictions.

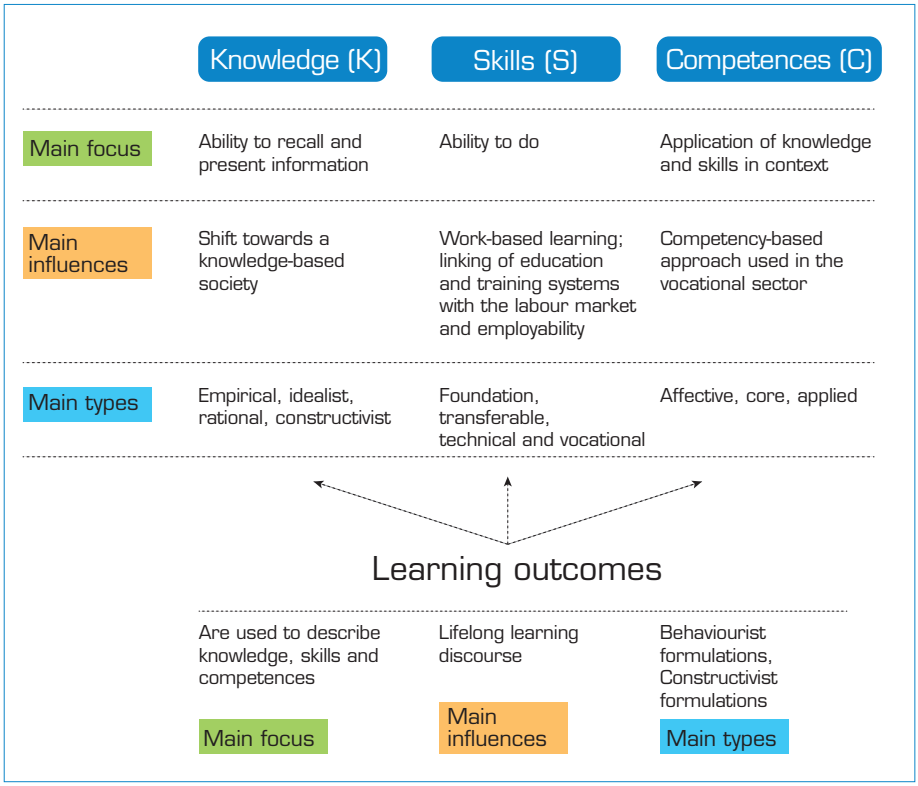
The key concepts that have been discussed in this section are learning outcomes and three main domains according to which learning outcomes are organized: competences, skills and knowledge. The three domains were identified based on the current application within the context of qualifications frameworks, and are also closely related to the four pillars of learning proposed in the seminal Delors Report (UNESCO, 1996):

- Learning to know is related to the knowledge domain;
- Learning to do is related to the skills domain;
- Learning to be is related to the competence domain;
- Learning to live together is not directly related to any one of the domains but is found as a cross-cutting feature and also in the notion of GCE.

It has been shown that there exists a strong interrelationship between knowledge, skills and competences due to the strong influence of the lifelong learning discourse, the competence-based approach, and also the growing importance of work-based learning and the emphasis on a knowledge-based society. Although this hybridization is most explicit in qualifications frameworks, it can also be found in other contexts. Further drawing on the discussion presented, it has been suggested that learning outcomes constitute the common denominator through which knowledge, skills and also competences can be described.

Figure 1 provides an overview of the manner in which learning outcomes are used to describe KSC, and the main influences on each. The cross-cutting domain associated with global citizenship is not included here as it contains features of each of the other three domains. The importance of global citizenship to a set of world reference levels cannot be ignored, and therefore the potential inclusion of this as a separate (but cross-cutting) domain is taken up again later in this report.

Figure 1: The manner in which learning outcomes are used to describe knowledge, skills and competences



Source: authors

It has not been the intention of this research to propose a clinical separation between the KSC domains. The focus has rather been on improved conceptual clarity in the application of the concepts and also an interrogation of the main influences on each. As an example, it could be argued that knowledge and skills also represent unique competences: knowledge as a cognitive competence, and skills as functional competences (Winterton et al., 2005). Many other examples can be mentioned of how the domains are used interchangeably across literature and importantly, existing policies. As noted by CEDEFOP (2009*a*), the relationships between knowledge, skills and competences can get even more complex when Anglo-Saxon, French, Germanic and Latin-American interpretations are included. Despite these existing complexities it is our view that improved conceptual clarity is needed in order for an initiative like the world reference levels to be meaningful in the long term.

What is of value to the proposed world reference levels is the fact that the hybridization has the potential to accrue the benefits of both the lifelong learning and competence approaches to qualifications frameworks, and more specifically to the formulation of level descriptors. The disadvantage however is the terminological confusion that arises. As was observed by Bohlinger (2008), the current approach being followed in qualifications frameworks (which undoubtedly contributed to the confusion) is based more on pragmatic than methodological considerations. This leads to complications in countries unfamiliar with the logic of qualifications frameworks based on learning outcomes. Clearly her caution should be heeded, and resources must be dedicated to a better understanding of the use of learning outcomes to describe KSC in qualifications frameworks. In the interim, and as she also points out, more must be learned from countries that have had many years of experience with qualifications frameworks. This research into the use of level descriptors is one such example, but many more will be needed.

The next section focuses on the development of qualifications frameworks, and is followed by a discussion on other recognition methodologies.

FOCUS AREA: SETTING LEVELS OF LEARNING

Dimension 3: The level of learning

The need to peg learning at a specific level is not only a challenge in the twenty-first century, nor is it one unique to qualifications frameworks or level descriptors, as levels were assigned to learning long before the advent of qualifications frameworks. In early times, the level of learning was more about qualifying to join a craft or guild, while similar competences were grouped together, and as was the case in the early Chinese civilizations, a series of levels were attached to examinations. Credentials became more important in the twentieth century.

During these early periods, and preceding the use of qualifications frameworks, the work of Bloom (see Anderson, 2005 and Anderson et al., 2001 for a discussion on the revised Bloom taxonomy of learning) and of Biggs and Collis (1982)

(the SOLO taxonomy) stand out as two important examples of attempts to recognize different levels of learning in a hierarchy. As noted earlier, these developments did not originate from similar schools of thought: the Bloom taxonomy had a more behaviourist conception of the operationalization of learning outcomes, while SOLO had a more constructivist orientation. The qualifications frameworks that came to the fore at the end of the twentieth century were heavily influenced by the behaviourist orientation, and as a result, developed a weakness from the outset. In the occupational sector several grading systems have been associated with competence frameworks over the years. Some of the best know earlier systems are the Patterson Job Grading System and the Hay Job Evaluation System (which emerged in the 1950s). In more recent developments, such as O*NET, the International Standard Classification of Occupations (ISCO) and ISCED, new approaches to understanding levels of learning have been developed.

In this section we explore some of the key tenets related to determining levels of learning both within the context of level descriptors used by qualifications frameworks and across other recognition methodologies. A review on the involvement of social partners is also included.

Setting levels through level descriptors

At the start of the twenty-first century, qualifications frameworks came to the fore as systems with hierarchical structures used to organize qualifications according to agreed levels:

> Within qualifications frameworks, [level] descriptors are general, abstract descriptions of learning outcomes. They serve to create points between national and sectoral qualifications and qualifications frameworks. (Hanf and Rein, 2007, p. 121)

The hierarchy of level descriptors is purposefully developed to allow for alignment of qualifications:

> Each of these unique learning outcome terms is defined in statements of knowledge, skill and competence. They are assembled in vertical strands for each framework level. The use of strands of learning outcomes and levels in a qualifications framework helps improve the hierarchical and distinguishing characteristics applicable between levels as well as within a level. It provides those designing qualifications with a finely drawn vertical and horizontal structure (grid) to facilitate easy alignment. (NQAUAE, 2012, p. 23)

Qualifications are compared against the level descriptors and pegged at a particular level of a qualifications framework. To be more specific, the learning outcomes contained within a qualification are compared with the learning outcomes listed in the level descriptors. While this may seem like a relatively straightforward process, practice shows that it is not. As was discussed at length in the earlier sections of this report, the interpretation and application of level descriptors in qualifications frameworks has largely been based on a pragmatic rather than a 'purist academic frame of reference' (Moon, 1995, in Cosser, 2000, p. 22). So for example, referring to the potential application of the Bloom taxonomy of learning (1971) to provide conceptual clarity on the use of levels, the following response was noted:

> Levels cannot be based on any consistent philosophical or psychological principles. We need to make pragmatic decisions about levels within the [qualifications] framework if we are to make progress. (Wilson, 1993, in Cosser, 2000, p. 22)

It seems that the regression towards pragmatism when facing conceptual difficulties permeates the literature on qualifications frameworks over the last twenty or more years. This includes the debates related to both domains and types of learning outcome and competence, and levels. This is a untenable situation, and should be addressed as countries and regions allocate more resources to review qualifications framework developments.

Level descriptors are sometimes criticized for being too broad and generic to be applicable to a specific qualification from a specific sector. The defence has been that level descriptors are not an exact science, but only provide guidance with regard to levels:

> We should be wary of presenting the development of levels as an exact science; [Wilson] argues that level descriptors should not be seen as sufficiently precise instruments in themselves to enable learner achievement to be located at specific levels within the framework. Instead, level descriptors should provide sufficient information to arrive collectively at rational decisions about how particular clusters of learner achievement (units/modules) can be compared with other similar clusters within the framework. (Wilson, 1993 in Cosser, 2000, p. 19)

To accommodate this weakness, countries have advocated the contextualization of national level descriptors in academic, professional and occupational contexts (examples include Poland and South Africa). Here again, practice suggests that sectoral or subframework interpretations of level descriptors are still limited. However evidence suggests that this tendency will increase in the future:

> The more successful comprehensive frameworks tend to be multilevel frameworks whose objectives and change processes vary across sub-frameworks and between sub-frameworks and the overarching framework. This is a dynamic process; the development of many NQFs involves a shifting emphasis between development within sub-frameworks and integration across them. (Raffe, 2013, p. 158)

As noted in the earlier section of this report, qualifications frameworks exist in various different forms. These range from sectoral frameworks that function within a specific country or across countries, to NQFs which are probably the best known, to TQFs which include RQFs, and also sectoral frameworks that function across different countries. All types of qualifications frameworks use level descriptors based on learning outcomes, to define a set of hierarchical levels across a series of domains. Based on the sample of NQFs and RQFs included in this study it has been possible to make a number of observations, which are presented below.

The seven NQFs included in the study (Indonesia, South Africa, Chile, Scotland, South Korea, United Arab Emirates [UAE] and Australia) represent a cross-cutting sample of first, second and third-generation frameworks. Level descriptors from several other NQFs were also included in the desktop study: Armenia, Botswana, Ethiopia, France, Ireland, Lesotho, Malta, Mauritius, Mexico, Namibia, New Zealand, Poland, Rwanda, Samoa and the Seychelles. All existing RQFs were included: the SADC RQF, the CARICOM TVET QF, the ASEAN RQF, the EQF, QF-EHEA and the Pacific Regional Qualifications Framework (PRQF). Sectoral frameworks (both in-country and across a range of countries) were found to be less developed, although a clear trend towards more activity in this area was noted. Examples included were from Poland, South Africa, Kazakhstan and also pan-European initiatives in information technology and engineering.

Table 1: Levels and domains across a selection of transnational qualifications frameworks

EQF Level descriptor domains (8 levels)		
Knowledge	*Skills*	*Competence*
Factual and/or theoretical	Cognitive; practical	Autonomy; responsibility
ASEAN Level descriptor domains (8 levels, in progress)		
Knowledge and comprehension	*Work competences*	*Responsibility and accountability*
Facts and theories; skills used, such as practical and cognitive skills	Application of knowledge; application of skills	Degree of independence; capacity to make decisions and the responsibility for oneself and others
SADC Level descriptor domains (10 levels)		
Knowledge	*Skills*	*Autonomy and responsibility*
Factual and/or theoretical	Cognitive; practical	Activity under supervision; responsibility for outcomes of activity
VUSSC Transnational QF Level descriptor domains (10 levels)		
Knowledge and understanding	*Skills*	*Wider personal and professional competencies*
Range of knowledge; understanding	Use knowledge, understanding and skills	Responsibility; decision-making

Sources: European Commission 2004, ASEAN 2014, SADC 2011, COL and SAQA 2008

Drawing on the international inventory of NQFs developed by CEDEFOP, ETF, UNESCO and the UNESCO Institute for Lifelong Learning (UNESCO-UIL: see www.uil.unesco.org) as well as a range of other sources, a mapping of level descriptor domains and progression across a wide range of countries has also been completed. The mapping is included in Annex 2 of this report. Although other recognition methodologies do not explicitly use level descriptors, the indicative domains have been included for comparative purposes. This mapping clearly illustrates the very limited extent to which progression is defined across levels. Drawing on this mapping, as well as a wide range of other sources, a number of overarching observations from the review of level descriptors are discussed in more detail below.

Convergence in the use of domains

Qualifications frameworks use variations of domains in their level descriptors: in a few instances (such as in Victoria, Australia, and the ASEAN RQF) the domains of knowledge and skills are collapsed into a single domain. In many cases (see for example South Africa and CARICOM) the competence domain contains subdomains or specializations that overlap with the knowledge and skills domains. Different variations of domains are found across recognition methodologies other than qualifications frameworks.

Three domains are found in the majority of level descriptors of qualifications frameworks, including sectoral, national and transnational examples. The first is *knowledge*: this is probably the best understood domain and is well articulated across the case studies. The domain is primarily about the *ability to use knowledge and understanding*, and not the application of knowledge. Embedded knowledge, also referred to as critical cross-field outcomes, transversal skills or core competences, forms an important part of this domain, but tends to be less well understood. The use of embedded knowledge as a context-independent concept has decreased in recent years, and several debates on this matter continue. Learning outcomes are used to describe the knowledge domain, although there is some hybridization where knowledge is seen as a cognitive competence or an intellectual skill.

These are some examples of level descriptors from the knowledge domain:

- Uses specialized theoretical and practical knowledge and demonstrates critical understanding of theories and principles (Ethiopia Level 7 of 10);
- Demonstrate knowledge and understanding of the ways in which the subject or discipline is developed including a range of established techniques of enquiry or research methodologies (CARICOM Level 6 of 8);
- Possess an in-depth knowledge and critical understanding of the ideas, concepts and principles in their field of work or study (VUSSC TQF Level 6 of 10).

The second most widely used domain is that of *skills*. Similar to the knowledge domain, skills are about potential ability and not application: in this case, the *ability to apply knowledge in relation to a job or specific task*. This domain is also widely used and reasonably well understood, although some overlap with the knowledge domain is observed, and as a result, knowledge and skills are combined in some instances (as in the ASEAN RQF and PRQF).

These are some examples of level descriptors from the skills domain:

- Can apply a range of practical and cognitive skills for planning, carrying out and evaluating work processes and results in a range of work tasks (Kazakhstan Sectoral Framework Level 3 of 8);
- Demonstrate mastery of methods and tools in a complex and specialized field and demonstrate Innovation in terms of methods used (EQF Level 6 of 8);
- Use a range of approaches to formulate evidence-based solutions/responses to defined and/or routine problems/issues (Scotland Level 8 of 11).

The third domain, *competence,* is about the *application of knowledge and skills*. Of the three domains, competence is the broadest in that several subdomains are used. In this regard three main interrelated subdomains can be identified: applied competence (the application of knowledge and skills in a specific context, which includes foundational, practical and reflexive aspects), core/key competence (the sum of skills needed to live in contemporary knowledge society: CEDEFOP, 2008), and affective competence (the application of knowledge and skills in relation to personal, behavioural and attitudinal dimensions). As discussed at length in earlier parts of this report, the notion of competence is interpreted in diverse manners across different traditions and contexts. Despite the diversity, a common trend towards the use of overly behaviouristic formulations of competences is noted.

The following are some examples of level descriptors from the competence domain:

- Can analyse and reflect on sociocultural norms and relationships and act to build and transform them (UAE Level 9 of 10);
- Demonstrates full responsibility and accountability for all aspects of advanced research work (SADC Level 10 of 10).

Even in cases where the KSC domains are not explicit, elements of each can be recognized in the level descriptors. All three domains are based on learning outcomes, although the influence of the lifelong learning discourse and the move towards knowledge-based economies are more evident in the knowledge and skills domains. The competence domain, on the other hand, shows remnants of the competency-based approach that was dominant in the twentieth century. As also noted earlier, evidence seems to suggest that the hybridization has tended to address the shortcomings inherent in both approaches, resulting in a more robust model that is highly appropriate for recognizing learning in the twenty-first century. Admittedly this is a debate that will not be resolved for some years to come.

Lack of explicit description of progression

The mapping of the different progression models used to formulate level descriptors (see Annex 2) clearly illustrates a very low level of explicit articulation of what these models are. In many instances reference is simply made to 'complexity', 'increasing complexity', 'depth of learning' or 'quantum of learning'. Overall, there is a lack of explicit description of progression across levels, more so in that the conceptual basis for such progression is either weakly defined or completely absent. Progression is better defined in other recognition methodologies, and focuses mainly on levels of proficiency (as in PIAAC, LAMP and PISA), but also includes the notion of minimum benchmarks (for instance in subject benchmark statements, SBS) and a taxonomy of descriptor variables (as in O*NET). Some referencing between the different systems is also found (for instance between Tuning and RQFs).

Minimum acceptable performance (Moon, 1995, in Cosser, 2000) forms a strong basis for the formulation of learning outcomes in level descriptors. In this model, the KSC required from a learner are pitched at the lowest acceptable performance at each of the levels of the qualifications framework. This model does not include the possibility of a scaling of the performance levels. In contrast, some other models, such as the one developed by WorldSkills International, propose 'excellence for competency' (WorldSkills Foundation, 2012). This limitation in the existing formulation of level descriptors will require deeper interrogation in the future.

Level descriptors assume that learning outcomes are cumulative by level. This assumption, that KSC at one level include those at lower levels, means that domains must be read together to give a true indication of level.[6] This is an important aspect of progression in level descriptors that is not well articulated or adequately conceptualized.

Some anomalies are also observed. The Australian Qualifications Framework (AQF), for example, is an interesting case in that levels were only formally introduced in 2008 when the AQF was reviewed. The early intent to promote parity between different qualification types, without referring to levels, did not gain traction. The retrospective introduction of levels was based on the existing qualifications. France is another exception, where the NQF exist without a formal set of level descriptors. Levels are based on the training programme leading to the qualification, which enhances the social status of the trainee. The 'level classification might be seen as the spine of [the French qualifications] framework' (Bouder, 2003, p. 351).

6 Interview with M. Coles, 4 April 2014.

In South Africa the first NQF was open-ended in that levels below Level 1 and beyond Level 8 (the highest level) were accommodated.

Independence between the provision of education and training, and qualifications development

Coles[7] argues strongly for independence between the provision of education and training, and qualifications development (which includes level descriptors). According to Coles, this conceptual distinction formed an integral part of qualifications framework development in the early years. This distinction is also noted by Young (2005) and others, who make the point that the original drive for qualifications frameworks attempted to move the control of education and training away from providers, to employers. The extent to which this power shift has occurred in NQFs remains to be tested, but TQFs provide some useful insights. In these, provision is automatically removed from qualifications development as providers relate directly to the NQFs in their countries, while an RQF acts as a metastructure that guides NQFs, without a direct connection to providers. So for example, no quality assurance regime is associated with an RQF.

In a similar vein, Wheelehan (2014, p. 2), in a recent paper on the pathways between education and work in Australia, argues that 'educational pathways are shaped by the relationship between qualifications and the labour market', but that 'a uniform approach to policy based on one type of pathway from lower to higher-level qualifications within the same field of education is unlikely to be effective'. The conclusion is made that a broader approach to preparation for work is needed, rather than linking qualifications too directly to occupations. These are important insights to be considered when world reference levels are developed. Without this, multiple and complex contestations could be faced on a global level, which may in the longer term make it impossible to develop the world reference levels.

7 Interview, 4 April 2014.

Lack of an explicit conceptual framework

Another observation is the lack of an explicit conceptual framework that underpins level descriptors in general. The development of level descriptors in South Africa in 2000 is a case in point. In developing the level descriptors for the South African NQF, the New Zealand example was interrogated. It was found that the progression was quite difficult to follow (Metheven, 1997 in Cosser, 2000, p. 6):

> A difficulty with the NZQA level descriptors is that one cannot consistently trace, in schematic fashion, the progression from one aspect of a level descriptor to another – despite the assertion in the New Zealand level descriptors document that any level (higher than Q2) 'has greater complexity of process, learning demand, responsibility, and application than the [previous] level whose knowledge, skills and attributes it encompasses'.

For this reason the New Zealand descriptors were adapted so that the domains could be broken down into their constituent parts. The different conceptualization of learning pathways in South Africa and New Zealand was also taken into account (Cosser, 2000). As noted before, this pragmatic approach has been a problematic feature of qualifications framework development.

The Victorian Registration and Qualifications Authority (VRQA) developed a credit matrix wherein the groups of learning outcomes are ordered across the levels on the basis of their increased complexity. On each level, the matrix provides a detailed descriptor of the knowledge and skills, application and degree of independence at that level, as well as a summary descriptor that draws these features together (VRQA, 2008). In keeping with the notion put forward in this research that qualifications framework development has been influenced by both the lifelong learning and the VET competency approach, the VRQA argues that the descriptors (made up of learning outcomes) can be applied to both theoretical (knowledge) and vocational (skills, application) learning: '[the level descriptors] can apply to any component of any qualification offered by any of the education and training sectors' (VRQA, 2008, p. 3). Progression across levels, as described by the learning outcomes and competences in the level descriptors, are closely associated with different domains in Victoria. Increased complexity is determined by the following domains, which are broadly similar to the KSC domains discussed earlier:

- The kind of knowledge and skills involved;
- The kinds of issues or problems that the knowledge and skills are applied to;
- The amount of independence, self-organization or organization of others that is required to solve problems or complete tasks.

Different levels of abstraction

Another observation is that level descriptors can be formulated at different levels of abstraction according to the types of qualifications framework they are used in:

- At the level of a *sectoral* qualifications framework;
- At the level of a *national* qualifications framework;
- At the level of a *regional* qualifications framework;
- Potentially also at a *global* level.

The challenge of regional level descriptors (as opposed to level descriptors from national and sectoral qualifications frameworks) is that they need be very broad, yet they need to accommodate national variants:

> The [EQF] descriptors would have to be precise, easy to use, and objectively verifiable in practice, but they should not exclude any national variants. (Hanf and Rein, 2007, p. 119)

The Dublin descriptors (Joint Quality Initiative, 2003) is one of the more well-known of the regional initiatives that form an integral part of the QF-EHEA. The Dublin descriptors is an example of one of the early attempts (from 2002) at developing a set of regional level descriptors at a broad level. The process was championed by a grouping called the *Joint Quality Initiative* as part of the Bologna process. In this example a level descriptor includes the following domains: Knowledge and understanding, Applying knowledge and understanding, Making judgements, Communication, and Lifelong learning skills. NQF (that is, national) level descriptors, on the other hand, need to be far more precise and context related than regional level descriptors. Sectoral level descriptors need to be even more context specific. In this regard Poland offers a good example where three sets of level descriptors have been developed (see Zub, 2013).

Interrelationship between level descriptors

The interrelationship between level descriptors developed by different types of qualifications frameworks is important. The development processes are not always sequential. On the contrary, a sequential process (be it from regional to national to sectoral, or the opposite) is probably the exception. Third-generation NQFs also tend to follow this trend, while countries within regions that have an RQF (such as in Europe and in SADC) tend to draw heavily on the regional level

descriptors,[8] to the extent that the national level descriptors are virtually identical to the regional descriptors. In some cases countries outside the region may also attempt to align their level descriptors to the specific region in an attempt to create greater comparability and possible future economic advantage.[9] While the newer NQFs are more predictable, they undoubtedly also suffer from this tendency to borrow not only from other qualifications frameworks of the same type, but also from other types.

Hart provides a useful description of level descriptors across the sectoral, national and regional qualifications frameworks:[10]

- At the sectoral level, level descriptors are work-related and specific to the sector. They tend to be quite detailed, because they will be used for a range of purposes related to the practicalities of employment, career planning, business management and human resource development. They are like summarized or generalized occupational standards or job descriptions. They are intended to be derived from common practice;
- At the national level, level descriptors may still be quite detailed, but (in the case of inclusive frameworks) they will have to cover all parts of the economy together with social factors (what may be the requirements for active citizenship). Depending on the nature of the framework (see Raffe, 2009), they may be derived from current practice or contain aspirations or requirements. Because they are concerned mainly with qualifications, they may also incorporate factors related to formal educational structures, especially at the levels that include higher education;
- At the regional level the descriptors are minimal, because they must be applicable to a wide variety of education and training systems, qualification structures and types.

Importance of assessment

The importance of assessment is another observation related to level descriptors. While descriptors may be well formulated, it is only through thorough assessment methods that the impact of qualifications frameworks can be made real. Here it is

8 A. Deij, Level descriptors in the ETF partner countries, written input to this study.
9 Again see A. Deij's written input.
10 Adapted from J. Hart's written response to our interview questions.

important to take note that some competences are better assessed in groups, as not all fit the model to be assessed as individuals.[11]

End-point and best-fit approaches

Deij (in his written input to this study) also points out that the application of level descriptors differs, and that this could provide some insights into principles for applying world reference levels. He refers to two main applications (adapted below):

- An 'end-point approach', where descriptors are used to place qualifications on a level by focusing on the learning outcomes at the end of a cycle (as with the Dublin descriptors). In this case learning takes place from a lower level and ends at the intended level of the qualification;
- A 'best-fit approach', where qualifications are placed on the level at which the bulk of the KSCs are located.

This is an important distinction which is taken up again later in this report.

Limitations of level descriptors

Lastly, it would be remiss not to observe the limitations of level descriptors. As has been emphasized on a number of occasions in this report, level descriptors cannot be described as an exact science. On the contrary, the pragmatic approach that underlies the current understandings of level descriptors has resulted in a weak theoretical model that will take many years to be improved. Level descriptors are often too generic for accreditation bodies (Joint Quality Initiative, 2003) and are difficult to implement without sectoral translations. While level descriptors may be important to standards developers, stakeholders are interested in levels, not level descriptors. In this regard attempts, such as by the SCQF (2013), to translate level descriptors for employers make a lot of sense.

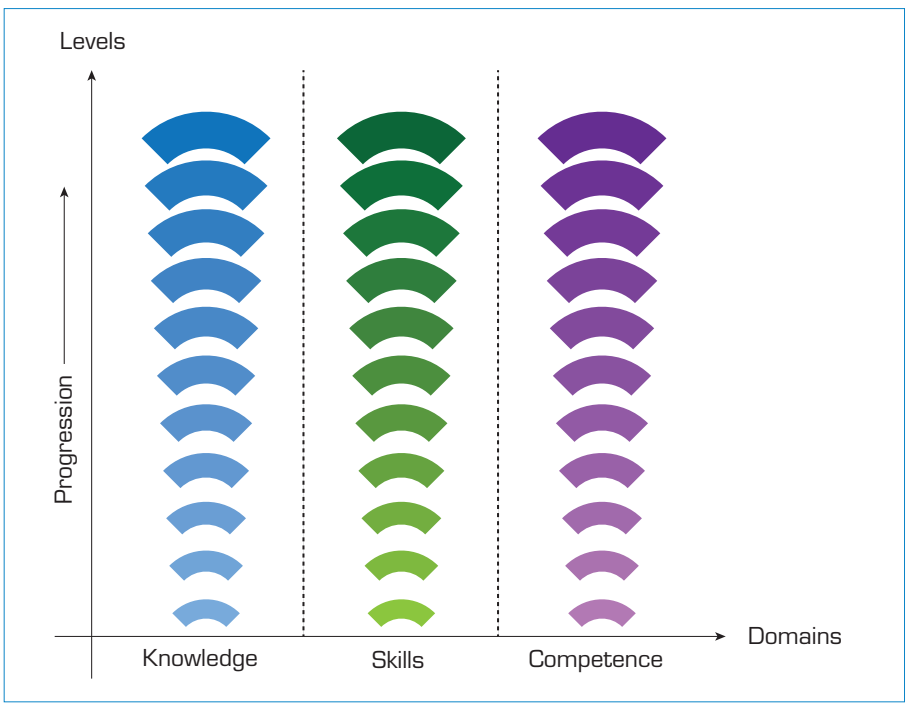
The involvement of social partners in the design and implementation of level descriptors, including employers and organized labour, is of critical importance. This is further discussed later in this report.

11 Input to this study by A. Deij (see note 5) and S. Adam, interview 10 April 2014.

Levelling across different domains

An important insight gained from the review of the key concepts presented in the first part of this report is that a one-size-fits-all approach to setting levels for KSC has significant limitations. This poses several challenges to the formulation of level descriptors. Also drawing on the earlier discussion, level descriptors are essentially sets of learning outcomes that are organized across two dimensions: levels and domains. The most commonly used domains are knowledge, skill and competence, with competences sometimes broken down into more subdomains. Learners are expected to progress vertically through the levels in each of the domains, but no distinction is made between the type of progression required in the separate domains. ***Figure 2*** illustrates the KSC domains. The perforated lines suggest that the boundaries between the domains are not always clear-cut.

Figure 2: The two dimensions of level descriptors



Source: authors

An important consideration is the extent to which progression can take place in both horizontal and vertical dimensions, and the complexities that arise with such a conceptualization. Do different hierarchies apply to different domains? For example, the knowledge and skills domains may be describe using the Bloom taxonomy, while the competence domain may be better suited to ISCO or the classifications used by O*NET. If different hierarchies apply to different domains, how can progression across domains take place? One response to this question, focusing on the EQF, is that three hierarchies are required:

> The EQF can be understood only if it is considered from at least three perspectives, namely a hierarchy of education systems, a hierarchy of occupational tasks and functions, and a hierarchy of skills acquisition. (Markowitsch and Luomi-Messerer, 2008, p. 33)

In the discussion below it is proposed that two hierarchies are considered: one for skills and knowledge, and another for competences. This is a departure from the current practice, as in most cases no distinction is made in the progression hierarchy of different domains. The implementation of two hierarchies, and the subsequent need for some form of synchronicity between the two domains, will have to be tested in practice, but it should be an important consideration for the world reference levels.

Progression in the knowledge and skills domains

The most well-known model that describes progression across knowledge (the ability to recall and present information) and skills (the ability to do) is the Bloom taxonomy of learning. It was developed in the 1950s (see Bloom and Kratwohl, 1984) and has been used extensively ever since. A brief overview of this taxonomy is provided below (based on Manabile, 2007).

During the 1948 Convention of the American Psychological Association, a discussion drew a group of educators led by Benjamin Bloom to undertake the task of classifying educational goals and objectives. Their intention was to develop a method of classification for thinking behaviours that were believed to be important in the processes of learning. Eventually, this framework became a taxonomy of three domains:

- **The cognitive** or knowledge-based domain, consisting of six levels;
- **The affective** or attitudinal-based domain, consisting of five levels;
- **The psychomotor** or skills-based domain, consisting of six levels.

In 1956, eight years after the group first began, work on the cognitive domain was completed and a handbook commonly referred to as *Bloom's Taxonomy* was published. Bloom prevailed in his insistence on using the term 'taxonomy' and linking it to his name, although others resisted because of the unfamiliarity of the term in educational circles. Other educational taxonomies and hierarchical systems have been developed, but Bloom's taxonomy remains the popular standard even after nearly fifty years.

Bloom's taxonomy is a hierarchical structure with six major categories situated on a single dimension. The categories are arranged in a progression from simple to complex and from concrete to abstract. The higher categories are believed to be more complex and more abstract than the lower ones. Each category is broken down into subcategories. Each category is subsumed by the higher levels. The lower level is a prerequisite for progression into the next higher level. Knowledge, comprehension and application are the three lower levels of thinking and learning, and the upper three levels are analysis, synthesis and evaluation.

Informal discussions held between Bloom's student Lorin Anderson and David Krathwohl led to a decision to invite a group of educators across the United States to attend a two-day meeting for revising the taxonomy. Between 1995 and 2000 a group of educators and researchers met in New York twice annually with the purpose of revising Bloom's taxonomy to ensure its relevance for twenty-first-century teachers and students. The group included cognitive psychologists, curriculum theorists, instructional researchers, and testing and assessment specialists. The revised taxonomy contains two dimensions (see ***Table 2***). The horizontal dimension on the chart is called the cognitive process dimension, and the vertical is known as the knowledge dimension.

Table 2: Revised Bloom taxonomy

The knowledge dimension	The cognitive process dimension					
	Remember	Understand	Apply	Analyse	Evaluate	Create
Factual knowledge						
Conceptual knowledge						
Procedural knowledge						
Metacognitive knowledge						

Source: Anderson et al., 2001

The horizontal cognitive process dimension is a modification of Bloom's taxonomy (it removes the 'cumulative hierarchy' first assumed by Bloom). Other terminology changes are in the categories, which change from nouns to verbs as follows. Application, analysis and evaluation are replaced by their verb forms, apply, analyse and evaluate respectively. Knowledge becomes remember, comprehension is replaced by understand, and synthesis becomes create.

The terms were defined as follows (Anderson et al., 2001, pp. 67–8):

- Remembering: retrieving, recognizing, and recalling relevant knowledge from long-term memory;
- Understanding: constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining;
- Applying: carrying out or using a procedure through executing, or implementing;
- Analysing: breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing and attributing;
- Evaluating: making judgements based on criteria and standards through checking and critiquing;

- Creating: putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning or producing.

Bloom's taxonomy assumed there was a hierarchical functioning of thinking which could be described as lower and higher levels. The knowledge dimension represented a shift from content to types of knowledge (Anderson, 2005):

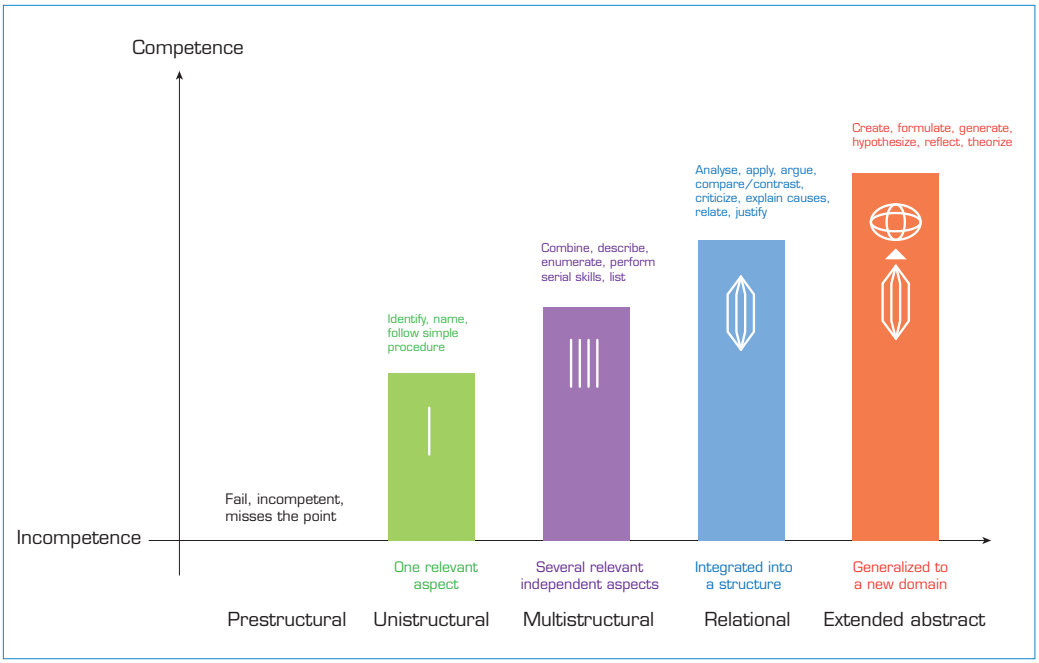
- Factual knowledge: the basic elements students must know to be acquainted with a discipline or solve problems in it;
- Conceptual knowledge: the interrelationships among the basic elements within a larger structure that enables them to function together;
- Procedural knowledge: how to do something, methods of inquiry, and criteria for using skills, algorithms, techniques and methods;
- Metacognitive knowledge: knowledge of cognition in general as well as awareness of one's own cognition.

As was pointed out earlier in this report, both Bloom's original and the revised taxonomy are rooted in a strongly behaviourist tradition. This is a factor that must be considered when the taxonomy is used to formulate learning outcomes in a hierarchy of knowledge and skills using level descriptors. As was also pointed out earlier, there are alternatives with a more constructivist orientation, such as the SOLO taxonomy (Biggs and Collis, 1982). As the name suggests, this taxonomy focuses on the outcome of learning, but without prescribing the behaviour required to achieve the outcome:

> [The SOLO taxonomy] does not presuppose any particular action or production on the part of learner; it does not require that a specific, predetermined behaviour or utterance be exhibited by the learner in order that an outcome might be said to be achieved. Rather, it accepts that a range of possible responses might be produced by a learner, which cannot necessarily be anticipated, and some of which might be entirely unexpected; but it provides means to judge the complexity of any of these responses against a set of criteria that have to do with the structures of knowledge that generate it in the first place. (Moll, 2009, p. 8)

SOLO does not interpret an outcome as the end-product of the learning process, but rather focuses on the 'underlying structures of thought that give rise to the product' (Moll, 2009). Progression in the SOLO taxonomy is based on levels of understanding, ranging from unistructural (one relevant aspect) to multistructual (several relevant independent aspects), to relational (integration into a structure) and extended abstract (generalization to a new domain).

Figure 3: The SOLO taxonomy with sample verbs indicating level of understanding



Source: Biggs, 2014

It is acknowledged that the application of the SOLO taxonomy to the formulation of learning outcomes, and by implication level descriptors, is not well developed internationally. More work will have to be done to test this idea, but in principle it does open a new approach in which the hierarchy in the competence domain is understood differently from the knowledge and skills domains.

The Bloom and SOLO taxonomies provide two examples of how progression in the knowledge and skills domains can be described. They originate from two different traditions, Bloom from the behaviourist tradition, and SOLO from the constructivist. As such they provide a useful counterbalance to each other and should be used as such. The current practice in most qualifications frameworks is to rely entirely on the Bloom taxonomy. This is a weakness that can be challenged by the world reference levels also considering aspects of the SOLO taxonomy.

Some caution is also important here. The application of the Bloom taxonomy in the field of qualifications could potentially result in rigid and simplistic approaches,[12] which should be avoided. It is also important to note, as shown earlier in this report,

12 J. Hart, written response to interview questions.

that the Bloom taxonomy is very seldom used in an explicit manner during the formulation of level descriptors.[13] Considering the known absence of any explicit taxonomy in the formulation of most level descriptors, and also considering that it is the most widely used taxonomy in education, it is not unrealistic to argue that policy-makers actually use the taxonomy in an implicit manner without realizing this. Thus hypothesis remains to be tested but is very likely.

As a last point it is important to note that the further disaggregation of the knowledge and skills domains may be a future consideration, more so when the subdomains of skills are considered. These have been identified as foundation skills, transferable skills and technical and vocational skills. While progression in foundation skills and transferable skills is more similar to knowledge, progression in the technical and vocational skills subdomain lends itself more to occupational classifications systems, such as ISCO-08 and even aspects of O*NET. This is an area that will require further deliberation during the development of the world reference levels.

Progression in the competence domain

The competence domain differs from the knowledge and skills domains in that competence is about the *application* of knowledge and skills in context. Progression in the competence domain is more about specialization, compared with levels of understanding (in the SOLO taxonomy) or the classification of thinking behaviours (as in the Bloom taxonomy). Just as was the case with the knowledge and skills domains, there is also a widely used model for the competency domain, the Dreyfus model of skills acquisition (Dreyfus and Dreyfus, 1986). The model differs from Bloom and SOLO in that it focuses on the *acquisition* of skills through a hierarchy ranging from novice to expert.

According the Dreyfus model there are six levels of progression ranging from a novice to an expert (Lester, 2005):

- Novice: has an incomplete understanding, approaches tasks mechanistically and needs supervision to complete them;
- Advanced beginner: has a working understanding, tends to see actions as a series of steps, can complete simpler tasks without supervision;

13 Response by D. Booker as part of the peer review process.

- Competent: has a good working and background understanding, sees actions at least partly in context, able to complete work independently to a standard that is acceptable though it may lack refinement;
- Proficient: has a deep understanding, sees actions holistically, can achieve a high standard routinely;
- Expert: has an authoritative or deep holistic understanding, deals with routine matters intuitively, able to go beyond existing interpretations, achieves excellence with ease.

Table 3: The Dreyfus model of skills acquisition

Level of progression	Descriptors
Novice	– Rigid adherence to taught rules or plans – Little situational perception – No discretionary judgement – Acts without reference to context
Advanced beginner	– Guidelines for action based on attributes or aspects (aspects are global characteristics of situations recognizable only after some prior experience) – Situational perception still limited – All attributes and aspects are treated separately and given equal importance
Competent	– Coping with crowdedness – Now sees actions at least partly in terms of longer-term goals – Conscious, deliberate planning – Standardized and routinized procedures – Analytical
Proficient	– Sees situations holistically rather than in terms of aspects – Sees what is most important in a situation – Perceives deviations from the normal pattern – Decision-making less laboured – Uses maxims for guidance, whose meanings vary according to the situation – Rational

Expert	– No longer relies on rules, guidelines or maxims – Intuitive grasp of situations based on deep tacit understanding – Analytic approaches used only in novel situations or when problems occur – Vision of what is possible

Source: Dreyfus and Dreyfus, 1986

This Dreyfus model is widely applied in the international context (see Honken, 2013, for a good example applied in the engineering environment). Some overlap with the knowledge and skills domain is inherent in the model, but it still focuses primarily on application and acquisition, and is therefore a useful model to consider for the competence domain. This overlap is similar to both the Bloom and SOLO taxonomies and can be accommodated in level-setting processes. The central argument here is however that a distinction between the level-setting methods used in the knowledge and skills domains, and the competence domain, should be considered as a more effective approach than the current situation where one method (in most instances, the Bloom taxonomy) is applied across all domains.

Of course there also various other models that are applied in the competence domain. Many of these can be found in occupational classification systems, and also in attempts to bridge the different level-setting systems in occupation and qualification frameworks. The SCQF Employer Levelling Tool (SCQF, 2013) is an excellent example of such an initiative. Just as with many other examples, the Levelling Tool is not precise in its reference to knowledge, skills and competences, although the contextualization of these domains within job roles and the representative competences of job holders at a specific level is useful.

> This Levelling Tool is designed to support the allocation of an SCQF level to a job role and to give an indication of the level of knowledge and skills which a job holder at that level may require. The tool compares SCQF Levels 4–12 to representative job responsibilities and gives examples of the level of knowledge, skill and competence at each level. However, it is not intended to act as an exact or comprehensive description of the responsibilities of all roles at a particular level or of the skills which must be possessed by a candidate/job holders at each level; it is a rough guide to allow employers to come to an informed judgement about the level of job roles within their organisation and aims to provide signposts when thinking about developing a person specification. (SCQF, 2013, p. 1)

Following on from this section, which has explored level-setting across different domains, and the preceding section which focused on level-setting through level descriptors, it is useful to also consider the manner in which level-setting takes place in other recognition methodologies. This is the focus of the next section, which is then followed by a reflection on the need for involving social partners in the level-setting processes.

Level-setting in other recognition methodologies

As noted in the introduction to this section, the process of defining levels of learning precedes qualifications framework developments by many years. For this reason it is important to reflect on some of the main models and their potential implications for the formulation of level descriptors generally, and also for the proposed set of world reference levels. Level-setting in the following recognition methodologies is discussed below: regional conventions, credential evaluation, professional and occupational standards, learning metrics, and occupational and educational classification systems.

Regional recognition conventions do not prescribe to any form of level-setting beyond the intrinsic hierarchy of the qualifications that they cover. This hierarchy has traditionally been based on a progression between qualification types, but since the advent of qualifications frameworks, the progression has become more linked to levels and level descriptors. The Bloom taxonomy (Bloom and Kratwohl, 1984) has been favoured in level descriptors used to describe the progression across qualifications frameworks levels. The credential evaluation sector is similar, in that the evaluation of qualifications from another country is based on the hierarchy of qualifications in the evaluating country. Here again, qualifications frameworks are increasingly being used to determine the progression. Professional and occupational standards tend to focus primarily on different domains coupled with levels of proficiency, similar to the Dreyfus model of skills acquisition described earlier (Dreyfus and Dreyfus, 1986). The examples discussed earlier (the Tuning Project, INSSO and the Dictionary of Skills and Competences [DISCO]) all show this characteristic.

Learning metrics provide another useful example where an empirical notion of level is determined. These are some examples of metrics and their related levels of progression that have been discussed in this report:

- LMTF: early childhood, primary and post-primary;
- STEP: five interlinked steps: getting children off to the right start; ensuring that all students learn; building job-related skills that employers demand; encouraging entrepreneurship and innovation; and matching the supply of skills with demand;
- LAMP: Level 1: the individual has very poor skills and may, for example, be unable to determine the correct dose of medicine to give a child from the label on a package. Level 2: respondents can only deal with simple, clearly laid-out reading tasks. At this level, people can read but test poorly. They may have developed coping skills to meet everyday literacy demands, but they find it difficult to tackle new challenges, such as certain job skills. Level 3: considered a suitable minimum for coping with demands of daily life and work in a complex society. This skill level is generally required to successfully complete secondary school and enter college. Level 4 and 5: respondents demonstrate a good command of higher-order information processing skills;
- WorldSkills: the inclusion of high-level skills that feature prominently in the level descriptors; a focus on competence as a baseline in order to focus on excellence as a key differentiator in intermediate/technician work roles.

As can be seen from the examples above, learning metrics tend to describe levels through highly contextualized categories, ranging from literacy (in LAMP) to levels of schooling (in the LMTF). While most of these are not of direct relevance to the world reference levels, WorldSkills does however provide some useful insights into defining levels of skills and competences, notably the focus on excellence. This distinction is an important consideration for the world reference levels, and is also directly related to the level of generalization.[14] This matter is considered again in the final chapters of this report.

Another point to note is that learning metrics can also be used to verify the effectiveness of level descriptors.[15] So for example, PIAAC and PISA survey results provide important insights into the level of knowledge and skills of adults and young people. Cross-referencing these results with the levels at which qualifications are pitched can be a useful check on whether the levels are appropriate. Admittedly there may not necessarily be a direct correlation between the qualifications levels and survey results, and hence much work will have to be done to design a credible methodology for the comparison. It is nonetheless an interesting avenue which could be explored in future.

14 J. Hart, written response to interview questions.
15 Interview with A. Pereira, 10 April 2014.

Occupational and educational classification systems contain highly developed and differentiated level-setting schemes. So for example, ISCO-08 uses two basic criteria to arrange occupations into the major, sub-major, minor and unit groups of the ISCO classification structure: skill level and skill specialization. Skill is defined as the ability to carry out the tasks and duties of a given job. Skill level is a function of the complexity and range of the tasks and duties to be performed. Skill specialization is considered in terms of the field of knowledge required, the tools and machinery used, the materials worked on or with, and the kinds of goods and services produced. O*NET is based on a taxonomy of descriptor variables in each domain that are of a hierarchical nature. ISCED includes the notion of 'levels' of education which are represented by an ordered set, grouping education programmes in relation to gradations of learning experiences, as well as the KSC which each programme is designed to impart. The ISCED level reflects the degree of complexity and specialization of the content of an education programme, from foundational to complex. In this perspective, levels of education are therefore a construct based on the assumption that education programmes can be grouped into an ordered series of categories. These categories represent broad steps of educational progression in terms of the complexity of educational content. The more advanced the programme, the higher the level of education. Classifying education programmes into a progression of levels aims to reflect the full range of educational pathways available in education systems.

SBSs set out general expectations for the award of a qualification at a specific level, and are discipline-specific. They 'articulate a "threshold" or minimum standard. Many also provide statements on "typical" or modal standards and, in addition, a few describe excellence' (QAA 2012, p. 2). SBSs are generally linked to particular qualifications. In the case of the QAA, this is to the variants of the bachelor degree with honours and also master's degrees. In this case it is argued that foundation degrees are too tightly specified, and reflecting employer's needs, and that this makes it difficult to develop 'national-level reference points' (QAA 2012, p. 2).

Graduate attributes, which describe core competences, generic attributes and transferable skills, represent another example of a learning outcomes-based approach that is followed outside of qualifications frameworks. The debates related to context-dependency and context-independency are closely associated with the concept of graduate attributes. Level-setting in graduate attributes is associated with the notion of 'graduateness' and is, just like SBS, linked to qualifications, but in this case to the broader notion of the qualification *type*, which is not linked to a specific discipline or subject area.

Some degree of convergence in the approaches to level-setting used in qualifications frameworks and other recognition methodologies does seem to be a reality. Even so, the overarching purposes of the different recognition methodologies seem to suggest that the approaches to level-setting remain distinct although related. There are examples where some convergence is occurring. Good examples include the inclusion of occupational classification systems (such as ISCO) in qualifications frameworks (such as in South Africa), the inclusion of learning outcomes and qualifications framework levels in the European Area of Recognition (EAR) Manual for credential evaluators (Nuffic, 2012), the direct correlation between qualification SBSs, qualification types and graduate attributes, and the Tuning Project's direct relationship to the Bologna process, the EQF and the QF-EHEA.

Involvement of social partners in level descriptors

The research clearly highlighted the concerns relating to the involvement of a tripartite consultation, including social partners (organized labour and business) and the state, in qualifications framework development. Research currently under way by the International Labour Organization (ILO) (see ILO, 2014) will undoubtedly cast more light in this area. In the review of level descriptors conducted for this study, some observations were made related to the involvement of social partners. These are briefly discussed below.

First, it is not surprising that employers are often not familiar with level descriptors. According to Coles,[16] employers should be involved in the early development stages, but probably less so as the framework is implemented. This is an important point which could probably be generalized to many aspects of a qualifications framework. Effective frameworks tend to be subsumed into the day-to-day workings of providers and employers in a manner that does not require them to be familiar with the intricacies of the framework. The tangible experiences lie more in the translation of the national descriptors into sectoral initiatives and human resource tools (job advertisements, job grading, recognition and award systems).[17] A good example of such a translation of level descriptors into something useful for employers was mentioned earlier: the SCQF level-setting tool (also see SCQF, 2013):

16 Interview, 4 April 2014.
17 Interview with A. Aerden, 10 April 2014.

> The SCQF Partnership say that as well as allowing broad comparisons to be made between the outcomes of any learning, the SCQF level descriptors allow learners, employers and the public in general to understand the range of skills and learning that should be achieved at each level and are increasingly used in job advertisements to help employers articulate the skills they require for a particular role and to help potential employees to highlight their skills thus ensuring the right person gets the right job.[18]

Hart (in response to our questions) argued for an alignment between the concerns of educators, learners, employers and labour strategists which need to come together in a qualifications framework, with its levels and level descriptors. In identifying or determining the levels of a new qualifications framework, designers have to bring together outcomes of education and training that are mainly knowledge-based and those that are primarily about the application of hard and soft skills. These outcomes will guide learners on the one hand and practice on the other.

The technical jargon associated with level descriptors and NQFs often makes it difficult for social partners to be involved in a meaningful manner. Social partners are usually invited to seminars, conferences, joint working groups and many other forums, but their contributions are often criticized for being symbolic (that is, the inclusion of social partners gives more credibility to the process: see OECD, 2007), as opposed to providing meaningful contributions. Clearly much more needs to be said about this topic. This is even more true in the case of the world reference levels, where social partners that operate on an international level will have to be consulted. Examples include the ILO's Bureau for Workers Activities (ACTRAV), the International Trade Union Congress (ITUC), the International Organization of Employers (IOE) and Education International (EI), but there are also many others.

In this section we have covered some of the most important aspects that will inform the proposed world reference levels. By drawing on the earlier discussions related to the different domains of learning, qualifications frameworks and other recognition methodologies, we have shown that level descriptors (based on learning outcomes and described across at different domains of learning) are widely used across the world, as was exemplified in the case studies included in this research. Based on the review presented a level descriptor can be defined as follows:

> A statement, using learning outcomes, that describes learning achievement at a particular level of a qualifications framework and that provides a broad indication of the types of learning that are appropriate to a qualification at that level.

18 J. Hart, written response to interview questions, p. 4.

The lack of philosophical base was noted as a serious limitation that will have to be corrected in the future. It was further noted that a separation between qualifications development and provision is a useful characteristic of a metaframework, while the direct link to specific occupations is probably best not done. The tension between minimum acceptable performance and 'excellence for competency' in the formulation of level descriptors is an important consideration, while it will also be necessary to consider the minimal nature of level descriptors formulated at a regional level.

An important argument put forward in this section was that different hierarchies should be applied to the knowledge and skills domains, and the competence domain. In the case of knowledge and skills it has been proposed that the Bloom taxonomy (considering also its more recent revisions) (Anderson et al., 2001), and the SOLO taxonomy (Biggs, 2014) be applied. In the case of the competence domain, the Dreyfus model of skills acquisition (Dreyfus and Dreyfus, 1986) has been proposed.

In reflecting on the manner in which level-setting takes place in other recognition methodologies, it was noted that learning metrics tend to describe level-setting through highly contextualized categories. It was also observed that an increasing level of convergence exists in the approaches to level-setting used in qualifications frameworks and other recognition methodologies.

The findings of this section suggest the following considerations for the development of the proposed world reference levels. First, it is important to recognize the limitations of level descriptors – in this regard it may be useful to think of world reference levels as 'indicative levels' with contextual examples attached. Second, the increasing trend towards the development of subframeworks within NQFs (typically for higher education, occupations and general education) begs the question of whether different sets of level descriptors are required for each sector/sub-framework. At this point evidence seems to suggest that this is not necessary. Lastly, it has been emphasized that social partners (notably those that operate on an international level) will have to be consulted during the development of the world reference levels. The practicalities of such consultations will have to be carefully planned for the world reference levels to be credible.

FOCUS AREA: RECOGNIZING LEARNING

Dimension 4: Qualifications and qualifications frameworks

The origin of qualification structures can be traced back to organized education in antique civilizations such as Greece, Sparta, Rome and China. As no specialized career structure existed in these cultures, organized education focused on broad issues of international citizenship, and not on vocational preparedness, which was achieved mainly through informal apprenticeships. As civilizations developed, the role of social class and caste received more emphasis, and people who displayed certain competences were grouped together. The advantage of having participated in and benefited from education gradually became more visible as civilizations developed. In this respect the Chinese civilization was the most organized, with a series of levels attached to examinations, which in turn granted the right of access to public office. During the Middle Ages education had a particularly religious nature, while the late medieval centuries were categorized by a new approach to education alongside the clergy and feudal knighthood. New economic objectives as a result of the Crusades and the development of banking, importing and shipping across Europe and the West gave rise to the development of cities, and a new form of education aimed at professional life. Education became available to the middle classes, and the merchant and craft guild system developed (De Villiers, 1997).

The first institutions of formal higher education were established at this time in the Islamic universities of Al-Azhar in Cairo and Sankore in Timbuktu (Serpell, 2007). By the eleventh century, universities were developing in Europe, largely in reaction to the previous narrow religious doctrine. The establishment of the University of Bologna marked the beginning of the European university tradition. This was also the time when the term 'qualification' acquired a more definite meaning, although it retained its emphasis on social class structures. The nineteenth century brought with it a wave of liberalism and consciousness of equal rights and opportunities, accompanied by increased specialization and bureaucratization (De Villiers, 1997). The increased need for skilled employees eventually resulted in an emphasis on

credentials which persists to the present day. During the twentieth century the emphasis shifted to human capital theory and technological development, eventually leading to concerns whether the education system was able to meet the demands of the labour market. At the time it was argued that the strong divisions were creating barriers to learning, and that there was a need to do away with the sharp distinction between academic and vocational systems.

During the late 1980s, and strongly influenced by the thinking on integration but also by a focus on vocational training through a competency approach, the notion of an NQF emerged in the United Kingdom. Its roots lay in the competence approach to vocational education which was broadened by Jessup (1991), as well as the Scottish *Action Plan* which led to the modularization of vocational education and training in Scotland (Scottish Education Department, 1983). The idea developed that all qualifications could be expressed in terms of outcomes without prescribing learning pathways or programmes (Young, 2005). Within this politically charged melting pot of factors, and a renewed emphasis on the importance of lifelong learning, the first NQFs were established in Australia, England, Scotland, New Zealand, Ireland and South Africa between 1989 and 1995.

France, as a country with a different, notably non-Anglo Saxon tradition, was also a member of this group of first-generation NQFs (Bouder, 2003; Keevy et al., 2011). In the case of France, the NQF drew on a hierarchy of qualifications that found official expression at the end of 1960s in a nomenclature which tried to rationalize the number of students leaving the education and training system to correspond with the needs of the labour market. As noted by Méhaut (2012, p. 46), in the context of the nomenclature 'those leaving without qualification were supposed to be in a corresponding position to an "unskilled" worker, while the first level of vocational diploma was meant to correspond in principle to the level of the skilled worker or "craft" worker'. Méhaut also notes (2012, p. 46) that this hierarchy of levels finds its theoretical counterpart in qualification grids resulting from collective agreements, and in the wider society in the social hierarchy of occupations and professions.

Across the first-generation countries, NQFs were conceptualized as hierarchical classifications of levels of formal learning programmes and their associated qualifications and certificates (Coles et al., 2014). Integral features of NQFs included new quality assurance and standards-setting regimes based on learning outcomes, and importantly for this study, level descriptors which are used to determine the level at which a qualification should be pegged (see Tuck, 2007).

Evolving definitions and role of qualifications

Before looking more closely at the different types of qualification framework, it is useful to consider the evolving definitions and role of qualifications. Here is it important to note that that the changing definitions and role of qualifications can be linked to the changing nature of TVET and its relation with the labour market, globalization and the importance of the lifelong learning perspective. In a review of changing qualification policies and practices in Europe, CEDEFOP (2010*b*, p. 19) concludes that 'generally, the role of qualifications in supporting international mobility has strengthened'. The authors also point to the limitation of qualification as a signal or currency: 'The concept of qualification as we now understand it, from particular recruitment situations, is always imperfect as a signal' (2010*b,* p. 23). The authors advocate the concept of 'representation', which is considered as more comprehensive because 'it allows the user to build a picture of their capabilities and a recruiter to be more specific about what is sought in a candidate' (CEDEFOP, 2010*b*). This concept is taken up again later in this report (see Chapter 4 on future possibilities).

There are differences in understanding of qualifications. The fundamental difference is detectable between those that understand qualification as meaning the certification of achievement via a formal assessment of prescribed learning, and those that understand qualification as a status endowed by communities of practice. On the one hand, the concept of qualification is linked to certification, which means to possess formal certification of the level of competence that the individual has reached. On the other hand, the term 'qualification' makes reference to the labour market: in this sense, a worker is qualified to do certain work functions.

The conclusion of the UK referencing report illustrates this fundamental difference (QFUK, 2010, p. 10) and the attention given to foundation skills:

> All of the UK frameworks contain levels designed to recognise learning achievements that are below the level normally represented by vocational, pre-vocational or general educational qualifications. These are QCF Entry 1 and Entry 2, CQFW Entry 1 and Entry 2 and SCQF levels 1 and 2. These levels are considered to be crucial to the lifelong learning focus of the UK frameworks. They have particular significance for supporting learners who have basic skills or lack confidence; there is also substantial evidence that providing recognition for achievements at these levels is an encouragement to learners to take further steps on the qualifications ladder. The fact that EQF levels do not accommodate these levels in UK frameworks was a matter of great concern and was widely raised as an issue in the consultation. There were strong recommendations that this issue should be brought to the attention of the EQF Advisory Group and that this gap in the EQF structure should be addressed when the EQF is reviewed in 2013.

Different definitions of qualifications can also be found from international agencies (see ***Table 4***):

Table 4: Different definitions of qualifications

Term	UNESCO definition	ILO definition	EU definition	OECD definition
Qualification (associated terms: certification; learning outcome; qualification framework)	A formal expression of the vocational or professional abilities of a worker which is recognized at international, national or sectoral levels. An official record (certificate, diploma) of achievement which recognizes successful completion of education or training, or satisfactory performance in a test or examination. (1) The official confirmation, usually in the form of a document, certifying the successful completion of an education programme or stage of a programme. Qualifications can be obtained through: i) successful completion of a full programme; ii) successful completion of a stage of an education programme (intermediate qualifications); or iii) validation of acquired knowledge, skills and competencies, independent of participation in an education programme. This may also be referred to as a 'credential'. (2)	Certification awarded to an individual in recognition of having achieved particular knowledge, skills or competencies. It is also the formal expression of the vocational or professional abilities of a worker which is recognized at international, national or sectoral levels. (3)	The formal outcome (certificate, diploma or title) of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards and/or possesses the necessary competence to do a job in a specific area of work. (4)	When a competent body determines that an individual has learned knowledge, skills and/or wider competences to specific standards. (5)

Sources: (1) UNESCO-UIS (2011), (2) UNESCO (2014*d*), (3) ILO (2006), (4) CEDEFOP (2011*b*), (5) OECD (2010*b*).

The qualification process varies enormously from setting to setting, but in most cases it includes the following five elements, as described by CEDEFOP (2010*a*):

- *Learning*: the basis of qualification, an individual's learning could be gained through a formal curriculum or through experiences in settings such as work or personal and social activities; learning might take the form of knowledge, skills or wider competences such as personal and social competences;
- *Assessment*: judgment of an individual's knowledge, skills and wider competences against criteria such as learning outcomes or standards of competence;
- *Validation*: confirmation that the outcomes of assessment of an individual's learning meet predetermined criteria (standards) and that a valid assessment procedure was followed, which means that the outcomes have been quality assured and can be trusted;
- *Certification*: a record of the individual's learning has been validated; the certificate usually issued by a body which has public trust and competence, confers official recognition of an individual's value in the labour market and in further education and training;
- *Recognition*: follows the previous four stages; it is seen in the raised self-esteem of individuals and when third parties use the qualified status of an individual to offer progress into a new job, higher pay and/or increased social status.

Different types of qualifications frameworks

The group of first-generation NQFs was followed by a group of twenty or more second-generation NQFs. These NQFs, in for example Malaysia, Mauritius and Hong Kong, drew on the lessons learned from the early starters, but by and large were able to develop relevant and contextualized models for their countries. In the early years of the twenty-first century more and more countries followed the emerging global trend. These third-generation NQFs, which currently number over 100, also took the earlier lessons into account but have become notorious for too much policy-borrowing (Chakroun, 2010). At the time of the completion of this report there were at least 140 countries across the world at various stages of NQF development and implementation (Keevy et al., 2010; also see Leney et al., 2009). Without exception, all countries, be they first, second or third generation, have continued with NQF development. More advanced NQFs have been reviewed, some on more than one occasion, but they have remained in place, albeit in a revised form.

As illustrated in ***Figure 2***, qualifications frameworks are characterized not only by when they were established (that is, to which generation they belong), but also in terms of their scope. Three main types exist:

- *Sectoral qualifications frameworks* that are developed within a specific country and with a specific sectoral focus (examples include a TVET framework in Jamaica, the occupational qualifications subframework in South Africa, the General Education Qualifications Framework in Poland, and the Engineering Sectoral Framework in Armenia);
- *National qualifications frameworks* developed with a national focus (examples include the UAE, Chile and Malaysia);
- *Transnational qualifications frameworks* that are developed across a range of countries. Where these countries are in the same geographical proximity they are referred to as regional qualifications frameworks (examples include the SADC RQF and the EQF). Transnational qualifications frameworks can also be developed across countries that are not in the same geographic proximity).

Three current examples of sectoral frameworks can be found in the European context (Leney et al., 2009):

- *Car mechanics in the automotive industry*: The participants from Germany, Hungary, Poland, Luxembourg and Austria developed and tested a common approach to outcomes-based VET curricula in initial training using occupational standards. The products of the project were linked to EQF levels in terms of knowledge, skills and competences;
- *Work in television (TV)*: The project aimed to support the establishment of a zone of mutual trust to aid mobility and inspire concerted development in training and employment of the Europe's audiovisual sector. The project produced a comparative web-based framework that allows the identification of differences and similarities in professional competences, employability requirements, training offers and practices for TV technical professions in Spain, Italy, Portugal, Poland, Germany, France, Ireland and the United Kingdom;
- *The European Professional Card Project for Engineers*: Engcard aims to increase and facilitate trans-European mobility of engineers by reducing the impact of an inhibitor – the recognition of professional qualifications. Engcard is still at a developmental stage, and the aims include integrating the Engcard concept with the Europass documentation, resolving quality assurance and IT issues (such as capacity, security and privacy) and developing a prototype that other occupations can use across borders;

- *Tourism*: A project has both compared programmes of study and attempted to align tourism qualifications to the EQF for countries that include Malta, Austria, Italy, Greece, Slovenia and Spain;
- *Humanitarian sector*: the Humanitarian Action Qualifications Framework (HAQF) compares competences and skills acquired in the formal education system with those obtained by working in the humanitarian area, which is often based on field and work experiences. The HAQF is based on the EQF.

Sectoral frameworks, be they across countries in the same geographical proximity or not, are increasingly being developed across the world. These sectoral frameworks use NQFs and RQFs as reference points, but tend to offer more practical and contextual guidance to employers, providers, professionals, workers and learners. Sectoral frameworks, developed across a range of countries that are not in the same geographical proximity, also tend to be less bound to any specific RQF.[19] It appears that this trend will in all likelihood continue into the future.

Table 5: Different types of qualifications framework

Type of qualifications framework	Scope	Geographical possibilities	Examples
Sectoral	Sector-specific framework	– Within a country – Across countries in the same geographical proximity – Across countries that are *not* in the same geographical proximity	Jamaican TVET QF Humanitarian Action Qualifications Framework (HAQF) Virtual University of the Small States of the Commonwealth (VUSSC) TQF
National	Includes all sectors	Country-wide	Australian NQF Malaysian NQF
Transnational	Includes all sectors	– Across countries in the same geographical proximity (referred to as RQF) – Across countries that are *not* in the same geographical proximity	EQF SADCQF ASEAN QRF

Source: adapted from Keevy et al., 2010

19 A. Deij, written input to this study.

RQFs are increasingly playing an important role internationally. Since the first RQFs were developed in SADC (since 1999), Europe (since 2005), and the Caribbean (since 2003), other regional groupings have followed suit. Examples include Asia-Pacific Economic Cooperation (APEC) (since 2006), ASEAN (since 2011), Commonwealth (since 2008), Central and South America (since 2011), the Gulf States (since 2009) and the South Pacific (since 2001). A brief update on the status of each of these initiatives is provided below, as they each provide an important reference point for the proposed set of world reference levels.

Southern African Development Community

Following the signing of the SADC Protocol on Education and Training in 1997 a technical committee was established to oversee harmonization and standardization of education and training systems in the SADC region, including the development of an RQF. Following a period of consultation and research, a SADC RQF concept document was developed in 2005, and subsequently revised in 2011 (SADC, 2011). The concept document was endorsed by SADC ministers of education on 23 September 2011. Ministers also approved the strengthening of the Education and Skills Development Unit at the SADC Secretariat, as well as increased advocacy and consultations on the SADC RQF with key stakeholders. SADC member states were encouraged to upload their qualifications to the SADC qualifications portal, which has been piloted with a few member states. A set of level descriptors for the SADC RQF, as well as proposed regional guidelines for quality assurance, have also been developed. A proposal was made for thematic working groups and coordination points in each of the member states. All fifteen SADC member states are involved in NQF development, albeit at different levels. South Africa, Mauritius, Namibia and the Seychelles are the most advanced, with Tanzania, Botswana and Zimbabwe making recent progress. Other member states are at an earlier stage of development. In 2013 research was commissioned to develop regional guidelines for the recognition of prior learning (RPL) in SADC.

Europe

The Bologna process in Europe is an intergovernmental process involving forty-seven countries that has been under way since 1999. This process has provided the foundation for the establishment of QF-EHEA. The Bologna process aims to restructure higher education in Europe through the introduction of a three-cycle degree system guided by a set of level descriptors referred to as the Dublin descriptors. In a parallel development, the EQF for primary, secondary,

vocational and higher education was established in 2008 (European Union, 2008). The EQF involves twenty-seven EU member states as well as nine other countries, and includes a set of level descriptors that describes progression across the levels. By 2013 almost all the countries involved in the EQF had finalized their level descriptors (CEDEFOP, 2013). Referencing of NQFs to the EQF, and self-certification of NQFs to the QF-EHEA, is increasingly taking place concurrently (European Union, 2013). In 2014 a decision was taken to allow countries outside of Europe to reference their NQFs to the EQF.

Caribbean Community

Following agreement on a CARICOM Regional Strategy for TVET in 1990, and the adoption of a competence model for TVET in 2002 by the CARICOM Council for Human and Social Development (COHSOD), the basis was laid for a CARICOM-wide TVET strategy based on the first NQFs in the region, developed in Jamaica, Trinidad and Tobago, Barbados and Belize. At this stage the decision was made to structure vocational qualifications around five occupational levels. The Caribbean Association of National Training Agencies (CANTA) was established in 2003 and endorsed by CARICOM as the implementation arm of the regional coordinating mechanism for TVET. The key purpose of CANTA was to establish and govern a regional training and certification system, called the Caribbean Vocational Qualifications (CVQs), to ensure standard and uniform delivery of competency-based training TVET within the CARICOM Single Market and Economy (CSME) (see CARICOM, 2007, 2009). In 2012 the CARICOM RQF (CARICOM, 2012) was developed. The CARICOM RQF is informed by the principles of the 'ideal Caribbean citizen', and is also based on a set of level descriptors (CARICOM, 2012).

Asia-Pacific Economic Cooperation

Following a meeting of Asia-Pacific education ministers in 2004, a study on the mapping of qualifications frameworks across APEC economies was initiated. In 2006 ministers agreed on the facilitation of regional student and academic mobility through quality assurance frameworks among other strategies (APEC, 2009). NQFs in member states are at various levels of development: New Zealand and Australia since the 1990s, Hong Kong, Malaysia, the Philippines and Thailand started in the 2000s, while others are at earlier stages and some have not shown any intention to follow suit. There is varied support for an Asia-Pacific Qualifications Framework. According to APEC (2009) the idea is supported as a voluntary model that should not have any legal obligation. Large-economy countries in the region, such as Japan and the United States

of America, have well established systems of qualifications, but not NQFs, and have expressed reservations about an RQF (APEC, 2009).

Association of South-East Asian Nations

ASEAN is closely linked to the Asia-Pacific region, as many countries in ASEAN are also members of the Asia-Pacific Quality Network (APQN). Despite the strong overlap a parallel process has been under way in ASEAN, which started when the ASEAN Framework Arrangement on Services was signed in 1995. The Arrangement is aimed at substantially eliminating restrictions to trade in services among ASEAN countries in order to improve efficiency and competitiveness, consistent with the General Agreement on Trade in Services (GATS) (APEC, 2009). Enhanced cooperation between members of the ASEAN University Network (AUN) to increase the mobility of staff and students has been encouraged, as well as the development of core competences and qualifications required in priority service sectors. The Malaysian NQF is one of the most advanced NQFs in the ASEAN region (APEC, 2009). The Malaysian NQF is viewed as a catalyst for NQFs. Amongst the other ASEAN countries some have not yet established quality assurance bodies, and have not started to develop NQFs. In particular, Indonesia (see Directorate General of Higher Education of Indonesia, 2012) and Singapore (see APEC, 2009) have made significant progress towards establishing NQFs. As some early moves are being made to benchmark emerging NQFs across ASEAN countries, the viability of an ASEAN RQF is also being considered. In 2011 a process was initiated to develop a concept design for the ASEAN Qualifications Reference Framework (QRF) as a common reference framework that will serve as a translation device for participating ASEAN countries. Following consultations across the ASEAN countries a draft Framework has been developed (ASEAN, 2014) and is currently being finalized. The proposed ASEAN QRF includes a set of regional level descriptors and will also involve referencing of member state NQFs to the ASEAN QRF.

Commonwealth

On request of Commonwealth heads of state, the Commonwealth of Learning (COL) initiated the development of a Virtual University of Small States of the Commonwealth (VUSSC) in 2003, premised on a virtual mode for distance education. This was expected to improve access to educational opportunities, enhance the quality of teaching and reduce costs. In addition, all participating VUSSC countries are small states that share at least some common challenges in the face of globalization and the increased mobility of highly skilled professionals. The thirty-four participating VUSSC countries are

located across the globe and represent a unique initiative that does not rely on geographical proximity. The challenges of transnational recognition of the VUSSC courses soon became important, and in 2008 a concept document for a TQF was developed (COL and SAQA, 2008). It was proposed that the TQF level descriptors be modelled on the EQF descriptors while also considering the existing level descriptors in participating VUSSC countries (COL and SAQA, 2008). A Management Committee for the TQF was appointed in October 2008, comprising two representatives from each of the three main regions in which the thirty-four countries are located. The Management Committee developed an implementation plan for the TQF in 2010 (COL and SAQA, 2010). The TQF was officially launched in 2010 in Namibia. In 2011 work was initiated to register the first qualifications on the TQF. Standards for VUSSC courses have subsequently been developed in tourism, agriculture and ICT through consultative workshops held since 2010 in the Bahamas and Samoa, and in 2012 in the Seychelles.

Central and South America

An initiative to improve regional integration, including the possibility of a regionally agreed qualifications framework for Central American universities, has been under way since 2011. The process draws heavily on the EQF processes, and has included two regional seminars held in Lima (2011) and Chile (2012), and a meeting of university rectors in Costa Rica (2013). A research group has been set up to explore the possibility of generic descriptors for the proposed Central American Qualifications Framework (CSUCA, 2013; see also Lopez[20] and CNED, 2014). Mexico and Chile are the countries with the most advanced NQFs in the region, followed by Argentina, Columbia and Costa Rica. Regional dynamics and significant diversity in the levels of provision continue to impact on the progress.

Gulf States

Six states constitute the members of the Gulf Cooperation Council (GCC): Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE. Significant progress in the UAE with the development of the QFEmirates (NQAUAE, 2012) has provided a strong basis for the proposed Gulf Qualifications Framework. Strong links with the EQF are being proposed (Albekeri, 2009). Other countries in the region, including Yemen (see Hakimi, 2013), have also made significant progress towards establishing NQFs.

20 English translation of interview with G. Lopez conducted in Spanish by Astrid Hollander.

South Pacific

The notion of a regional Pacific Qualifications Register was first mooted in 2001 at the Pacific Islands Forum Ministers of Education meeting in Auckland, New Zealand. In meetings that followed officials reaffirmed their commitment to develop a regional qualifications register, and proceeded to establish a dedicated unit within the South Pacific Board for Educational Assessment (SPBEA) in February 2009 to champion the development of the PQR (SPBEA, 2009). Two regional consultations were held (in 2009 and 2011), in which representatives from fifteen Pacific countries participated, as they did in the review of level descriptors for the PQF.[21] The PQF level descriptors have been compared with the descriptors used in the Australian and New Zealand frameworks in 2012, as well as on an initial level with NQFs in Pacific Island countries: Fiji, Papua New Guinea, Samoa, and Tonga. More detailed work is envisaged once the descriptors in countries are fully developed. In the next phase, the PQF will be operationalized and tested with industry and employer groupings. The South Pacific Association of Theological Schools has also adopted the PQR (SPBEA, 2009).

West Africa

The Economic Community of West African States (ECOWAS) has in more recent years started to explore the development of NQFs in member states, as well as a potential RQF (UNESCO, 2013). Consisting of mainly French-speaking countries, this region provides an interesting contrast to the other, mainly Anglo-Saxon, or at least Anglo-Saxon influenced, countries and regions discussed up to now. The continued reliance of many of these countries on aspects of the former French education and training system, which have been subsequently modernized by France, remains a significant feature (see Keevy et al., 2011). The paradigm shift required from the traditional French interpretation of qualification to that used in the Anglo-Saxon tradition is of critical importance, as noted by Charraud and Werquin (2013, in UNESCO, 2013, p. 16):

> Qualifications frameworks imply to separate the training process from the certification process in order to give legibility and describe the content and the value of the learning outcomes of the owner of a qualification. It is the reason why it can be said the elaboration of a qualification frameworks means a paradigm change that is not usual for the education and labour market stakeholders. If common bases for dialogue could be easily found about [the] training field, it is not the case for [the] qualification field. [The] qualification concept is more

21 L. Sanervi, written response to interview questions.

complex because learning outcomes reflect the representation of what a society defined as what is expected from a qualified individual. Some qualifications are related to the demonstration of performance on a specific and single work situation. Other may cover a largest scope related to a whole occupation and transferable to another occupation. Harmonization of those two approaches of qualification could not be possible and even considered. Diversity is a source of richness and innovation. The qualifications framework challenge is to provide sufficient legibility to understand and respect each approach according to the context of the systems and the countries.

Despite these real challenges of having both French and English-speaking countries in the region, a process has been set up in ECOWAS through the establishment of an Inter-Agency Task Team (IATT) which is focusing mainly on TVET activities. The work takes place in the context of what could be referred to as an early version of a qualifications framework, namely the system set up by the Africa and Malagasy Council for Higher Education (Conseil Africain et Malgache pour l'Enseignement Supérieur, CAMES). CAMES was established in 1968 to facilitate the recognition of higher education qualifications across French-speaking African countries. Sixteen African countries are members of CAMES, and follow the same approach as France has done since the adoption of the Bologna process (UNESCO, 2013.). The feasibility of an RQF for ECOWAS, drawing on the strengths of CAMES, is currently being considered in three to four vocational fields, including the development of a set of guidelines.

Mediterranean

Countries in the Mediterranean region that are actively involved in NQF development include Egypt, Jordan, Morocco, Turkey and Tunisia, while some other countries (Algeria, Lebanon, Syria, Israel and Palestine) are at earlier stages. The region is characterized be a deepening of its partnership with Europe, notably an overt attempt to align with EQF requirements (Leney et al., 2009). There is no well-developed initiative to establish a separate RQF in the region. However, there are few initiatives conducted by the ETF, in particular in the context of the Regional Project on Sectoral Qualifications in the Euro-Mediterranean Area. In the context of this project, participants developed a common methodology to describe and compare qualifications, supported by the use of an IT platform. The project participants developed and validated four common profiles of occupations in two key regional sectors, tourism and construction. The common profiles are described in terms of knowledge, skills and competences; the common profiles are a tool which can be used to compare national qualifications for these occupations and to identify relevant sectoral qualification standards. The two sectors were chosen because both are

characterized by high levels of geographical mobility and internationalization. To date the project's work has been essentially technical, testing comparability and enhancing transparency, mutual understanding and trust. A vital element in ensuring the relevance of the achievements has been the engagement of the industry sectors, in partnership with government.

In all the examples of RQFs described above it is evident that it is important to recognize regional dynamics, as they have a direct impact on the form of the RQF as well as the rate at which it is implemented. The SADC RQF is a case in point. Despite having started much earlier than the other regions (in 1999) the framework was not yet operational in 2014. This has been mainly owing to a lack of capacity and resources at a regional level, but is also a result of the initial decision to first allow member states to develop their own NQFs before the RQF could be developed. This decision was later revised and the SADC RQF was formally established in 2011 (SADC, 2011). Even so the region has been unable to take the process forward.

In all instances the existence of regional recognition agreements facilitated by UNESCO constituted an important basis for the RQFs, although the impact of the agreements varies between regions. The Lisbon Recognition Convention in Europe played a critical role as the Bologna process unfolded (see Adam, 2013*b*). The Arusha Convention in Africa played a similar, albeit less explicit, role in Africa, while similar initiatives have been under way in Asia and South America (see the section on recognition conventions for a more detailed discussion). This interrelationship between regional recognition agreements and qualifications frameworks is important, and more so as a set of world reference levels is being considered. The question that comes to mind is whether the proposed world reference levels can exist independently from a global recognition agreement. We return to this point later in this report.

All the qualifications frameworks are based on the same conceptual design: qualifications using learning outcomes, and a set of hierarchical levels against which the qualifications are pegged based on an application of a set of level descriptors. In the one case, namely the VUSSC TQF, an attempt has been made to develop a TQF that will serve twenty-nine Commonwealth countries spread across the globe (COL and SAQA, 2008). Despite the same point of origin, the TQFs differ markedly from NQFs in that they are less prescriptive in order to accommodate the variations between their member states. TQFs are developed as 'meta' or 'reference' frameworks that provide a neutral reference point for the countries concerned, and

are not necessarily associated with a specific regional quality assurance regime, as they rely mostly on national quality assurance systems. This characteristic of TQFs, to separate provision from the framework itself, is important as it enables agreement to be reached in an environment that does not become clouded by provider-specific agendas.[22]

The overarching and sometimes divergent purpose of a qualifications framework is another important factor that must be considered. Broadly, the purposes of qualifications frameworks can be categorized on a continuum ranging from transforming, to reforming, to communicative (Raffe, 2009). While most frameworks will have characteristics of each category, one is mostly dominant at a specific point in time.

- Transforming frameworks attempt to affect change to an education and training system, without explicit reference to the existing system. Mostly these frameworks are implemented to correct articulation and credit transfer challenges, but they can also be used as a tool for redress, such as in South Africa;
- Reforming frameworks take the existing system as a starting point but aim to improve it, typically through a statutory or regulatory means;
- Communicative NQFs, such as in Scotland, usually evolve over a longer period and describe what exists in a manner that makes it easier to understand.

These distinctions apply specifically to NQFs, as sectoral and transnational frameworks tend to be more similar in design. Sectoral frameworks serve the interest of a specific community and tend to be more communicative, while RQFs tend to focus on regional priorities, such as the movement of jobs and people, and also the positioning of the region to attract international students. NQFs range from being more descriptive (the SCQF is an example), to reforming (examples include Malaysia and Armenia), to transforming (the South African NQF was an example in its early years).

22 Interview with M. Coles, 4 April 2014.

A trend across most NQFs, independently of their purposes, is to ignore school education, or at the least to pay less attention to it. This may be partly due to the well-established nature of schooling systems in most countries, but it inevitably results in complications when routes between schooling, TVET and higher education are required.

All qualifications frameworks use level descriptors to peg qualifications on a hierarchical set of levels that number between 4 and 12, but mostly between 8 and 10. While the level descriptors share some common characteristics, such as using learning outcomes to describe different domains of learning, there is considerable variation across the world. Despite this, the influence of established first-generation NQFs is evident in some regions, as level descriptors are adopted with only minor changes between countries (for example in Latin America, Mexico and Chile have more advanced qualifications frameworks, while Argentina and Columbia, with less advanced frameworks, are strongly influenced by the existing frameworks). This trend is even more evident in regions where a strong RQF is in place, and emerging third-generation NQFs are being developed. Examples include some countries in Europe that have accepted the regional level descriptors defined by the EQF with very minor amendments on a national level, and countries in Southern Africa that have done the same in relation to the SADC RQF. The trend towards policy borrowing in many of the third-generation NQFs is of concern, and has led to what are referred to as 'zombie' NQFs (Adam, 2013*b*) and 'empty' NQFs.[23] With undue policy borrowing, few impact evaluations and limited budgets for implementation, it seems that qualifications framework development will remain contested into the foreseeable future.[24] Research currently under way by the ILO (2014) may offer some insights into this area.

Table 6 provides a further elaboration of the functions and rationales of levels of cooperation in which the different types of qualifications framework play a role.

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23 Interview with A. Pereira, 10 April 2014.
24 A. Valerio, interview 1 April 2014.

Table 6: Functions and rationales of different types of qualifications frameworks

Area of cooperation	Type of qualifications framework		
	Sectoral	National	Transnational
Typical nomenclature	Subframework; Sectoral qualifications framework within a country	National qualifications framework	Regional qualifications framework; Meta-framework; Sectoral qualifications framework across a number of countries
Examples	– Sectoral Qualifications Framework for Engineering (Armenia) – Higher Education Qualifications Sub-Framework (South Africa) – General Education Qualifications Framework (Poland)	– Malaysian Qualifications Framework – Scottish Credit and Qualifications Framework – Ethiopian National Qualifications Framework – UAE NQF	– Regional qualifications frameworks: • ASEAN RQF • EQF • VUSSC TQF – Sectoral qualifications frameworks: • EU sectoral QFs
Main function…	To act as a fixed standard for the level of learning required for an occupation, or set of occupations, in a particular sector	To act as a benchmark for the level of learning recognized in the national qualifications system	To act as a translation device to enable comparison of levels of qualifications across member countries
Developed by…	National governments and/or sectoral associations, such as professional and occupational groupings	National governments, in many cases through national agencies set up for this purpose	Countries or sectors in acting jointly, mostly facilitated by a regional body or regional association, but in some cases also by a transnational agency
Sensitive to…	Sector-specific priorities (e.g. in higher education, engineering or TVET)	Local, national and regional priorities (e.g. levels of literacy and labour market needs)	Collective priorities across member countries or sectors to enable mobility of learners and workers across borders
Currency/value depends on…	The extent of collaboration between sectoral bodies within the country; compliance with the agreed standards	The extent of regulatory compliance required; the level of buy-in from key roleplayers (such as industry, learning institutions and professional associations); the perceived or real value to the broad population	The level of trust between member countries; the transparency of national quality assurance systems; mutually agreed regional and/or sectoral priorities
Quality is guaranteed by…	Adherence to sectorally agreed standards, exemplified in the practices of sectoral bodies, including professional and occupational associations	Adherence to nationally agreed quality assurance systems, exemplified in the practices of national bodies and learning institutions	The common application of referencing criteria and guidelines, as well as the robustness and transparency of the national referencing process, and national quality assurance systems
Levels are defined by reference to…	Sectoral benchmarks embedded in a specific context, e.g. engineering or nursing	National benchmarks which may be embedded in different learning contexts, e.g. school education, work or higher education	General progression in learning across all contexts that is applicable to all countries

Source: adapted from Coles et al., 2014

It is important to consider the interrelationship between NQFs and RQFs. While the early, or first-generation, NQFs preceded RQFs, many of the countries that followed were directly affected by regional developments. In some instances there is strong evidence to show that an NQF has simply borrowed from its regional counterpart; this is acutely evident in the formulation of level descriptors. In some instances, this borrowing even takes place from an RQF that covers a completely different region. This influence of RQFs on NQFs is an important factor that must be taken into account.

While the idea of qualification structures can be traced back to early civilizations, as described above, qualifications frameworks, be they national, regional or transnational, remain a relatively new development which was only introduced some twenty years ago. Evidence of their impact remains limited (see Raffe, 2013), while contextual considerations are not always given the necessary attention:

> Countries do however need to take careful account of contextual considerations that are critical for determining the scope and style of the NQF being considered. There is no generic template that can be quickly implemented. Perhaps herein lies the contradiction. NQFs are not quick fixes, yet they appear so straightforward to implement. (Coles et al., 2014, p. 22)

Despite the limitations, this new technique does offer new opportunities to understand and recognize learning in the twenty-first century. The drivers for qualifications frameworks, such as economic reforms and increased globalization associated with the movement of skilled labour between countries and regions, remain in place, if not increasingly so. Benchmarking between qualifications frameworks, also referred to as referencing (Keevy and Jaftha, 2014), mostly between NQFs and a specific RQF, has also increased in recent years. All of these developments suggest an increased global move towards the development of common tools to recognize learning. Some even argue that it is time to develop global standards (see McGregor, 2014). This study on level descriptors represents an initial step towards such a future possibility.

Dimension 5: The application of learning outcomes to describe knowledge, skills and competences for measurement and recognition

This component of the conceptual framework focuses on how learning can be recognized using current and new recognition methodologies, but more broadly also for measurement and recognition. This involves primarily qualifications frameworks and their associated tools, but it is also an attempt to look into the future, and consider how the recognition of learning can be improved. As elaborated in the previous sections, qualifications frameworks represent an emerging methodology that, while based on early qualifications structures, provides significant scope for understanding learning (formal, non-formal and informal) in new ways that have not been possible to date (Adam, 2013*b*). Of course, this innovation is not fully refined, nor is its long-term impact tested. This situation represents a real risk to countries and regions that intend to follow, or are already following, this path. As also noted before, this includes more than half of the countries across the world. The fact that countries and regions have remained committed to qualifications framework development since the turn of the century, despite the risk, does however signal some sense of return on the investment to date.

Qualifications frameworks provide important tools to recognize learning, including:

- Qualifications based on learning outcomes;
- Level descriptors, based on learning outcomes, that are used to determine the level at which a qualification is pegged;
- A hierarchical classification of levels, described by the level descriptors, in most instances ranging between six and ten levels;
- A series of domains, described with learning outcomes, usually in the categories of knowledge, skills and competences, described by level descriptors;
- A quality assurance regime that provides credibility for the delivery of the qualifications.

Building on the previous section, which elaborated on qualifications frameworks as a tool for recognition, this section explores the following tools for recognition: regional conventions, credential evaluation, professional and occupational standards, learning metrics, and occupational and educational classification systems.

Regional conventions

Initiatives to support recognition of qualifications date back to the post-Second World War years. Much of this activity concerned university qualifications, and it was often led by UNESCO. At present, UNESCO has adopted the following legal instruments, which set forth the principles and norms concerning the recognition of higher education qualifications at the regional and interregional levels:

- Regional Convention on the Recognition of Studies, Certificates, Diplomas and Degrees in Higher Education in Latin America and the Caribbean (1974);
- International Convention on the Recognition of Studies, Certificates, Diplomas and Degrees in Higher Education in the Arab and European States bordering on the Mediterranean (1976);
- Convention on the Recognition of Studies, Diplomas and Degrees in Higher Education in the Arab States (1978);
- Regional Convention on the Recognition of Studies, Certificates, Diplomas, Degrees and other Academic Qualifications in Higher Education in the African States (1981; known as the Arusha Recognition Convention);
- Regional Convention on the Recognition of Studies, Diplomas and Degrees in Higher Education in Asia and the Pacific (1983);
- The Council of Europe/UNESCO Convention on the Recognition of Qualifications concerning Higher Education in the European Region (1997; known as the Lisbon Recognition Convention);
- Asia-Pacific Regional Convention on the Recognition of Qualifications in Higher Education (2011; will enter into force one month after the fifth ratification instrument is deposited);
- Recommendation on the Recognition of Studies and Qualifications in Higher Education (1993).

UNESCO assesses the implementation of the 1993 Recommendation on the Recognition of Studies and Qualifications in Higher Education primarily through monitoring the implementation of the five regional, and one interregional, conventions:

Africa Regional Convention (the Arusha Recognition Convention)

To date, twenty-two Member States have ratified the 1981 Arusha Convention. An International Conference of States was hosted by the Government of Ethiopia and held in Addis Ababa on 11-12 December 2014, where a revised text of the Convention was examined and adopted.

Asia-Pacific Regional Convention

The 1983 Convention for Asia and the Pacific was ratified by twenty-one Member States. As of 28 March 2014, eight Member States of UNESCO and the Holy See have signed the 2011 revised Convention, subject to ratification, acceptance, approval or accession. The twelfth session of the Regional Committee on the Recognition of Qualifications in Higher Education in Asia and the Pacific, held in 2013 in conjunction with a Regional Workshop on the Recognition of Foreign Qualifications, aimed to assist and encourage Member States to move forward in the ratification process of the regional convention. Recent projects to facilitate the implementation of the regional convention include, among others, the Toolkit for the Recognition of Foreign Qualifications and the Guidelines on the establishment and maintenance of national information centres. The Guidelines will be submitted to the thirteenth session of the Regional Committee on the Recognition of Qualifications in Higher Education in Asia and the Pacific for final endorsement.

Europe and North America (the Lisbon Recognition Convention)

To date, fifty-three countries have ratified/accessed the Lisbon Convention. At the latest meeting of the Lisbon Recognition Convention Committee (June 2013, Split, Croatia), the final text of the Recommendation on the Use of Qualifications Frameworks in the Recognition of Foreign Qualifications, a subsidiary text to the Lisbon Recognition Convention, was adopted. A 'UNESCO Regions' section is included providing recognition-related information from all UNESCO regions. This section was developed in cooperation with the Italian National Academic Recognition Information Centre (NARIC).

Latin America and the Caribbean regional convention

Currently, the International Institute for Higher Education in Latin America and the Caribbean (IESALC) is conducting a survey of information on the mechanisms regarding recognition (protocols, letters of intent, agreements, treaties and so on) that have been adopted by governments in the region. The objective is to generate a database of reliable, safe and affordable information

to enable academic users to access information on various internationalization processes, to further understand the variety of mechanisms used by countries, and ultimately to advance the regional convention towards achieving its stated objectives. The results of the survey were submitted for consideration at a high-level meeting (August 2014) prepared with support from the Brazilian government.

A UNESCO global standard-setting instrument on the recognition of higher education qualifications

The UNESCO 37th General Conference acknowledged that a global instrument on the recognition of higher education qualifications will provide a mechanism for assisting Member States to improve the quality of their higher education systems, and invited the Director-General to initiate the process towards a global convention on the recognition of higher education qualifications, ensuring that its development will build upon and complement the regional conventions. The General Conference requested that a report exploring further the scope and implementation modalities of a global convention, as well as the articulation between the global convention and the regional ones, be submitted to the 38th session of the General Conference for consideration and decision on the development of the global convention itself.

In the field of TVET, UNESCO's 1989 convention on Technical and Vocational Education (TVE) considers that one element of international cooperation should be that 'the Contracting States agree … to promote approaches to achieving the recognition of equivalences of qualifications acquired through technical and vocational education' (UNESCO, 1989, p. 59). In addition, UNESCO's 2001 Recommendation on TVE also called on Member States to work on 'establishing a system of equivalencies whereby credit is given for completion of any approved programme, and recognition is granted to educational and/or professional qualifications and work experience' (UNESCO, 2002, p. 30).

It is important to ask whether regional conventions have become outdated as a form of recognition. It is evident from the overview provided that UNESCO is still actively coordinating the various regional conventions, and is in fact even considering an instrument for the recognition of higher education qualifications. As was shown earlier, RQFs have in some way or other all benefited from regional conventions. This fact suggests that regional conventions will continue to have a role to play going

forward. The important distinction is the different purposes of the various tools for recognition, be they regional conventions, qualifications frameworks or others. In one way or another all these tools become outdated as new developments come to the fore. Even qualifications frameworks that have only been in place for the last twenty years are being criticized for not keeping up with new developments such as international qualifications and online representations of skills. Today many argue that qualifications no longer have the significance they had for previous generations, and that the 'death of the degree' is at hand.

Of importance to this study is the potential convergence of recognition conventions and qualifications frameworks. As mentioned above there are existing examples, such as the relationship between the Lisbon Recognition Convention and the EQF, as well as the Arusha Recognition Convention and the SADC RQF. The intention by UNESCO to develop a global standard-setting instrument on the recognition of higher education qualifications, and the proposal for a set of world reference levels, provide other examples.

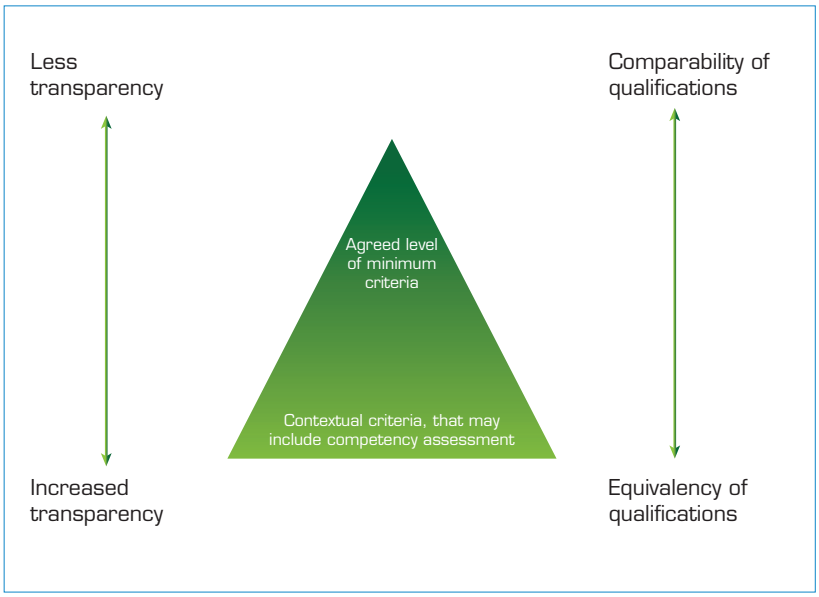
Credential evaluation

Credential evaluation practices provide a particularly useful application of the principles of recognition embedded in qualifications frameworks, albeit that the two practices are still to be fully integrated. Importantly, each qualification is assessed on its own merit based on the variables particular to the specific applicant.[25] Credential evaluation agencies (see Nuffic, 2012) base their practices on international guidelines as contained, *inter alia*, in the Lisbon Recognition Convention (1997), which differentiates between national information centres (NICs) and competent recognition authorities (CRAs). NICs evaluate and offer advice intended to be as universally applicable as possible, but do not make binding decisions, while CRAs make binding decisions on recognition. In the case of CRAs, 'competent' refers to a legal status and/or common agreement in a particular community of practice, which allows it to make determinations and application decisions. In some cases CRAs may have the technical ability to determine the extent of 'sameness' or substantial differences between qualifications, but these processes would ideally be closely aligned to those promoted by the NIC. CRAs generally refer information on decisions to the NIC, which fulfils a guiding function.

25 Review comment from D. Booker, 2014.

Considering the distinction between NICs and CRAs, it is possible to propose a distinction between the comparability of qualifications, as a more generic form of evaluation (at a level that does not require subject matter experts) performed by the NIC, and the equivalency of qualifications, performed by CRAs, and which requires subject matter experts (Keevy and Jansen, 2010). The differences between the two forms of recognition are illustrated in ***Figure 4***.

Figure 4: Levels of evaluation



Source: Keevy and Jansen, 2010

The following are three key terms related to recognition (amended from Keevy and Jansen, 2010):

> Recognition is the formal or legal specifications that a qualification must meet in order to be accepted as fulfilling the set standards, such as are often defined for the professions. Recognition can be unilateral, mutual or based on regional/trade agreements.
>
> Transparency is the degree to which the value of qualifications can be identified and compared in education, training, the workplace and more.
>
> Comparability is the comparison of one qualification with another, based, most often, on a common format or instrument – such as comparability tables – that enables the 'face value' of a qualification to be established.

The greater the transparency with which a qualification is presented, the easier it is to compare one qualification with another, and the more reliable the system of recognition by which a qualification can be accepted by the state, professions or an individual. Transparency is seen as a necessary precondition for claims about comparability, but these two constructs are clearly not the same. Recognition can also be achieved without the necessity of detailed comparison – for example through legal agreements and directives between institutions or nations for qualifications, such as medical degrees obtained in different contexts, which would then be deemed equivalent to each other.

Qualifications frameworks aim to promote access and mobility in education and training, and in career paths. Similarly, the major thrust of the work of credential evaluation agencies, both NICs (functioning at the broader advisory level of evaluation and comparability) and CRAs (functioning at the more detailed level of regulated recognition or equivalence) would be to facilitate international worker and learner mobility. This service supports decision-making when foreign learners seek placement in the receiving countries, and to a lesser extent, when citizens are placed overseas. It would ensure that receiving countries are open to foreign qualification holders who want to contribute to the country's socio-economic growth. The criticism that qualifications frameworks have yet to deliver on many of the promises of increased mobility and progression is valid, yet there are encouraging signs of progress in some sectors. It is also apparent, though, that power struggles and ideological shifts are deeply embedded in development and implementation of NQFs, RQFs and TQFs. Credential evaluation services have for some time proven useful in facilitating the mobility of foreign skilled workers, but remain at the mercy of political shifts directly influenced by skills shortages and migratory concerns:

> When migrants are able to employ their skills, their work clearly benefits both themselves and receiving societies. But when skilled migrants are compelled to work at jobs that are not commensurate with their qualifications, their capacity to contribute is compromised. Such waste arises from barriers in the recognition of degrees, certificates and qualifications obtained abroad. International cooperation is necessary to improve the portability of qualifications and the mutual recognition of degrees and certification. (United Nations, 2006, p. 15)

Qualifications frameworks are introducing new recognition methodologies that are challenging existing models. Unilateral recognition (where the receiving country decides which skills and qualifications it will recognize), mutual recognition agreements (formal agreements between sending and receiving countries, mostly for the professions) and trade/regional agreements are being overtaken by qualifications frameworks and new forms of recognition:

> It is however evident that qualification frameworks in general have brought about new forms of recognition beyond the more traditional routes based on unilateral, mutual recognition agreements, and trade agreements. Through qualification frameworks an increased emphasis is being placed on transparency, currency and portability facilitated through the use of outcomes-based learning. This new 'technology' that is being introduced through qualification frameworks is at odds with the more traditional routes that are by and large time-based and inflexible. (United Nations, 2006, p. 68)

It is argued that the drive towards creating relational views of components in education and training systems, which is occasioned by qualifications frameworks, also promotes a shift towards explication of the meanings of qualifications. Qualifications frameworks are a recent phenomenon, influenced by competence-based and outcomes-based thinking, and represents a new methodology that can be used to recognize learning, while credential evaluation practices have remained largely unaffected by recent developments. This tension is pointed out by the Centre for International Recognition and Certification in the Netherlands, which calls for a shift in evaluation processes to also evaluate outcomes of educational processes (Nuffic, 2010, p. 5):

> There is a need to shift the focus from evaluating educational process to evaluating outcomes of educational processes, e.g. defined in terms of competences …. A more competency-based assessment and recognition methodology will offer a solution for people who lost disposal (sic) of their credentials, who obtained their credentials a very long time ago, or who have gained learning experiences which cannot be included in a credential evaluation according the current system.

Similarly, in the broader European context there is increasing consensus that professional directives and diploma supplements, which have historically formed the basis for the recognition of credentials, have become outdated, as it is acknowledged that the EQF is introducing new methodologies that warrant serious consideration (NQAI, 2010, p.16):

> In many ways, since the [European] Directive was introduced, qualifications frameworks have changed the way that many stakeholders think about education and training in Europe.

Without exception, qualifications frameworks all use learning outcomes as a basis for qualification design (see NQAI, 2010). Despite the limitations of the outcomes-based approach, there is growing international consensus that this approach is better than the traditional models. Credential evaluation, particularly on the CRA level, has gradually started to take account of this shift, as is evident in the European Area of Recognition (EAR) Manual (Nuffic, 2012), where the following recommendations are made, among others:

- Credential evaluators should always view the foreign qualification in its national system. If an NQF exists, they should take its position in this framework into consideration. If a country does not have an NQF, this fact should not prejudice the evaluation of a qualification from such a country;
- Where qualifications were issued under previous structures, the credential evaluator should refer to the status of the qualification in the issuing country. If an NQF exists in the country where the qualification was awarded, it should be established whether previous qualifications are included in it;
- Where adequate information on the learning outcomes of a specific qualification is available, this should help to understand the place of a qualification in a framework and compare qualifications on the basis of learning outcomes;
- Credential evaluators should use NQFs as transparency tools for understanding the level, learning outcomes and workload of foreign qualifications.

And also:

> It is recommended that competent recognition authorities base their evaluation of a foreign qualification on establishing what the applicant knows, understands and is able to demonstrate. For this purpose, competent recognition authorities should focus on the learning outcomes of the qualification. (Nuffic, 2012, p. 42)

Professional and occupational standards

Learning outcomes and competences are also used in professional standards and occupational standards. Also referred to as 'licensing', professional bodies and public authorities use professional standards and related criteria to award professional designations to individuals who meet the requirements. The term 'licence' is frequently used as a synonym for 'qualification' and 'certificate'. This causes confusion, as it is important to clarify how a designation (a licence to practise which can be revoked) relates to and differs from a qualification (a statement of competence that cannot be revoked unless fraud is committed). In general the term to license (or to grant a licence) means to give permission. A licence may be granted by a party (licensor) to another party (licensee) as an element of an agreement. In particular a licence may be issued by public authorities to allow an activity that would otherwise be forbidden. It may require paying a fee, meeting certain technical, financial or institutional requirements, and/or proving a capability.

Different categorizations are developed to suit the specific purpose of professional and occupational standards. Some examples are discussed below.

In the Pan-Commonwealth Standards Framework for Teachers and School Leaders (Gallie and Keevy, 2014), the following categories of professional standards are used across initial, in-service and experienced fields:

- Professional knowledge;
- Professional skills and practice;
- Professional ethics, values and attributes;
- Professional learning.

Another example is INSSO, founded in 2009, INSSO is a public-private partnership initiative that offers a range of skills-related services, including the mapping of occupational competences at a transnational level. The Transnational Skills Standards (TnSS) being developed by INSSO (completion is scheduled for 2014) focus on core skills in specific sectors that can be applied across different contexts. TnSS is presented as a seminal project that aims to develop the world's first globally recognized skills standards (see Matthews, 2013). Occupational standards are developed according to three sets of performance criteria: knowledge and understanding, skills, and personal qualities. As a profit-driven initiative, standards

development is directly in response to specific employer demands. INSSO works with a range of international organizations, specifically sectoral councils where they exist, as it offers services ranging from labour market research to skills standards development and occupational analysis (INSSO, 2013).

The Tuning Project started in 2000 as an initiative that originated from the Bologna process in Europe, as well as the Lisbon Strategy for higher education, using learning outcomes and competences as a basis. Tuning introduced a focus on student-centred degree programmes that should be:

> [...] Designed in such a way that learners will develop the particular mix of competences considered useful and necessary for the academic, professional and/or vocational area. The verifiable results are described using learning outcomes and credits. (Lokhoff et al., 2010, p. 19)

To achieve this, Tuning developed degree profiles through a bottom-up consultation process that involved informed persons (staff members, administrators and students' representatives). The degree profile is made up of seven entries including a general entry and the following subentries: purpose, characteristics, employability and further education, education style, programme competences, and a list of programme learning outcomes. Each profile is based on a set of key competences and programme learning outcomes, which are used to verify the learning achievements of students at a given point in time (Lokhoff et al., 2010). Tuning promoted the idea that degree programmes should be references to general level descriptors (such as the Dublin descriptors used in the QF-EHEA, and the level descriptors of the EQF), NQFs, as well as Tuning subject area reference points. The Tuning methodology was also applied in other parts of the world: Latin America; the USA, facilitated by the Institute for Evidence-Based Change (IEBC) and funded by the Lumina Foundation; Russia, and Africa. The OECD contracted the Tuning Association to undertake initial development work on learning outcomes to be used for valid and reliable assessments of students from diverse institutions and countries. The two disciplines selected for the Assessment of Higher Education Learning Outcomes (AHELO) Feasibility Study were engineering and economics (see OECD, 2011*a*, 2011*b*).

In Europe, there is an ambition to develop a classification of skills and competences. A system of this kind was launched late in 2013, DISCO (the European Dictionary of Skills and Competences), which is an online thesaurus that currently covers more than 104,000 skill and competence terms and approximately 36,000 example phrases. The thesaurus covers non-domain-specific skills and competences (such as artistic skills and competences, and managerial and organizational skills) and domain-specific skills and competences (in domains such as electrical engineering, health and agriculture). Available in eleven European languages, DISCO is one of

the largest collections of its kind in the education and labour market. The DISCO thesaurus offers a multilingual and peer-reviewed terminology for the classification, description and translation of skills and competences. Its design is compatible with the other European tools such as Europass, European Skills, Competences, Qualifications and Occupations (ESCO), EQF and the European Credit System for Vocational Education and Training (ECVET), and supports the international comparability of skills and competences in applications such as personal CVs and e-portfolios, job advertisements and matching, and qualification and learning outcome descriptions.

Learning metrics

'Learning metric' is used in this study as a collective term for a wide range of international skills surveys and related statistical studies that use learning outcomes and/or competences as a basis for measurement. The concept of a learning metric is based on measures used to gauge progress towards a common objective using a scale of progression. The learning metrics identified are briefly summarized below, with a specific focus on how learning outcomes are used to define different types of learning, as well as how differentiation in levels is determined. The main purpose of this analysis is to provide a benchmark against which the uses of learning outcomes in qualifications frameworks can be compared.

The Learning Metrics Task Force (LMTF) was convened by UIS and the Centre for Universal Education at the Brookings Institution in the United States. The overarching purpose of the LMTF is to consider the skills and competences important to all children and youth in the post-2015 education landscape as the Millennium Development Goals (MDGs) target date is reached, with mixed success. The LMTF process has been highly inclusive, comprising the following members over a period of 18 months:

> 30 member organizations, working groups comprised of 186 technical experts, and more than 1,700 consultation participants from 118 countries … (UIS and Centre for Universal Education, 2013, p. 10)

The LMTF proposes a global shift in focus from access only, to access and learning. The LMTF also proposes a Global Framework of Learning Domains consisting of a range of competences across seven domains of learning: learning for all, age and education matter for learning, reading, numeracy, ready to learn, citizen of the world, and breadth of learning opportunities (UIS and Centre for Universal Education, 2013). Each of the domains is described across three levels: early

childhood, primary and post-primary. An important feature of the LMTF is the measurement of learning outcomes to ensure quality education for all. The extensive consultation process, using modern methods, is an excellent example for other similar international collaborations.

STEP is a framework developed by the World Bank (2010) to assist policy-makers, analysts and researchers to 'think through the design of systems to impart skills that enhance productivity and growth' (World Bank, 2010, p. 1). The STEP framework focuses on five interlinked steps: getting children off to the right start, ensuring that all students learn, building job-related skills that employers demand, encouraging entrepreneurship and innovation, and matching the supply of skills with demand. Three elements are recognized across the five steps as integral to build skills for employment and productivity: behavioural skills, path dependence and labour market clearing (World Bank, 2010). This emphasis on behavioural skills is important for this study on level descriptors, as it appears to fall into the same overly behavioural pitfall experienced in qualifications frameworks. The STEP framework is implemented across a worker's life cycle, made up of preschool, school, youth and working age. Skills are measured across three domains: cognitive, technical and socio-emotional. STEP focuses on the measurement of skills to inform policy and strategies on skills development (Valerio and Pierre, 2013).

PIAAC is an international survey overseen by the OECD to assist governments to assess, monitor and analyse the level and distribution of skills (OECD, 2013). Proficiency levels in literacy, numeracy and problem-solving form the core of PIAAC, and are directly related to economic and social well-being. Underlying PIAAC is a recognition that demand in the twenty-first century has moved away from routine cognitive and craft skills, to high-level cognitive and interpersonal skills. Generic or foundational skills to function in modern society are regarded as necessary, including interpersonal communication, self-management and the ability to learn (OECD, 2013). PIAAC also recognizes that socio-economic factors (such as poor initial education, the need to use a foreign language and technology-rich environments) must be considered. While PIAAC is not a normative instrument, it is used by some countries for benchmarking purposes.

LAMP is an international survey overseen by UIS. LAMP was designed to provide the diagnostic information required to monitor and improve literacy skills. It is specifically designed to provide policy planners, donors and others interested in the public debate on literacy with the information required to effectively plan and implement literacy programmes. To do so, LAMP measures five levels of literacy, which can be summarized as:

- Level 1: the individual has very poor skills and may, for example, be unable to determine the correct dose of medicine to give a child from the label on a package;
- Level 2: respondents can only deal with simple, clearly laid-out reading tasks. At this level, people can read but test poorly. They may have developed coping skills to meet everyday literacy demands, but they find it difficult to tackle new challenges, such as certain job skills;
- Level 3: considered a suitable minimum for coping with demands of daily life and work in a complex society. This skill level is generally required to successfully complete secondary school and enter college;
- Level 4 and 5: respondents demonstrate a good command of higher-order information-processing skills.

PISA is also overseen by the OECD, but it differs from PIAAC in that it focuses exclusively on testing the skills and knowledge of 15-year-old students (OECD, 2014). PISA takes place every three years, and includes sixty-five economies with 28 million 15-year-olds annually. Importantly, PISA is not linked to a schooling curriculum. Other unique features of PISA include a policy orientation that links data on student learning outcomes with data on their backgrounds and attitudes towards learning. The concept of literacy is used to refer to students' capacity to apply knowledge and skills in key subject areas. PISA also includes a focus on lifelong learning, as students are asked to report on their motivation to learn, their beliefs about themselves, and their learning strategies (OECD, 2014).

WorldSkills International (WSI) offers a different perspective on the measurement of skills in that skills competitions are used to determine the level of competence. A WorldSkills Standards Specification (WSSS) framework has been developed based on a Nordic inclusive professionalized model of education and training (WorldSkills Foundation, 2012) to provide the conceptual basis for the competitions. This framework is linked to Level 5 of the EQF and the Australian Qualifications Framework.[26] Key features of the WSSS framework comprise the requirement for each standards specification to be based on an occupation or work role; the inclusion of high-level skills, which feature prominently in the level descriptors; and a form of presentation that enables WSI and its members to connect each skill competition to national and regional contexts and TVET systems. Another key feature of the WSSS framework is a focus on 'the standards' ability to support competence as a baseline in order to focus on excellence as a key differentiator in intermediate/

26 Written response to interview questions by J. Shackleton, 2014.

technician work roles' (WorldSkills Foundation, 2012). An extensive consultation process underpins the WSSS framework, and includes a number of international workshops, as well as individual and small group workshops. WSI is of the view that the use of 'competency' can have a limiting effect on standards, and as a result, rather includes an overt focus on 'excellence for competency'. Learning outcomes from the basis for the assessment methodology employed, and are set out in a series of level descriptors that indicate vocational performance. Attempts are being made to avoid a narrow focus on technical skills in competitions, by including a focus on the appropriate work context in which the skills are applied.

Occupational classification systems

An important development in the area of qualifications frameworks is the shift towards the closer alignment with *occupational classification systems*, many which are based on ISCO, developed by the ILO in 1988 and updated in 2008 (examples include the Australia and New Zealand Standard Classification of Occupations, European Taxonomy of Skills, Competencies and Occupations, the Organising Framework for Occupations in South Africa, and in the Arab States).

ISCO-08 uses two basic criteria to arrange occupations into the major, submajor, minor and unit groups of the ISCO classification structure: skill level and skill specialization. Skill is defined as the ability to carry out the tasks and duties of a given job. Skill level is a function of the complexity and range of the tasks and duties to be performed. Skill specialization is considered in terms of the field of knowledge required, the tools and machinery used, the materials worked on or with, and the kinds of goods and services produced. This shift towards greater alignment between qualifications frameworks and established occupational classification systems is important for the recognition of learning more generally, as it provides another important example of the impact of outcomes-based qualifications frameworks on existing practices.

O*NET is a framework for organizing occupational data presented in the form of an electronic database. Descriptors of work and workers are organized into six predetermined domains: worker characteristics, worker requirements, experience requirements, occupational requirements, workforce characteristics and occupation-specific information. Each of the domains includes subcategories of occupational information. O*NET includes a classification system which organizes job titles into more than 1,000 occupations (Tippins and Hilton, 2010). The 'unit of analysis' in O*NET is the occupation, rather than a specific job or position. This enables a separation from specific contextual conditions, such as a particular organization, industry or setting. O*NET has developed a taxonomy of descriptor variables in

each domain, which are of a hierarchical nature. A review of O*NET (Tippins and Hilton, 2010) found that skills and knowledge taxonomies in particular need to be further researched to reduce the redundancy of some descriptors. This point is emphasized by Markowitsch and Luomi-Messerer (2008, p. 50) in their reflection on the development of level descriptors of the EQF:

> The concept of competences does not appear anywhere in the model, and fits in somewhere between skills, capabilities, occupational requirements and occupation-specific information, which are described as tasks and activities (!). O*NET demonstrates impressively that a precise description of occupations and jobs requires more dimensions than knowledge, skills and competence, and makes the EQF's reductionist approach to qualifications clear.

The unique interplay between worker-oriented and job-oriented dimensions in the O*NET content model is a distinguishing feature which warrants further interrogation. The inclusion of both cross-occupational and occupation-specific domains is also an important characteristic of O*NET. It is something of a challenge to use the model to appreciate the way in which work is meaningfully different in different national contexts, as the current model is largely based on the US context. It is however argued that O*NET could provide a broad comparability in many areas/disciplines, which is not limited to any specific country.[27] This aspect will be tested as O*NET is increasingly being used in contexts outside the USA.

ESCO is an important initiative that is currently under way. ESCO is closely linked to the EQF, and has been described as the European response to O*NET.[28] Key features of ESCO include the facilitation of a dialogue between the labour market and the education sector, the online matching of people to jobs (similar to O*NET), and the inclusion of the learning outcomes of the EQF (ESCO, 2014):

> ESCO developments reflect the on-going shift to learning outcomes currently taking place across Europe. The learning outcomes approach of the European Qualifications Framework (EQF) states what a jobseeker knows, understands and is able to do on completion of a learning process. It offers an alternative to the traditionally strong emphasis on learning inputs where a qualification is judged according to time spent in education, subjects studied and the location of the learning. Learning outcomes are commonly defined in terms of knowledge, skills and competences, thus sharing the basic terminological principles underpinning ESCO. This shared terminological core will facilitate the dialogue between labour market and education and training stakeholders within and across sectors and borders.

27 Interview with L. Thompson and A. Gloss, 3 April 2014.
28 Personal communication from J. Bjornavold, 20 March 2014.

ESCO is currently being revised following a decision to do a complete overhaul of the initial version (ESCO v. 0). ESCO v. 1 includes sectoral reference groups as well as a cross-sectoral reference group and also draws on related developments, such as ISCO.

Educational classification systems

Educational classification systems are similar to occupational classification systems, but focus on the formal education and training systems of countries. Typically, they include a description of the schooling, TVET and higher education components using common descriptors.

The best-known international educational classification system is ISCED, originally developed by UNESCO and the OECD in 1997, and subsequently reviewed a number of times, most recently in 2013. This most recent version of ISCED has been broadened to include a classification of levels of educational attainment based on qualifications (UIS, 2013), and has opened up an opportunity to move beyond the traditional time-based approach to considering some basic principles of learning outcomes-based qualifications.[29] ISCED is used mainly for statistical purposes, and comprises a three-level hierarchy of broad fields, narrow fields and detailed fields, using a four-digit coding scheme. ISCED does not have a set of descriptors as such, but it does provide detailed rationales with detailed examples of how the coding should be done. Mapping between ISCED and ISCO is possible within certain limitations.

According to ISCED (UIS, 2011), the notion of 'levels' of education is represented by an ordered set, grouping education programmes in relation to gradations of learning experiences, as well as the KSC which each programme is designed to impart. The ISCED level reflects the degree of complexity and specialization of the content of an education programme, from foundational to complex. In this perspective, levels of education are therefore a construct based on the assumption that education programmes can be grouped into an ordered series of categories. These categories represent broad steps of educational progression in terms of the complexity of educational content. The more advanced the programme, the higher the level of education. Classifying education programmes into a progression of levels aims to reflect the full range of educational pathways available in education systems. Most education systems provide several possible pathways from ISCED levels 0/1 to 8 (UIS, 2011). The main assumption, therefore, is that individuals can arrange

29 Interview with A. Aerden, 10 April 2014.

their educational pathways in many ways, as education systems provide multiple branching paths, alternative programme sequences and second chance provisions.

SBSs provide another example of an educational classification system. SBSs are used in the United Kingdom to 'set out general expectations for the award of qualifications at a given level in terms of the attributes and capabilities that those possessing such qualifications should have demonstrated' (QAA, 2012, p. 2). SBSs are published for a range of disciplines, and also include professional standards where necessary. QAA points out that SBSs are not curricula, but rather 'provide a means for the academic community to describe the nature and characteristics of higher education programmes in a specific subject or subject area' (2012, p. 2). The main purpose of SBSs is to assist those involved in programme design, delivery and review. SBSs take account of relevant quality assurance processes and make mention of the Bologna process, the QF-EHEA, NQFs and the Tuning Project. A recognition scheme also exists to oversee the development of new SBSs and attempts to manage the potential proliferation of SBSs. SBSs are also linked to National Occupational Standards (NOS) in the United Kingdom (Adam, 2013*c*). SBSs are similar to the notion of qualifications standards which has been considered in some countries to guide the development of qualifications (for example South Africa, Ethiopia and the USA).

Graduate attributes is another useful concept used in the educational context to describe competences. A baseline study on South African graduates from the perspective of employers (Griesel and Parker, 2008) provides some useful insights into this area, in which graduate attributes are viewed as knowledge, skills, competences and values. Graduate attributes are broader than SBSs in that they describe types of learning that are transferable (Mayer, 1992, in Griesel and Parker, 2008, p. 4). They are:

- Not specific to any particular subject area, educational programme, qualification or awarding body, not to any specific vocational task or career path, but focus on generic attributes that can be learned through formal processes and that apply generally to working life;
- Common to both general education and vocational education and training;
- Concerned with outcomes, in each case defined as precisely as possible with various levels to indicate the variety of individual attainment.

This section has explored the following recognition methodologies: regional conventions, credential evaluation, professional and occupational standards, learning metrics, and occupational and educational classification systems. It has been noted that each of these recognition methodologies has a different purpose, and that they should ideally be understood and applied as interdependent initiatives. While some of these methodologies are more contemporary, such as qualifications frameworks, and to some extent also new thinking related to credential evaluation, others have been in place since the early twentieth century, such as recognition conventions and professional standards.

Most of these methodologies use learning outcomes in one way or another. While this may be less applicable to regional conventions, it is the case with credential evaluation, where there is a strong shift towards using learning outcomes. Professional and occupational standards also use learning outcomes organized into specific domains, albeit with some variation on the KSC domains discussed in the earlier section of this report. The same applies to learning metrics and occupational and educational classification systems.

The convergences, and also the divergences, between the different recognition methodologies have important implications for the development of the proposed world reference levels. These implications are discussed in the final chapter of this report.

Dimension 6: Assessment of learning outcomes

Governments, the international community and other stakeholders are increasingly recognizing the importance of assessment for monitoring TVET systems, for adapting qualifications and developing pathways, and improving learning and achievement levels. Several research initiatives (see for example UNESCO, 2012; CEDEFOP, 2010*a*; NQC, 2008; OECD, 2010*b*) have examined the ways in which learning outcomes approaches are influencing the assessment methodologies and practices in TVET, including in the workplace. The introduction and use of outcome-oriented curricula has required a rethink of traditional assessment tools in many countries. For example in Europe, Slovenia and Spain have developed special tools to assess soft skills. Finland has well established self-assessment for learners which has created a more positive assessment culture for both teachers and

learners. Countries are increasingly using formative assessment to provide learners with substantial, regular and meaningful feedback, and to inform teachers of the progress being made and whether any changes to the learning process are needed (CEDEFOP, 2010*a*).

In many countries national exams are conducted for school students in particular in general education. The purpose of a standardized national assessment framework is to provide a consistent method to assess the learning outcomes thereby to ensure all those with TVET qualifications have the same mix of competences, at a similar level (OECD, 2010*b*). Balancing national assessment and local autonomy is considered an effective way to ensure harmonization, mobility of learners and alleviation of labour shortages in fast-growing sectors or regions.

There is also an interest in developing international large-scale assessment of TVET learners. For example, the Federal Ministry of Education and Research in Germany (2009) conducted a feasibility study to find out whether there is a common basis for comparison of selected vocational areas in eight participating countries (Austria, Denmark, Finland, Germany, Norway, Slovenia, Sweden and Switzerland), which was considered the precondition for a large-scale assessment of vocational education and training (VET-LSA). The focus of the feasibility study was to identify comparable occupational profiles in selected occupational fields, and learning outcomes at the end of their VET programmes. The comparison focused on a medium level of proficiency, that is, initial VET programmes at ISCED level 3, corresponding to occupations requiring medium or considerable vocational preparation.

More recently, in 2013, the OECD began to consider how to measure, at international level, the competences of young people in vocational education and training and to conduct, at international level, a PISA-VET which is expected to build on, among others, VET-LSA work. The project proposal (OECD, 2013*b*) notes that:

> Whereas with PISA a program comparing students' competencies in general education exists, for VET to date there is no programme comparing young adults' competencies internationally. An assessment in VET will show the strengths and weaknesses of different vocational training forms in different countries as an opportunity to learn from one another.

Facilitating the recognition of informal and non-formal learning

During the past few years many international organizations and UNESCO Member States have emphasized the importance of learning that takes place outside of formal learning settings. This emphasis has led UNESCO, through its Institute of Lifelong Learning (UIL), to adopt international guidelines for the Recognition, Validation and Accreditation of the Outcomes of Non-formal and Informal Learning in 2012 (UIL, 2012). The emphasis has also led to an increasing number of policies and programmes in many Member States, and a gradual shift from pilots to large-scale systems such as those in Portugal, France, Australia, Mauritius and South Africa.

In Europe, since 2000, the seminal work of CEDEFOP (see Bjornavold, 2001; CEDEFOP, 2009*d*, 2014*b*) and the adoption in 2009 of the European Guidelines for Validating Non-formal and Informal Learning (CEDEFOP, 2009*d*) have supported the development of policies and programmes periodically monitored through the European inventory on validation of non-formal and informal learning.[30]

Both UNESCO and European guidelines emphasize that the criteria and procedures for assessing and validating non-formal and informal learning are relevant, reliable, fair and transparent, and promote the equal value of learning outcomes from formal, non-formal and informal learning.

The UNESCO guidelines (UIL, 2012) emphasize the importance of balancing the use of formative assessment (which draws more attention to identification and documentation of learning progress, and gives feedback to learners) and summative assessment (which aims explicitly to validate and recognize learning outcomes, leading to qualification). The CEDEFOP guidelines provide more details regarding assessment, and identify a wide range of assessment methods based on the inventory mentioned above. These include debate; declarative methods; interviews; observation; portfolio method: presentation, simulation and evidence extracted from work, test and examination.

In this context, the shift to learning outcomes is critical to allow for recognition and validation of non-formal and informal learning to become an integrated and normal part of qualifications systems and frameworks. Qualifications standards will play a key role in deciding the relationship between validation and learning outcomes. For validation, it is crucial that these standards are formulated in terms of learning outcomes to be used as reference points for non-formal and informal learning.

30 See: http://www.cedefop.europa.eu/EN/about-cedefop/projects/validation-of-non-formal-and-informal-learning/european-inventory-scope.aspx

The growing importance of work-based learning

Work-based learning is steadily emerging as central in skills development (UNESCO, 2012; OECD, 2010*b*, 2014; ILO, 2012). Work-based learning encompasses a diversity of formal, non-formal and informal arrangements including apprenticeships, work placement and informal learning on the job. The key driver is the need for active policies to secure learning that meets the need of the workplace.

It is helpful to think of work-based learning arrangements as falling into four main types:

- Arrangements in which the learner is legally an employee, such as formal apprenticeships;
- Arrangements in which the learner is legally a student: examples include traineeships, internships, work placements and cooperative education;
- Borderline cases such as virtual firms, training firms and 'real' firms that are attached to and part of educational institutions;
- Programmes such as work shadowing and work experience where the main aim is to teach the learner *about* work rather than to teach them *to do* work.

The differences between these are often not clear, as they can be quite similar. And it is important to be aware that wide variation can exist within each type.

Work-based learning, and in particular apprenticeship, features high in the policy agendas, strategic and operational priorities of national governments, regional communities and international organizations. An example is the Canadian Interprovincial Standards Red Seal Program and the contemporary challenges faced by its reform. Another example is the Youth Apprenticeships Carolina model, cited by the White House for radically improving both the quantity and quality of apprenticeships in recent years (see Apprenticeship Carolina, 2014). In Latin America, work-based learning is part of technical secondary education in Chile (based on the model of the German dual system) and in Argentina (through the model known as *prácticas profesionalizantes*, or vocational practicums). In Africa, South Africa has a National Skills Development Strategy which focuses, among other issues, on encouraging better use of workplace-based skills development.

In May 2012, the G20 Labour and Employment Ministers concluded in Guadalajara, Mexico that countries should strengthen apprenticeships systems through:

> Sharing of experience in the design and implementation of apprenticeships programmes and exploring ways to identify common principles across the G20 countries by facilitating a dialogue among our social partners who have presented us a shared sense of the importance of apprenticeships. (G20 Labour and Employment Ministers, 2012, p. 6)

The G20 Leaders Summit in Los Cabos, Mexico, in June 2012 supported this approach. In the same year, tripartite constituents at the International Labour Conference's committee on the youth employment crisis, *Time for Action*, called on the ILO to engage in the promotion of quality apprenticeships, including in developing countries.

In Europe, there is broad consensus that apprenticeship-type programmes can be an efficient way of addressing labour market imbalances. Thus, the European Commission's Communication, *Rethinking Education: Investing in Skills for Better Socio-Economic Outcomes* (European Commission, 2012) identified quality apprenticeship and work-based learning as a strategic priority. It also announced the European Alliance for Apprenticeship, which is now being implemented. On 15 October 2013 the Council of the European Union adopted a Declaration on the European Alliance for Apprenticeships. As one of the key elements Member States declare that, where appropriate, they will:

> Undertake VET system reforms, in cooperation with social partners and other relevant stakeholders, by introducing an apprenticeship pathway or improving existing schemes,…, in order to increase the number, quality and attractiveness of apprenticeships. (Council of the European Union, 2013, p. 3)

Apprenticeship is no longer just limited to traditional trades. It is a viable workforce development tool in a wide variety of occupations. The concept behind apprenticeship has not changed greatly over time, but the types of industry successfully using apprenticeship to develop and build their workforce have changed drastically over the past fifty years. Today, apprenticeship programmes can be found in such industries as advanced manufacturing, information technology, energy, tourism, transportation and logistics, and healthcare, just to name a few.

Often it is hard to obtain full recognition for the knowledge, skills and attitudes acquired through work-based learning. However, such recognition matters because it allows work-based learning to be effectively combined with lifelong learning. One route to such recognition is through professional examinations or certifications.

Alongside formal recognition and certification, there are a number of less formal certifications.

The examples of many countries demonstrate that national recognition of apprenticeship certification greatly enhances the value of the qualification. However, over-rigid national skill specification can inhibit the development of apprenticeship in its early stages. The ILO (2012) considers that recognition in a region or sector of economic activity can provide the flexibility needed for apprenticeship to flourish and grow.

Work-based learning that leads to portable vocational qualifications or certificates is normally certified by public authorities: ministries of education or vocational training authorities, for example. However certificates or qualifications may also be issued by well-established social partner organizations. For example, in South Africa, QCTO is the competent body for issuing the apprenticeship certificate. The certificate issued is trade-specific and is known as an Artisan Certificate of Competence. The National Artisan Moderation Body (NAMB) oversees the quality assurance of apprenticeships on behalf of the Quality Council for Trades and Occupations (QCTO). Another example is Sri Lanka, where the coordination and regulation of apprenticeships is the responsibility of the National Apprentice and Industrial Training Authority. The Authority is also responsible for trade testing and certification, which is undertaken by licensed assessors, and acts as an advisory body on vocational education and training to the National Tertiary and Vocational Education Commission, the body responsible for establishing and maintaining national competency standards in association with industry.

International credit transfer

Credit accumulation and transfer (CAT) schemes constitute another important area to be considered when assessing learning outcomes, and the recognition of learning more broadly. While an increasing number of countries are developing credit schemes as integral part of their NQFs (see Scotland, Northern Ireland, Hong Kong, South Africa and Botswana), there are also countries and provinces that have put in place separate schemes (such as Victoria in Australia) (Hart, response to interview questions, 2014; Naude, 2014; Fearnside and Vickers, 2014).

Of importance to this global study on level descriptors is the extent to which these systems are being developed to aid credit transfer and accumulation across national borders. The most prominent example is Europe, whose system is briefly described

below. It is important to notice that the other RQFs are not considering establishing CAT systems.

In addition to the EQF, the European Commission has put two mechanisms in place to improve the transparency, comparability and transferability of qualifications: ECVET and the European Credit Transfer and Accumulation System (ECTS) for Higher Education. The recommendation to establish ECVET in 2009 reads as follows (EU, 2009, p. 1):

> Intended to facilitate the transfer, recognition and accumulation of assessed learning outcomes of individuals who are aiming to achieve a qualification. This will improve the general understanding of citizens' learning outcomes and their transparency, transnational mobility and portability across and, where appropriate, within Member States in a borderless lifelong learning area, and will also improve the mobility and portability of qualifications at national level between various sectors of the economy and within the labour market; furthermore, it will contribute to the development and expansion of European cooperation in education and training.

CEDEFOP's report on monitoring ECVET implementation (2014c) shows mixed support for ECVET in relation to national VET reforms. Only a few European countries are committed to its implementation, and not all of these have actually started implementation. In most of the European countries, transfer of learning outcomes was reported to be difficult. Furthermore, ECVET seems not to reach those countries that already have credit transfer systems for VET in place or transferable units/modules, and those with predominantly apprenticeship-based initial VET. For the latter, the architecture of apprenticeship (dual) systems is built so that young people gain a holistic competence in an occupation at the end of an apprenticeship programme (CEDEFOP, 2014c, p.52). Regarding the possibility of transfer in the home country of learning acquired abroad, in countries with units/modules and CAT systems (for example Finland and Ireland), the architecture of these systems supports credit transfer across borders. CAT seems to be commonly accepted if teachers and trainers trust the quality of learning achieved abroad. However in other countries (such as the UK and Spain), credit transfer across borders is normally not possible because of national quality assurance regulations on assessment and recognition (CEDEFOP, 2014c, p. 28). In fact, according to the CEDEFOP review (2014c), there is a strong indication that quality assurance concerns are among the main obstacles to transfer, and that 'if ECVET is to boost transfer, it needs to be more closely related to quality assurance arrangements on assessment and certification' (p. 52). In the European context, this is further corroborated by some forthcoming research on the quality assurance of certification, which shows the gaps in this area in a number of European countries (see ***Table 7***).

Table 7: Gaps in the quality assurance of certification in selected European countries

Country	Gaps
Germany (dual system)	Transparency of the examination should be improved; reliability and validity of the exams can be improved as too much is still dependent on the board of examiners. The results from different boards of examiners must become more comparable. One interview partner mentioned that there is no systematic way of getting feedback from the trainees themselves.
The Netherlands	At the level of the VET providers a challenge is to find the balance between autonomy and standardizing with regard to the examination process.
Romania	(At the least) the certification exams for professional qualifications should include a practical test (skills demonstration); the guides, assessment instruments and auxiliary tools developed as part of different projects are scarcely known at national level and should be better disseminated.
UK	VET providers commented on the inconsistency between Awarding Bodies and the perception that some Awarding Bodies' qualifications are better than those from others.
Portugal	The challenge lies in the fact that neither the legislation nor regulations on the different modalities of VET articulate certification principles. These principles may be implicit in the teachers/trainers' practices but they have not been systematically articulated and endorsed.
Hungary	There is a lack of systematic feedback mechanisms which would facilitate learning from the experiences of the users. At the end of the examination process the chairs of the examination committee and the institutions are obliged by law to evaluate the exams but these reports are not collected and analysed on a national level. Furthermore, the summing up and analysis of the examinations results on a system level, drawing conclusions, feeding back the results from the analysis and on this basis implementing changes, is not working either.
Austria (dual system)	The national framework for the certification process is currently insufficiently detailed and must be improved. There is a need for greater awareness of quality assurance mechanisms throughout the apprenticeship itself. Preparation courses for the final apprenticeship exam are not compulsory.

Source: Cedefop, forthcoming

While the scope of this report on the use of level descriptors has not allowed for a detailed review of national or international credit transfer schemes, it is important to note that there is a direct correlation with new and emerging recognition methodologies, notably qualifications frameworks. In this regard the existing trend has been for credit schemes to be closely associated with NQFs, and more recently also with an RQF, the EQF. Four different types of associations are identified (adapted from SAQA, 2006):

- Type 0: *No CAT, no qualifications framework*: The country/region has no NQF/RQF, nor does it have a national/regional arrangement for credit accumulation or credit transfer;
- Type 1: *Only qualifications framework*: In such cases the country/region has an instrument for the development and classification of qualifications that may be credit-based, but does not include a national/regional arrangement for both the accumulation and transfer of such credits;
- Type 2: *Only CAT*: Here both credit accumulation and transfer are formalized through a national/regional arrangement, but there is no NQF/RQF;
- Type 3: *CAT and qualifications framework*: The NQF/RQF and the CAT system function separately even though there may be areas of commonality. In most such cases the NQF/RQF contributes to the effectiveness of the CAT system, but is not a prerequisite to its existence. In effect, the CAT system may function without an NQF/RQF being present at all. Likewise an NQF/RQF may exist without a CAT system;
- Type 4: *CAT in the NQF*: The NQF/RQF includes both credit accumulation and transfer features – to the extent that no reference is even made to a CAT system.

This discussion on credit transfer concludes the overview of Dimension 6 focusing on the assessment of learning outcomes. It has been shown that assessment of learning is a fundamental feature of the recognition of learning, including on an international level. Not only does assessment constitutes an integral feature of large-scale comparative studies, it is also critical to formal systems, such as NQFs and RQFs, as well as work-based learning. In this regard the use of learning outcomes has also facilitated the recognition of non-formal and informal learning.

CHAPTER 4

FUTURE POSSIBILITIES

In this chapter we explore some of the more recent approaches to the recognition of learning, and the impact that these possibilities have on our understanding of levels. Considering that a set of world reference levels is a forward-looking idea, it is important to take note of these new possibilities to ensure that the reference levels do not rely solely on existing methodologies. Five possibilities are discussed in the section below. The first is representation, as a concept that attempts to improve transparency by providing more information related to learning. The second is referencing: that is, a methodology used to compare qualifications frameworks. The third is online credentials; the increased occurrence of international qualifications that are being offered across the globe. Lastly, there is the possible emergence of a new generation of qualifications frameworks. All these interrelated future possibilities should be considered in the development of the proposed world reference levels.

Representation

The first future possibility that should be considered is representation. The discussion below draws on the earlier discussion on credential evaluation as a recognition methodology, but broadens it further for more general applicability.

In research by Bjornavold and Coles (2010) into the development of policies and practices linked to qualification and qualifications systems, it was concluded that 'concepts of qualifications are diverse and dependent on deeply embedded social and cultural environments' (2010, p. 153). Importantly for this study on levels, it was found that while the 'power [of qualifications] to act as a metric for the performance of the education and training system' has increased, the extent to which qualifications function as the main way for people to progress in work has decreased, and the role of qualifications to support international mobility has increased. Bjornavold and Coles introduced the concept of representation, as they explained the limitations of qualifications to provide information on current knowledge, skills and competences, aptitude in key competences, and potential/future competence. Representation, they argue, includes qualifications, but is not limited to qualifications. For example, representation may also include (Bjornavold and Coles (2010, p. 153):

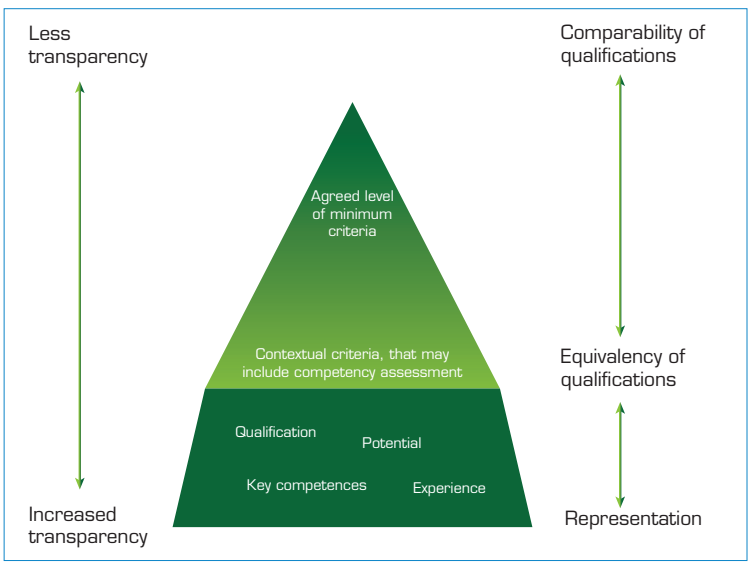
- The changing value of qualifications in certain settings;
- Occupational standards on which the qualification is based;
- The extent to which social partners contribute to the design and assessment of the qualification;
- The extent to which non-formal and informal learning is recognized;

- The quality of the providing institution;
- The extent to which learning has advanced since the award of the qualification.

Representation is not necessarily a new idea, as to some extent the notion of basing recruitment on CVs embodies this broader description of an individual's qualifications, prior experience and aptitudes. Similarly, the notion of including professional designations in an NQF, as 'a title or status conferred by a professional body in recognition of a person's expertise and right to practise in an occupational field' (SAQA, 2012) has challenged the traditional notion of what a qualification is, and has opened the door for broader interpretations (see also NQAI, 2010).

The question is, what does representation mean for this study? Here it is useful to return to the earlier discussion on credential evaluation, where a distinction was made between different levels of evaluation: a broader advisory level of comparability overseen by NICs, and more detailed evaluations that determine equivalence of qualifications, overseen by CRAs. In effect, representation adds another level to the evaluation, which moves beyond an agreed level of minimum criteria (comparability), beyond more contextualized criteria (equivalency), to a situation where not only is past learning evaluated, current and potential competence is considered (referred to as representation). ***Figure 5*** illustrates the relationships between these different levels of evaluation, building on ***Figure 4*** used earlier in this report.

Figure 5: Levels of transparency including representation



Source: adapted from Bjornavold and Coles, 2010

The question is what implications representation has for not only credential evaluation practices, but also our understanding of levels. Bjornavold and Coles developed the concept in the context of recruitment processes, and maybe this is where it should remain, at least for now. At this point it is highly unlikely that the capacity will exist to evaluate representation, as it will require specialized assessment and pedagogy that has not been fully developed yet. Even so, there are several examples where representation is being implemented, even though it may not be called by this name. Some of these are discussed below.

The diploma supplement is a good example of ways in which additional information on higher education qualifications is made available. This increased transparency makes it easier for providers and employers in the European context to recognize the competences of an individual, beyond what a qualification on its own would be able to represent. Mutual recognition agreements have attempted to provide more information on qualifications on a more political level, but it is still an example of how additional information is sought to complement qualifications. Over the last ten years the methodology of 'referencing' is increasingly being used to compare qualifications frameworks on a system-to-system level (see the next section for a more detailed discussion).

A good example of the move towards increased transparency is the Europass model implemented in Europe. The purpose of Europass is to make skills and qualifications more understandable through the following objectives:

- To help citizens communicate their skills and qualifications effectively when looking for a job or training;
- To help employers understand the skills and qualifications of the workforce;
- To help education and training authorities define and communicate the content of curricula.

The emphasis beyond qualifications alone is important as it signals the need for increased transparency:

> Today's learning opportunities are limitless, borderless and immediate. Individuals can learn and acquire new skills and competences not only in the traditional setting of the classroom, but increasingly outside it and at their own speed. In the present climate of rapid economic and technological changes, individuals also go through several transitions in their professional and academic life, crossing borders, alternating or combining work, education, further training or volunteering. As pressure for employability and better skills grows, more open and flexible education and training systems are needed, better tailored for the needs and circumstances of learners and

> workers. Their full qualifications, skills and competences should be easily and quickly recognised and understood by employers and education and training establishments anywhere in Europe. (European Commission, 2013, p. 2)

Europass includes the diploma supplement (for higher education qualifications), but also includes a certificate supplement (for TVET qualifications), a language passport (as a self-assessment tool), and the Europass CV which enables an individual to capture knowledge and skills acquired in another European country, culminating in the Europass Skills Passport. The approach used is to enable individuals to take ownership of their own learning, and it is an excellent example of how representation can be implemented.

While Europass is a distinctly European example, many of these principles can also be seen in the increased awareness of the importance of career advisory services and self-help tools, such as CV builders, which is also apparent in countries outside of Europe. The relationship between qualifications frameworks and career advice is another area that should be further developed in order to strengthen these new ways of recognizing non-formal and informal learning.

Referencing

As a result of the increased global development of both NQFs and RQFs (discussed earlier in this report) there is an increasing need to relate qualifications frameworks to each other. Although qualifications frameworks are based on the same basic building blocks, such as learning outcomes, levels, level descriptors and credits, they vary in their design between countries and regions. These differences in design, notably in the number of levels used, but also in terms of qualifications design and quality assurance systems, require an agreed process to make the similarities and differences explicit to policy-makers and the broader public.

In the European context two similar methodologies have emerged to make the relationship between NQFs in Europe and the two RQFs more explicit. In the case of the EQF, which is limited to the twenty-seven EU member states, a 'referencing' methodology has been developed to define the correspondence between the eight levels of the meta-framework (the EQF) and NQFs (see the seventeen country reports that are available at http://ec.europa.eu/eqf). For the QF-EHEA, a product of the Bologna process which has involved forty-seven countries, a 'self-certification' methodology has been developed. In many instances countries with NQFs simultaneously reference to the EQF and self-certify to the QF-EHEA, as the two methodologies have many similarities.

In the future it may be possible for the EQF and QF-EHEA to be integrated, but this is not a reality at this point. Another important point to note is that non-European countries have on their own volition started to participate in both referencing and self-certification processes. In 2014 the European Commission further endorsed the possibility of non-European countries participating.

There are also examples of peer referencing between NQFs, and even between an NQF and an education and training system where no NQF has been developed. Examples include New Zealand and China, New Zealand and Malaysia, New Zealand and Ireland, and Malaysia and Taiwan. With the increasing development of sectoral qualifications frameworks, it is anticipated that referencing between NQFs and sectoral qualifications frameworks might also increase in future.

Here too inconsistent use of terminology remains a challenge when engaging with the different ways in which qualifications frameworks are compared. The framework discussed below provides some direction in this regard (drawing on Keevy and Jaftha, 2014).

The first concept that is of importance is recognition:

> Recognition is the formal or legal specifications that a qualification must meet in order to be accepted (recognized) as fulfilling the (transparently) set standards, such as are often defined for the professions. Recognition can be unilateral, mutual or based on regional/trade agreements.

Four modes of recognition of qualifications exist: credential evaluation, prior agreement, benchmarking and social uses. Each of these modes attempt to improve transparency, demonstrate competence, facilitate cross-border mobility, and give access to social goods.

Table 8: Recognition of qualifications

Mode of recognition	Purpose of recognition			
	Improve transparency	Demonstrate competence	Facilitate cross-border mobility	Give access to social goods
Credential evaluation	*	**	***	*
Prior agreement	*	*	***	*
Benchmarking (including referencing)	***	*	***	*
Social uses	*	*	*	***

Source: Keevy and Jaftha, 2014

(Key: * some relevance, ** relevant, *** very relevant)

When comparing qualifications frameworks, either upwards (from an NQF to an RQF), at the same level (between NQFs) or downwards (between an NQF and a sectoral qualifications framework), benchmarking is the most commonly used term:

> [Benchmarking is] a process which establishes the level of a given qualification by comparing it with an identified benchmark. The identified benchmark can relate to a specific qualification framework level or to an identified benchmark qualification.

Benchmarking is used together with mapping, which is a process by which the content of a given qualification can be compared in relation to subject content or standards. Where benchmarking is used to determine the level of a qualification, *mapping* involves the analysis of qualification content to identify subject knowledge, skills and competences.

A specific form of benchmarking that has emerged in recent years is 'referencing'. As noted earlier, this is a relatively new methodology for the recognition of qualifications, and is directly associated with the introduction of qualifications frameworks. Drawing again on the methodology as employed in the European context, the following definition is used (CEDEFOP, 2011):

> [Referencing is] a process that results in the establishment of a relationship between the levels of the European meta-framework (EQF) and the national qualifications framework (NQF) or system. Through this process, national authorities responsible for qualifications systems, in cooperation with stakeholders responsible for developing and using qualifications, define the correspondence between the national qualifications system and the eight levels of EQF.

Fundamental to the referencing process is the principle of mutual trust, which involves both technical reliability and consensus amongst stakeholders, and the way in which that consensus is rooted in custom and practice. The credibility of the consensus is based on agreement by role-players in charge of qualifications and certification processes, but also those using qualifications (employers and learners).

There is a strong link between the methodologies employed in credential evaluation practices (which preceded qualifications frameworks by many years) and benchmarking. Two principles are of value and are discussed in more detail below, substantial difference and comparability.

The notion of *substantial difference* is often used during benchmarking processes. The term originates from the credential evaluation sector, and is applied in relation to the function of a qualification and the purpose for which recognition is sought:[31]

31 www.eurorecognition.eu

> Substantial differences are differences between the foreign qualification and the national qualification that are so significant, that they would most likely prevent the applicant from succeeding in the desired activity such as further study, research activities or employment.

Importantly, the burden of proof lies with the competent recognition authority to show that the difference between two qualifications (each from a different country) is substantial. The assessment should seek to answer questions such as (see Hunt et al., 2009):

- Are the differences in (targeted or achieved) learning outcomes so substantial that the foreign qualification cannot be fully recognized? If so, is it possible to grant alternative or partial recognition?
- Are the differences in the further activities for which the foreign and the home country qualifications prepare so substantial that full recognition is not possible? If so, is alternative or partial recognition possible?
- Are the differences in key elements of the programme leading to the qualification so substantial in relation to similar programmes in the host country that full recognition cannot be granted in view of the purpose for which recognition is sought? If so, is alternative or partial recognition possible?
- Is the quality of the programme or the institution at which the qualification was earned so different from similar programmes or institutions in the host country that full recognition is not possible? If so, is alternative or partial recognition possible?

The referencing of qualification frameworks represents a critically important point of development (see Hart, 2009), as it entails practical application of models that up to that point may have remained abstract and amorphous. It is here that the strengths and weaknesses of the frameworks become more obvious. It is also here that the development of trust between countries and regions is solidified. It is for this reason that referencing should be understood as going beyond a simple technical exercise of matching levels, credits and qualification types, to a social process in which different stakeholders are able to participate, that allows for objective and external scrutiny of national systems which in the past might have been closely guarded and protected by each country.

Online credentials

Digital badges, electronic passports and massive open online courses (MOOCs) are all concepts that have gained prominence in the last few years. Directly linked to the accelerated development of internet communication technologies, these developments have a very direct bearing on our understanding of learning, recognition and levels as they pose a direct challenge to the status quo:

> Accreditors needs to think about their relationship to innovation. If the standards are built largely to asses incumbent models and are enforced by incumbents, they must be – by their very nature – conservative and in service to the status quo. In some ways, accreditors are being asked to shift or at least expand their role to accommodate these new models. (Le Blanc, 2013, in Uvalic-Trumbic and Daniels, 2014, p. 14)

It is useful to distinguish between three forms of online credential:

Test-based credentials

Test-based credentials have gained popularity both in the online market, and in programming and highly technical tasks. These credentials are earned by taking multiple-choice or project-based tests in various skill areas.

Online badges

Badges allow individuals to demonstrate job skills, educational accomplishments, online course completion or just about anything else that a badge creator decides. They are still very nascent and in the very early stages of their growth – right now a 'badge' can mean almost anything. According to the Open badges working paper (Mozilla Foundation and Peer 2 Peer University, 2012), badges support capturing and translating the learning across contexts; encouraging and motivating participation and learning outcomes; and formalizing and enhancing existing social aspects of informal and interest-driven learning.

Online certificates

Among alternative credentials, online certificates currently command the highest value, and are nearly comparable to a traditional degree. Earning an online certificate from an online college, a company or an industry-specific organization is typically much more involved than for the other credentials. The certificates are often connected to specific job functions. Many of these certificates have been created by companies such as Cisco, IBM or Microsoft to meet their own needs or the needs of their customers.

Online credentials have their origin in the concept of open educational resources (OER), which was invented during the Forum on Open Courseware for Higher Education in Developing Countries held in 2002 at UNESCO (see Butcher, 2011). Over the next decade the OER concept gained significant traction, and this was confirmed by the World Open Educational Resources (OER) Congress organized by UNESCO in 2012. One of the outcomes of the congress was to encourage the open licensing of educational materials produced with public funds. Creative Commons licensing (see creativecommons.org) provides the necessary standardization for copyright permissions, with a strong emphasis on the shift towards sharing and open licensing.

Online or digital badges are not dissimilar to the concept of the Europass CV, and are also a very good example of representation, both concepts which were discussed earlier in this section. Open badges do however challenge the existing practices in a more radical manner, in that the process is much more decentralized and removed from the traditional quality assurance bodies:

> A digital badge is an online representation of a skill you've earned. Open Badges take that concept one step further, and allows you to verify your skills, interests and achievements through credible organizations. And because the system is based on an open standard, you can combine multiple badges from different issuers to tell the complete story of your achievements – both online and off. Display your badges wherever you want them on the web, and share them for employment, education or lifelong learning.[32]

A key criticism of open badges, such as those developed by Mozilla, is that they lack a credible quality assurance component. On the positive side, open badges are free and allow for the inclusion of various forms of learning, including non-formal and informal learning:

32 Excerpt from the Mozilla website www.openbadges.org, accessed 19 April 2014.

> [Mozilla open badges] was created in recognition of the increased opportunities for personal growth and learning through various informal, participatory, and creative contexts, but the lack of formal recognition for these acquired competencies and skills… The idea is to collect credentials about different aspects of a person's life – work, school and recreation – and bring them together in an accurate picture of themselves, and to signal achievements to peers, potential employers, collaborators, educational institutions. The goal is to support lifelong learning through on-going access to badges. (Uvalic-Trumbic and Daniels, 2014, p. 18)

Uvalic-Trumbic and Daniels (2014) further explain that various types of badges exist, ranging from basic to intermediate and expert-level badges 'that provide pathways and milestones to guide learners through to mastery'. Badges can also be accumulated into 'meta-badges' that 'signify more complex literacies or competencies'. The potential of badges to recognize learning within MOOCs is noted by the authors as a key consideration.

In parallel with Mozilla badges, other companies are developing their own badges. One such example is CrowdFlower, a real-time crowd labour platform.[33] CrowdFlower wanted to better enable its clients to find the right talent to complete crowd tasks, and as a result, it decided it needed a way to evaluate and 'badge' its workers. Like many companies, it is using its own proprietary badges. (Uvalic-Trumbic and Daniels, 2014)

Looking to the future, four key challenges can be mentioned. The first is the way issuing and earning process for the badges will be quality assured. Second is the centralization (or not) of the badge-issuing process and the legitimacy of any organization that takes charge of it. Third is the way badge issuers are using the open standard to ensure that the learners stay in control and badges remain interoperable. The fourth challenge is the way badges will be used and recognized by education institutions, enterprises and individuals. Despite these very real challenges, there is no doubt that online credentials will increasingly be a factor to consider in the future. It would be remiss for a set of world reference levels to ignore this important development.

33 See www.crowdflower.com, accessed 8 May 2014.

International qualifications

Another future possibility that has relevance for the proposed world reference levels is the increasing number of widely recognized certificates and diplomas that are being awarded at international level, outside the jurisdiction of public authorities. These non-state qualifications are awarded by a range of bodies, organizations and multinational companies, representing a wide variety of stakeholders and interests. As is noted by CEDEFOP (2012), what unites this extreme variety of qualifications is the fact that they are not restricted to a particular national system or territory. They are all non-state qualifications whose exchange value is defined outside the traditional national qualifications systems.

Just as with online credentials, international qualifications pose challenges to existing quality assurance regimes:

> The international dimension of sectors like transport, ICT, construction, trade and welding has raised issues on transparency, quality assurance and trust needed for the qualifications offered. (CEDEFOP, 2012, p. 6)

As CEDEFOP also notes (2012, p. 69), it will be necessary to balance the need for increased transparency and quality going forward:

> Future work lies at the crossroads of transparency and quality. Overall relevance of international qualifications requires that they are trusted by potential users. This can only be achieved by systematically creating an overview of what exists and emerges, and by systematically addressing the need for accountability and openness regarding the process leading to a particular qualification. International and national qualifications are both value papers which require trust if they are to fulfil their roles in the labour market and society. Without this trust they will fail and in the worst case mislead individuals and employers.

There is a significant risk that international qualifications will also have an impact on national qualifications and devalue the entire system. This is probably also one of the main reasons that some countries are reluctant to recognize international qualifications. In some instances providers of international qualifications are required to meet all the national requirements that must be met by local providers (usually offering their courses through conventional methods). In other instances, 'free zones' are created where international qualifications can be offered with minimal national interference. Both models have their weaknesses and strengths, and more will have to be done in future to ensure that risks are mitigated.

Here it is useful to also refer back to the concept of sectoral qualifications frameworks, notably on a transnational level, discussed earlier in this report. Sectoral qualifications frameworks represent an example of how qualifications frameworks have adapted to accommodate international qualifications. While only few examples exist at present, there is a clear trend towards more frameworks being developed in this manner.

Another useful consideration to mitigate the risks associated with international qualifications is the International Organization for Standardization (ISO)/ International Electrotechnical Commission (IEC) 17024 conformity assessment standard. The standard specifies the general requirements for bodies operating a scheme to certify individuals, and introduces clear quality criteria to underpin the award of certificates. The standard is designed to harmonize the personnel certification process worldwide, and provides a uniform set of guidelines for organizations managing qualifications and certification, including procedures for development and maintenance of a certification scheme. It is designed to help bodies certifying people to conduct well-planned and structured evaluations using criteria for competence and grading to ensure impartiality and reduce any conflict of interest.

A new generation of qualifications frameworks?

It was pointed out earlier in this report that three generations of qualifications frameworks have been developed since the 1980s. The first generation involved Australia, Scotland, South Africa and a handful of other countries, and took place at the time when the shift to learning outcomes and the competency approach to VET influenced the process in a significant manner. The second generation of qualifications frameworks included countries such as Malaysia, Mauritius and Hong Kong. These frameworks were characterized by more modest approaches, building on the experiences of the first-generation frameworks. This was also the period in which TQFs came to the fore, drawing largely on regional processes and conventions, such as the Lisbon Recognition Convention in Europe, the Arusha Recognition Convention in Africa, and the Asia-Pacific Regional Convention. The more recent third generation of qualifications frameworks now includes a total of at least 100 countries, making up a total across the generations of some 140 countries.

This period has seen an increase in sectoral initiatives, some limited to countries or regions, and others international in scope.

Examples include the automotive industry, IT, engineering and tourism. This period has also seen a significant move towards RQFs on most continents. Examples include the EQF in Europe, CVQs in the Caribbean, the APQF in Asia, the ASEAN QRF, the VUSSC TQF, CSUCA in South America, the SADC RQF in Southern Africa, the GQF in the Gulf States, and the PQF in the Pacific Region. These frameworks are developed as metaframeworks that provide a neutral reference point for the relevant countries. They do not have their own quality assurance regimes, nor are they directly related to provisioning.

Some countries, such as the USA and Canada, had opted to stay outside of this global movement towards qualifications frameworks until very recently. At present, and as has been shown in this research, there is an increasing convergence between different recognition methodologies. Credential evaluation methodologies are increasingly taking on board the learning outcomes approach, and are including explicit references to NQFs and RQFs (Nuffic, 2012). There are also clear signs that existing recognition conventions are converging, potentially towards a global recognition agreement such as is currently being considered by UNESCO. Professional and occupational standards are increasingly being developed on a global level, with numerous examples currently in place, such as Tuning, INSSO and DISCO. In all these cases, and also through learning metrics, educational classification systems and occupational classification systems, are being described through learning outcomes. While there remains much room for improved conceptual clarity regarding the use of learning outcomes, learning domains, and also the level of learning, there is a clear sense of progress.

It is important to take note of recent developments in the USA and Canada. These come many years after qualifications frameworks were developed in other countries and regions, and they undoubtedly draw on the successes and mistakes associated with the earlier generations of qualifications frameworks. The federal nature of both these countries, and the strong emphasis on privatization and decentralization, have undoubtedly been factors, as qualifications frameworks generally are centralizing mechanisms which give the state more control of education and training. There are exceptions, such as Australia and Ethiopia, but the majority of countries with qualifications frameworks do not have federal governance systems.

In the USA work has been under way for some years to develop a degree qualifications profile (DQP) to promote transparency, mobility and accountability inside higher education. This has been driven by strong labour market demand. It is being steered by a non-governmental consortium led by the Lumina Foundation,

which also led the Tuning Project in the USA. The DQP is a sectoral framework that defines learning outcomes for associate, bachelor and master degrees (Rein, 2011). It is based on five domains of learning (Rein, 2011):

- Specialized knowledge;
- Broad knowledge;
- Intellectual skills;
- Applied learning;
- Civic learning.

The DQP developers analysed the European Bologna process approaches and experiences intensively (Adelman et al, 2014), but generated an instrument that differs in its shape and diction. To date over 400 higher education institutions and several accrediting agencies have been involved in its testing and implementation.

In a related and more recent development, the Lumina Foundation initiated and is steering the development of a American Credential Framework (ACF), which 'attempts to develop an overarching reference instrument to promote transparency, comparability, mobility and quality assurance for all kind of credentials including non-degree credentials beyond the academic oriented DQP approach'.[34] The emphasis on learning outcomes is an important common feature of both the DQP and the ACF.

The ACF is still in the development process, and up to now it has not been shared with the public. A representative working group, which includes European expertise, is in place, and testing is also under way with credential agencies and other relevant providers from all education and training sectors. It will cover eight levels and use the domains of knowledge, skills and abilities (subdivided into personal and social abilities).

The key term for the DQP is proficiency. This is defined as 'A label for a set of demonstrations of knowledge, understanding, and skill that satisfy higher levels of mastery that justify the award of an academic degree' and is preferred as a concept that refers to the 'degree as a whole', while the term competence is regarded as too limited in that it refers to 'objectives within a specific course or learning experience'.[35]

Equivalent to the EQF, the ACF conceptualizes 'competency' as the overarching key of the instrument. It is holistically defined as an 'ability and readiness to use

34 V. Rein, written response to interview questions, 2014, p. 3.
35 V. Rein, written response, p. 1.

KSC in work or study situations and in professional and personal development'. Consequently this instrument defines proficiency not only in terms of academic discipline requirements but as the 'expected learning outcomes that graduates should fulfil in preparation for work, citizenship, global participation and life'.[36]

In Canada the development of a sectoral International Events Qualifications Framework (IEQF) has been under way since 2011 (Canadian Tourism Human Resource Council, 2012*a*, p.1):

> The International Events Qualifications Framework (IEQF) provides a reference to workplace applicable levels of learning and helps to link various types of event qualifications which are recognized nationally within certain countries and internationally in the industry. It will not be a regulated framework, but will provide an industry-recognized benchmarking resource for both academic and industry qualifications in the field.

The IEQF is based on a set of internationally agreed competence standards. It also includes aspects of professional standards, with clearly defined industry roles that progressively become more complicated. Level descriptors are planned to be used on both a generic and an events level, and it will also use a set of criteria for inclusion of qualifications (see also Canadian Tourism Human Resource Council, 2012*b*).

The IEQF is not being developed in isolation. A Canadian Degree Qualifications Framework has been in place since 2007 (Council of Ministers of Education, 2007).

The recent developments in the Canada and the USA, many of which are still taking place outside of the view of the public, provide some insights into the potential future of new fourth-generation qualifications frameworks. These frameworks are more inclusive of non-degree credentials, and also view learning domains in a similar but broader sense than has been the practice to date. The inclusion of 'citizenship, global participation and life'[37] is an important feature. The development of sectoral frameworks, either national or international, is also an important consideration.

Table 9 outlines some of the key characteristics of each the different generations of qualifications frameworks.

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36 V. Rein, written response, p. 1.
37 V. Rein, written response to interview questions, 2014, p. 1.

Table 9: Different generations of qualifications frameworks

	Generation			
	First	Second	Third	Fourth
Period developed (approximate)	1980s	2000s	2010s	From 2014
Examples	Australia, Scotland, South Africa, France (7)	Malaysia, Mauritius, Hong Kong (20)	Ethiopia, Barbados, India, Chile (100)	ACF, IEQF, etc.
Key characteristics	Strongly influenced by new approaches to learning outcomes and competency approaches	Period during which TQFs started to develop; regional conventions provide an important basis for collaboration; some separation from provision	RQFs are increasingly developed and influence NQFs; more sectoral frameworks emerge; referencing between NQFs and RQFs (mainly in Europe) increases	RQFs continue to influence NQFs; sectoral frameworks gain more traction; convergence of some recognition methodologies such as credential evaluation and professional and occupational standards; continued shift to learning outcomes; more inclusive of non-degree credentials
Strengths	Pioneering frameworks; strong initial support from stakeholders	Learned from the mistakes of the first generation; strong impetus for regional collaboration	More involvement of social partners	Improved conceptual clarity of domains of learning; 'competence' viewed as too limited
Weaknesses	Pragmatic (non-scientific) approach followed leading to weak conceptual basis	RQFs start to exert overly strong influence on NQFs	Too much policy borrowing	Too soon to say

Source: authors

This section has explored four of the more recent approaches to the recognition of learning. It has been shown that representation, as a concept that attempts to improve transparency by providing more information related to learning, may be difficult to implement at present, but that there are certainly some examples of developments in this direction. The specific examples discussed were the Europass and digital badges. This is clearly a new field with huge potential for our understanding of learning in the twenty-first century, and it is also an important consideration for how a set of world reference levels can be developed. The referencing of qualifications frameworks was also discussed, and it was emphasized that this is a relatively new methodology, but certainly one that will contribute to increased transparency when qualifications systems are compared. Online credentials and international qualifications were also discussed. Both these developments are gaining traction across the globe and cannot be ignored. The potential emergence of a fourth generation of qualifications frameworks was also discussed.

This section on the future possibilities concludes Chapter 4 and the discussion on concepts related to levels and level descriptors which form the main body of this report. Other concepts that were discussed included the interrelationship between different domains of learning (specifically KSC), a range of recognition methodologies (specifically qualifications frameworks), and how levels of learning can be described. Chapter 5 provides an overview of the main findings and their implications for the proposed world reference levels.

CHAPTER 5

IMPLICATIONS OF THE RESEARCH FINDINGS FOR WORLD REFERENCE LEVELS

In this final chapter of the report we reflect on the findings and implications of this global study on the use of level descriptors in the twenty-first century. We note that world reference levels have to be forward looking, since there will be at least a five to ten-year time lag before these levels become a reality. Basing the reference levels only on existing thinking will not suffice. Even qualifications frameworks, which have only been in place for the last twenty years, may not be developed in their current form in the future, as was pointed out in the Chapter 4. The development and education post-2015 agenda with a time frame of fifteen years (up to 2030) offers a much more realistic timeline. For this reason the reference levels must embrace not only new understanding of KSC, but also new ways in which learning can be represented using learning outcomes. Digital badges will undoubtedly form an integral component of this future scenario.

We also need to consider how linguistic, cultural and socio-economic differences can be addressed in a set of descriptors (these were issues raised by V. Rein and others during our research). Social valuing is an important consideration when sectoral and national level descriptors are developed, and is also relevant to regional descriptors, albeit at a higher level, at which regional commonalities can be identified. On a global level this task becomes nearly impossible. The formulation of indicative levels with illustrative examples may go some way towards addressing this challenge, but it will remain a concern. As mentioned before, the degree of generality of the world reference levels will be one of the most critical features that will contribute to the success or failure of the initiative (as was commented by J. Shackleton).

Another key consideration is the economic relevance of the world reference levels. Linking the levels to some form of economic benefit will contribute directly to their use and applicability. In this regard it will be important for UNESCO to collaborate with the OECD, the ILO, the International Monetary Fund (IMF), the World Trade Organization (WTO) and the World Bank to embed the descriptors in international metrics, and to provide empirical evidence of the social and economic impact the descriptors have.

The chapter comprises the following sections: the form of the proposed world reference levels based on the findings of the research; the purpose and added value of the world reference levels; the limitations of the research; and a brief reflection on the way forward.

Table 10 summarizes the use of learning outcomes in the recognition methodologies discussed in this study, and is referred to in the text that follows.

Table 10: The use of learning outcomes in recognition methodologies

	Recognition methodology						
	Qualifications frameworks	Regional conventions	Credential evaluation	Professional and Occupational standards	Learning metrics	Occupational classification systems	Educational classification systems
Examples	NQFs, RQFs	Europe, Africa, Latin-America and the Caribbean, Asia-Pacific, Arab States	ENIC-NARIC Country agencies	Teacher professional standards, TnSS, Tuning	LMTF, STEP, PIAAC, PISA, WSSS	ISCO, O*NET, ESCO	ISCED, SBS, graduate attributes
Purpose	Classifies and regulates qualifications	Guides recognition of qualifications	Evaluates comparability of qualifications between countries	Sets agreed benchmarks for professions and occupations	Provides empirical evidence of the level of skills	Classifies occupations and groups of occupations for statistical purposes	Classifies educational programmes for statistical purposes
Scope	Formal qualifications	Mainly higher education qualifications	Formal qualifications	Mainly regulated professions and occupations	Youth to adults	Occupations and sets of occupations	Formal learning programmes
Organizations involved	Government or regional agency	UNESCO, international and regional bodies	Country agencies	Sectoral bodies	OECD, World Bank, UNESCO, international agencies	ILO, labour ministries, statistical departments	UNESCO, OECD, regional agencies

	Recognition methodology						
	Qualifications frameworks	Regional conventions	Credential evaluation	Professional and Occupational standards	Learning metrics	Occupational classification systems	Educational classification systems
Domains	Predominantly KSC	Not used	Not used	Variations of competences	Specific focus areas such as numeracy and literacy	Coding for statistical purposes	Coding for statistical purposes
Levels	Described by level descriptors	Conventional educational distinction (general education, TVET and higher education)	Shift towards qualifications frameworks methodologies	Progression across professional and occupational designations (e.g. technician, technologist, engineer)	Progression across focus areas	Skill level and skill specialization (ISCO)	Broad fields, narrow fields and detailed fields (ISCED)
Trajectory	Since 1990s	Since 1970s	Since 1950s	For many centuries although in different forms	Since 1960s	Since late 1980s	Since late 1990s
Conceptual base	Learning outcomes	Political agreements	Substantial difference	Competences	Skills and competences	Skills and sets of skills	Competences, but also time-based
Shift to learning outcomes	Yes, integral to QFs	Gradual	Gradual	In many instances	In some instances	Gradual	Gradual

Source: authors

Findings related to the domains of learning

An important aspect related to KSC is the manner in which these concepts are grouped and categorized. Also referred to as domains, these groupings are widely used in the formulation of level descriptors, and in other recognition methodologies. This is a summary of the main domains used, drawing on the earlier discussion presented in this report.

When we look at the use of domains in sectoral, national and transnational qualifications frameworks, we can see a significant degree of convergence. Despite the fact that many RQFs are still in the early stages of development, the KSC domains are widely used, and their use leads to the same complexities as were outlined above. A distinguishing feature of domains used in the meta-level qualifications frameworks is the inclusion of a wider set of competences, such as autonomy, responsibility, communication, and social, professional and vocational competence. This is not to say that these competences are not used in NQFs, but rather that they feature more prominently in the level descriptors of RQFs. This can be partly ascribed to the role of TQFs in acting as translation devices and reference points. A related characteristic is that the descriptors are more generic on a transnational level. This is discussed in detail in the next section of the report.

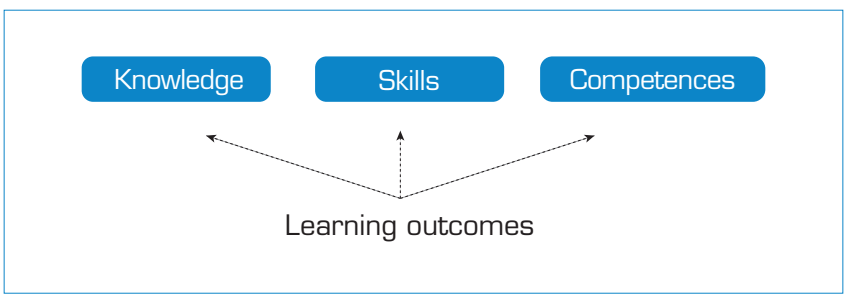
It is also useful to compare the use of domains in qualifications frameworks and other recognition methodologies. Here the obvious observation is that the purpose of the methodology has a direct bearing on the domains that are used. So for example, learning metrics (such as PISA, STEP, LAMP and PIAAC) include specific focus areas such as numeracy and literacy, while occupational classification systems include job and worker-related domains (see for example O*NET and DESCO). The KSC distinction is generally not evident outside of qualifications frameworks, although there is recognition that more research is needed in this area to improve conceptual clarity. There are however some exceptions. Tuning uses key competences and programme learning outcomes that shows strong alignment with the way in which these concepts are used in qualifications frameworks. Initiatives such as INSSO and WorldSkills use variations of KSC in their standards. WorldSkills in particular has introduced the notion of 'excellence for competency', which attempts to address some of the limitations of overly behaviouristic formulations of learning outcomes experienced in the qualifications framework environment.

There is a real risk that the use of learning outcomes to describe the domains prevalent in most qualifications frameworks is based more on pragmatic than methodological considerations (see the earlier discussion drawing on the work of Bohlinger, 2008, and Moll, 2009). The point is well made, and it is evident from the majority of qualifications framework literature that much of the conceptual work to date has been done in a 'flying blind' manner (Coles et al., 2014). Adjustments have been made as lessons have been learned from the early starters, but the lack of thorough methodological work is a serious shortcoming that will have to be addressed going forward.

The following implications for the world reference levels follow from the findings related to the different domains of learning:

The KSC domains are the most widely used, and could also be considered as the most appropriate for the world reference levels. All three domains can be described using learning outcomes, or sets of learning outcomes. There are however a number of factors that must be considered.

Figure 6: Learning outcomes and KSC domains in the proposed world reference levels



Source: authors

Care should be taken to avoid undue overlap between the three domains. This is not to say that overlap should be avoided completely. This will not be possible, as is evident in the current practice. But the following distinctions should be borne in mind when writing learning outcomes for each of the three domains. Knowledge is primarily about the ability to recall and present information; skill is primarily about the ability to do; competence is primarily about the application of knowledge and skill in context.

The competency domain can be divided into subdomains if necessary. A useful categorization is affective, core and applied competences, but there are also others. Deij (in written input to this study) suggested that understanding of the competence domain should go beyond the understanding of autonomy and responsibility. He noted German and French examples that include social and personal competences. The formulation of core competences has some similarity with transferable skills, which can be further developed. Affective competences could be retained as a separate subdomain, although more work will be required to determine the usefulness of such a decision. As was pointed out earlier, the affective competence subdomain of competence focuses on personal, behavioural and attitudinal attempts to include a specific focus on those competences, which are perhaps best assessed collectively. This subdomain is also related to the notions of 'learning to live together' and 'learning to be' espoused in the Delors Report (UNESCO, 1996), as well as global citizenship education. Applied competence is the best developed subdomain, and could be retained as a subdomain of the world reference levels.

The notion of sustainable development and global citizenship (also referred to as 'living together' in the Delors Report) could be embedded in the parts of the KSC domains, but considering the global nature of the world reference levels, it is rather proposed that global citizenship be included as an explicit cross-cutting focus area. The development of this focus area will benefit from a closer scrutiny of formulations used in recognition methodologies other than qualifications frameworks. The Tuning Project, the work of the LMTF and the WorldSkills Standards Specification will be valuable in this regard.

Transferable skills (also referred to as critical cross-field outcomes, key competences and core competences) are an important (sub)domain that should be considered in the world reference levels. The inclusion of transferable skills will also address the problem of overly behaviouristic formulations of learning outcomes. Good practice in the Asia-Pacific region in integrating transferable skills into education policy should be further researched to support the development of the world reference levels. The unique interplay between worker-oriented and job-oriented dimensions in the O*NET content model is also a feature that warrants further interrogation, which may contribute to understanding in this area. The debate on context dependency as it relates to transferable skills is not fully resolved, and as such, it is

suggested that more research is undertaken in this area. Based on such findings, it may be preferable to also develop transferable skills as an explicit domain (similar to global citizenship discussed above). It may even be possible to apply some of the findings to the other domains (knowledge, competence and global citizenship), but this is not clear at this point.

Thematic linkages within a level and across domains, such as used in the ASEAN regional qualifications framework, are worth considering to improve readability and application.

Table 11: Level 2 descriptors of the ASEAN RQF

	Knowledge and skills	Application	Responsibility
	Demonstration of knowledge and skills that:	*Applied in contexts that:*	*Where there is:*
Level 2	Are factual and based on standard techniques	Are structured Involve resolving familiar issues	Routine supervision Some discretion or judgement

Source: ASEAN, 2014

World reference levels should be pitched with the most appropriate degree of generality. This will in all likelihood be the one aspect that will determine the success or failure of the world reference levels. If the descriptors are too specific they will conflict with regional, national and even sectoral interpretations. If they are too minimal they will have little applicability. Extensive testing will be necessary to fine-tune this aspect of the world reference levels.

To make an overly behaviourist formulation of the world reference levels is a pitfall that should be avoided. Current experience suggests that this can be avoided by focusing on the differences between competencies (with a behaviourist orientation) and competences (which focus on the underlying structural capacity and take

into account the context in which the learning is cultivated). The work of Wenger (2007), Engeström (2001), Biggs and Collis (1982), Pastré and colleagues (2006) and Illeris (2003) can provide guidance. Furthermore, it will be of value to the proposed world reference levels to consider the application of learning outcomes not only in level descriptors, but also in curricula and assessment tools, to fully understand the complexities related to behaviourist and constructivist formulations. Such a task could be completed as complementary research to inform the proposed world reference levels. Practical examples and analysis of the formulations, as well as suggestions on how best to avoid pitfalls, could also be of value to policy-makers and practitioners involved the formulations of learning outcomes across a range of disciplines. This is also a current debate in ESCO, where an argument is being made for a narrower task orientation leaning towards more behaviouristic formulations.[38]

The different understandings of competence across Anglo-Saxon, Germanic and French tradition are also useful, but should be further developed and also encompass the Latin American tradition. Further research into this area is recommended, as it requires a careful interrogation of the different traditions which lies outside the scope of this research, but will undoubtedly be very valuable to the proposed world reference levels.

It may be useful to consider adding exemplars from various countries and regions to the world reference levels. This will make the different domains more accessible to policy-makers and other role-players.

Lastly it is important to caution against the pragmatic approach, at the expense of methodological considerations, which has permeated qualifications framework development to date. While a set of world reference levels will have to develop though some degree of pragmatism, there is sufficient experience to draw on internationally to avoid falling into this trap.

In summary, it is proposed that the world reference levels be based on the domains given in ***Table 12*** (with subdomains) as a basis for the formulation of its level descriptors. The subdomains listed here could be simplified following some testing.

38 Pers.comm., J. Bjornavold, 20 March 2014.

Table 12: Domains to be considered in the world reference levels

Domain	Defined as…	Sub-domain	Defined as/ comments…
Knowledge	The ability to recall and present information	No explicit subdomains are proposed	The existing categorizations and forms of knowledge can be accommodated in the broad domain as is the current practice; this decision could be reviewed at a later stage
Skill	The ability to do in context	Foundation	Skills which emphasize literacy and numeracy
		Transferable	The application of universal knowledge and skills across a range of social, work, and geographical settings. This domain may at a later stage be further developed into a separate domain
		Technical and vocational	The specific technical know-how to do jobs
Competence	The application of knowledge and skills in context	Applied competence	Includes foundational competence that focuses on intellectual/ academic skills of knowledge; practical competence that focuses on the operational context; and reflexive competence that focuses on learner autonomy
		Affective competence	Personal, behavioural and attitudes competences that include a specific focus on those competences that may be best assessed collectively

Source: authors

Considering the global perspective inherent in a set of world reference levels, it is further proposed that global citizenship be explicitly included as a focus area across all the domains. The option of including global citizenship as a separate domain was considered during the research, but following engagement with reviewers, specifically regarding the addition of a fourth domain, the proposal was revised.

Global citizenship is defined as follows:

> A unique set of cross-cutting knowledge, skills and competences that enables an individual to act collaboratively and responsibly, to find global solutions to global challenges, and to strive for the collective good.

The following key focus areas could be considered: sense of belongingness to common humanity, respect for diversity; a deep knowledge of global issues and universal values such as justice, equality, dignity and respect; global empathy, and a sense of solidarity; and behavioural capacities to act collaboratively and responsibly to find global solutions to global challenges, and to strive for the collective good. Further work that lies beyond the scope of the present research will be required to fully develop this focus area. As was pointed out several times in this report, there is however a strong basis which can be drawn on during such a process.

Findings related to setting levels of learning

Two important concepts in the proposed world reference levels are 'level' and 'reference'. Reference suggests a comparison with other similar systems, while level refers to a hierarchical classification of some form.

In the case of referencing, it is useful to interrogate the emerging methodology being developed as more qualifications frameworks are being compared with each other. An integral component of the referencing criteria is the comparison of the level descriptors of the two frameworks. So for example in the referencing process between South Africa and Malaysia, which was underway in 2014, the following criterion is being used:

Criterion 2: Alignment of levels

Clearly demonstrate links between the descriptions of levels and qualifications in the MQF and SANQF.

Key focus areas:

– Mapping of the level descriptors;

– Comparison of qualifications based on the principle of substantial difference;

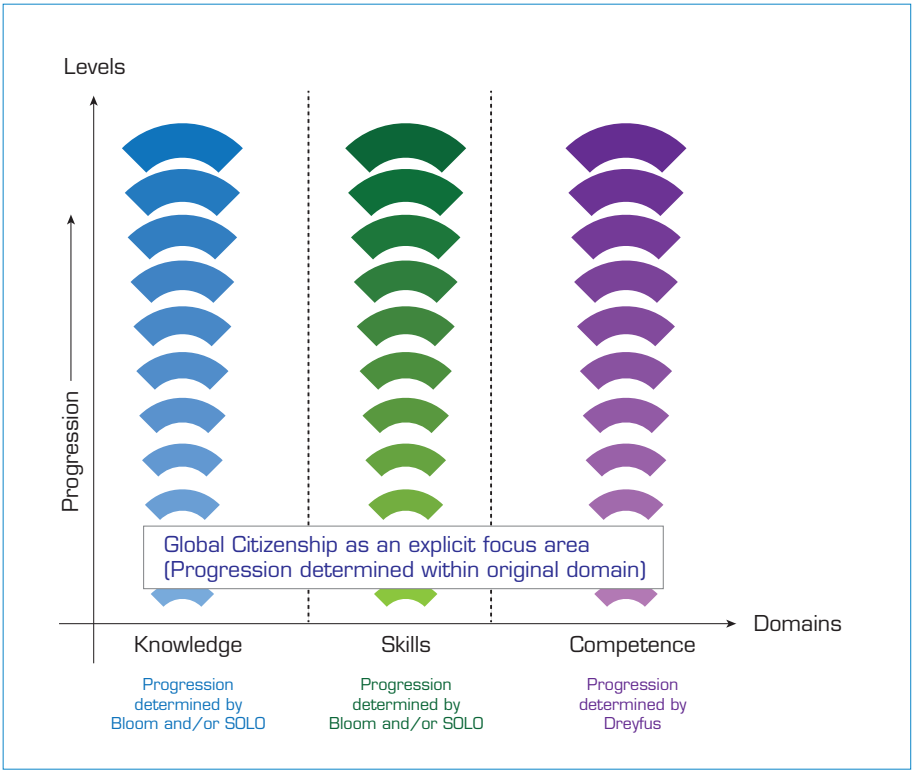
– Development of a comparability table.

In the referencing process between the EQF, QF-EHEA and the NQFs in Europe a similar criterion is used:

> There [should be] a clear and demonstrable link between the qualifications levels in the national qualifications framework or system and the level descriptors of the European Qualifications Framework.

The concept of level has been a key focus of this research. It has been shown that the use of 'strands of learning outcomes' (NQAUAE, 2012, p. 13) can improve the distinguishing features applicable between and within levels, which in turn facilitates the alignment of qualifications. A key finding of this research is that the application of the same level-setting methodology across different domains is possible, but is also very limiting. It has been proposed that progression in the knowledge and skills domains, and the competency domain, be treated separately but also in an interrelated manner. The proposed global citizenship domain should be an explicit focus area that spans the three domains, but mainly from the competence domain, and learning outcome formulation should take place according to the progression of the individual domains.

Figure 7: Progression across domains in the proposed world reference levels



Source: authors

As noted in Chapter 3, it is not a straightforward task to determine progression across different domains, using different conceptual orientations, and to do this in an interrelated manner. More work will be required to inform the development of the world reference levels in this way.

At the core of a comparison of level descriptors, and the progression across different domains of learning, is the ability to compare learning outcomes, which can be understood as:

> Statements that describe the different types of learning required from a learner.

Level can be defined as:

> The increased complexity of process, learning demand, responsibility, and application of different types of learning.

And a level descriptor as:

> A statement, using learning outcomes, that describes learning achievement at a particular level of a qualifications framework and that provides a broad indication of the types of learning that are appropriate to a qualification at that level.

Keeping in mind that learning outcomes are formulated with either a behaviourist or constructivist orientation, and that these two orientations are in theory incommensurable, a comparison has to be approached with caution. Some considerations that will assist in such a process include drawing on the progression approaches across the different domains. In the case of knowledge and skills, the Bloom taxonomy (Bloom and Kratwohl, 1984) provides a tried and tested model. Although this approach may be regarded as outdated, its revision in 2001 has ensured that it has remained relevant. In the case of competences, the Dreyfus model of skills *acquisition* (Dreyfus and Dreyfus, 1986) provides a similar well-accepted description of progression of competences.

The following implications for the world reference levels follow from the findings related to the levels of learning.

Referencing processes and methodologies that are increasingly being used when qualifications frameworks are compared should be analysed to determine the implications for the proposed world reference levels. While it is recognized that these methodologies are still relatively underdeveloped, there are enough examples that can be analysed. Two related aspects should be considered here: the development of comparability tables (essentially a matrix that shows the alignment between two qualifications frameworks and the qualification types on each);[39] and the application of the concept of substantial difference (taken from the credential evaluation context) to the comparison of learning outcomes contained in two sets of level descriptors. An example of a comparability matrix is currently being developed in the South Africa–Malaysia benchmarking process, while the notion of substantial difference has been used in the New Zealand–China referencing process (also currently under way).

39 See for example the alignment between the Irish and Australian qualifications frameworks: http://www.nqai.ie/documents/Irel-Auspublishedreport.pdf

Table 13: Extract from the comparison of New Zealand and Chinese vocational qualifications

New Zealand qualification	Chinese Assessment Standard	Similar or substantial difference
The National Certificate in Health, Disability, and Aged Support (Senior Support) (Level 4) is designed to recognize the knowledge and skills required for senior support workers in a health, disability, or aged care setting	First aid, critical disease nursing, health education, rehabilitation training, leisure activities, mental health, emotional counselling, nursing training and operation guidance	*To be determined during the referencing process*

Source: NZQA, 2013

The different conceptualization of progression across domains should be considered across the four proposed domains of the world reference levels. Progression in the knowledge and skills can be described using the Bloom taxonomy (see Bloom and Kratwohl, 1984, and Anderson, 2005), and the progression in the competences domain with the Dreyfus model of skills acquisition (Dreyfus and Dreyfus, 1986, and Lester, 2005). The interrelatedness of the descriptors through progression across the levels will have to be planned through a synchronized approach, but as mentioned earlier, there should be sufficient overlap in the knowledge and application of knowledge domains to steer this process.

Progression in the global citizenship domain, as a cross-cutting domain, will have to be approached with some caution. It is proposed that the KSC domains are first developed, including the progression across each (as described above), and that learning outcomes across a number of levels that are relevant to global citizenship are then extracted. This will have to be done with care to ensure that the progression across the remaining outcomes is not disrupted, while making sure that the extracted learning outcomes also form a logical sequence. This approach will have to be tested in practice.

While it may seem obvious, the involvement of social partners in the development of level descriptors is an absolute necessity. The current research by the ILO (2014) will be important to follow in this regard. Some useful insights relevant to the world reference levels include:

- Social partners should be involved in the early stages of level descriptors, but probably less so during implementation;
- Sectoral initiatives and human resource-related tools provide the tangible mechanisms through which level descriptors to be understood. In this regard targeted interventions with specific sectors could provide an important basis for the world reference levels.

Another consideration for the world reference levels derives from the SBSs and the WSSS, where high-level skills are identified, including a focus on 'excellence for competency'. SBS and WorldSkills have clearly engaged with some of the challenges associated with the formulation of level descriptors and level-setting. Collaboration in this area will prove to be mutually beneficial.

Another consideration for the development world reference levels is that there should be a focus on indicative levels, with examples, rather than too rigid and prescriptive formulations. This suggestion is in line with the earlier proposal to include exemplars from various countries and regions. No specific example of such an indicative model was identified during the research, but some that can be considered might be discovered through a broader literature review.

The findings further suggest that linking level descriptors too closely to specific occupations will not be useful, nor is there any strong evidence to suggest that different sectors require different types of level descriptor.

The distinction between a best-fit and end-point application of level descriptors must also be borne in mind. These two approaches are very different and will impact on the manner in which the level of a qualification is understood.

Lastly, the limitations of level descriptors cannot be ignored. Level descriptors are constructed from learning outcomes, which also have limitations, notably the extent to which non-observable behaviours can be described, which tend to result in overly behaviouristic formulations, as was pointed out on several previous occasions. The same limitations will be present in the world reference levels.

Findings related to future possibilities

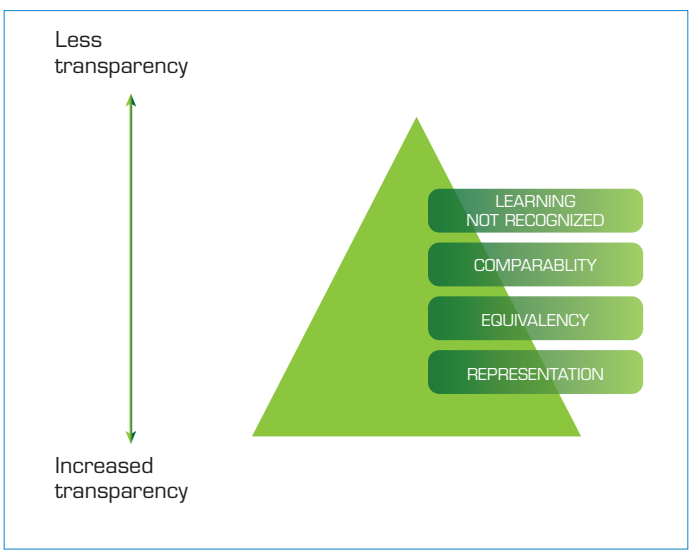
Four key future possibilities were explored in this research: representation as a manner in which to improve transparency, the referencing of qualifications frameworks (this was discussed above), online credentials, and international qualifications.

Representation is defined as:

> Representation is a proxy for the types of learning outcome acquired and mastered by an individual, which include, but are not limited to, qualifications.

The idea underlying representation is that qualifications are becoming *less* important in matters of work progression, but *more* important in matters of international mobility (Bjornavold and Coles, 2010). Representation therefore attempts to include more than a description of the KSC domains, such as the changing value of qualifications in certain settings, the occupational standards on which the qualification is based, the extent to which social partners contribute to the design and assessment of the qualification, the extent to which non-formal and informal learning is recognized, the quality of the providing institution, and the extent to which learning has advanced since the award of the qualification.

Figure 8: Levels of transparency



Source: authors

As was also mentioned earlier, the Europass CV and Skills Passport are excellent examples of how representation can be applied in practice. These principles should be considered in the development of the world reference levels, perhaps not so much in the development of the descriptors, but certainly in the broad consultation and political processes that will follow.

Online credentials represent another example of how transparency can be improved. Although online credentials, notably open digital badges, present significant challenges to current quality assurance regimes, they cannot be ignored. If the world reference levels embrace this development, which is arguably necessary, care will have to be taken to mitigate the risks.

The last aspect related to future possibilities is international qualifications. Described as 'non-state qualifications', there is a clear trend towards more of these qualifications being offered across the globe. As CEDEFOP noted (2012, p. 69), it is going to be necessary to focus on the 'crossroads of transparency and quality'. The risk of devaluing national systems is very real and cannot remain unattended to. Sectoral qualifications frameworks and conformity assessment standards do however offer some options that can be considered.

The following implications for the world reference levels follow from the findings related to future possibilities.

World reference levels will have to embrace the notion of representation. This is clearly the future trend and cannot be ignored by an initiative that also aims to be future-oriented. The difficulty lies in the best way to go about this. Europass is clearly an excellent example which complements the qualifications framework development in Europe, but the world reference levels will be not be associated with an international qualifications framework, at least not in the near future. Perhaps an option could be to draw on another new development, digital badges. A challenge in this regard may be how the existing understandings of qualifications (as formal learning) may be 'solved by an extension of the term qualification to other forms of learning or by the substitution by broader defined terms like credentials' (see for example the concept of the US Credentials Framework) (as V. Rein suggested during our research).

There are many potential advantages if a set of world reference levels, developed and overseen by UNESCO, includes collaboration with a leading provider of online badges, such as Mozilla or CrowdFlower. The collaboration would provide increased credibility if a set of online badges were to carry some form of endorsement from UNESCO, while the world reference levels would also be seen as a less abstract concept with real implementation possibilities.

World reference levels can also contribute directly to the manner in which international qualifications are developed and offered. A 'meta' or global standard against which all other descriptors can be benchmarked, including both state and non-state qualifications, will provide some commonality and contribute to transparency. World reference levels on their own will however not be enough to address some of the concerns associated with international qualifications. The challenge requires governments to carefully consider their approaches. The two extreme examples mentioned earlier exist – a free zone where only very limited national requirements are imposed, and the need to meet all national requirements – but perhaps over time a better model will be found.

The form of the proposed world reference levels

This research has been conducted primarily to inform the conceptual development of the proposed world reference levels. The key insights gained from the research that should be considered during the development of the world reference levels are discussed below.

The idea of the world reference levels is contained in the Shanghai Consensus Recommendation of 2012 (UNESCO, 2012). This very recent agreement, which was followed by further deliberations in Brussels in 2013, posed specific questions relating to the manner in which a lifelong learning perspective can be applied, how non-formal and informal learning can be included, and how the legitimacy of the descriptors can be ensured. Having considered all the complexities associated with this terrain, we would define the world reference levels as follows:

> A set of hierarchical statements, using learning outcomes, that describe levels of learning achievements across different types of learning sufficiently generalised to be applied internationally.

Three types of learning (also referred to as domains of learning) have been identified and proposed as integral to the world reference levels:

- Knowledge: the ability to recall and present information that is described using learning outcomes;
- Skills: the ability to do in context that is described using learning outcomes;

- Competences: the application of knowledge and skills in context that is described using learning outcomes.

In addition to the three domains, global citizenship has been proposed as a focus area that covers all three domains, and that enables an individual to act collaboratively and responsibly, to find global solutions to global challenges, and to strive for the collective good (UNESCO, 2014*b*).

Other possibilities for organizing the domains of the world reference levels have also been suggested. Coles proposes[40] only two domains. This will entail the combination of the knowledge and skills domains, which is not improbable as these two domains share some common characteristics, notably in terms of progression. However the difference in the ability to recall and present information (knowledge) and the ability to do (skills) remains a feature that will limit this possibility. The reconceptualization of the competence domain to cover complexity of context and also global citizenship will also be required. This is a useful suggestion that warrants more attention going forward, as it does point towards a more generalizable model. Rein argues for a single domain of competence in which knowledge and skills are contained.[41] Drawing on experience in Europe and the USA, Rein criticizes the EQF structuring of domains and warns against making the same mistakes with the world reference levels. He suggests a range of subdomains in the overarching competency domain. While this is also an important consideration, it partly contradicts the findings of this report, which in turns warrants a careful reflection on the findings and the extent to which the report provides a sufficient base for the world reference levels. Some disagreement in this area will be a healthy tension that will have to be managed as further conceptual work takes place on the world reference levels.

Handling progression in the proposed domains calls for a distinction between progression in the knowledge and skills domains, based on the Bloom taxonomy, and progression in the competence (and global citizenship) domain, based on the Dreyfus model of skills acquisition. Furthermore, the progression assumes that learning outcomes are cumulative by level.

It has also been proposed that the world reference levels, which are by default decoupled from a qualifications framework, be directly associated with the proposed global convention for the recognition of higher education qualifications being investigated by UNESCO following the UNESCO 37th General Conference held in 2013. The world reference levels should be located in the context of such a new global recognition convention, but this convention must be modern and take

40 In an interview conducted on 4 April 2014.
41 In a written response to interview questions.

new developments into account such as massification of education, new quality assurance models introduced through qualifications frameworks, and the need to make a strong separation between provision and the levels.[42] By their very global nature, world reference levels are well positioned for this purpose, having no link to provision, but several links to qualifications frameworks and also new developments.

As mentioned above, another strong rationale for the world reference levels lies in their ability to align with trade and economic developments. Trade and mobility of people are the key drivers of modern economies, and a set of world reference levels has the potential to facilitate the mobility of people and jobs by simplifying the processes associated with the recognition of qualifications. These could otherwise bring problems to individuals and countries. (Examples include refusal of entry, inappropriate rates of pay and poor utilization of skills.) This potential enhancement of transnational mobility is another very important rationale for the world reference levels.

Another point to consider related to the rationale for the world reference levels is that they should be driven by a humanistic and development perspective. An overly technical approach better suited to the twentieth century will not succeed. In this regard the consultation process will have to be carefully managed. Here it is important to note that the ultimate aim will *not* be consensus, as this will be an impossible task. This was noted by McGregor (2014, p. 4):

> A single set of [global] standards would require unanimity and consensus, would need to recognise the uniqueness of different countries and institutions, and would need to avoid the same standards of excellence for all institutions.

Considering the challenges with such a global consultation, consensus will be virtually impossible. Of more value will be the buy-in of key partners, and agreement on the broad principles, but not the content, of the world reference levels.

A useful proposal in this regard is to start with one sector, such as higher education, TVET or even certain sets of occupations that are more homogenous on a global level, such as ICT, the petroleum industry, the automotive industry, transportation or the hotel sector.[43] A catalyst will also be needed for the next two to three years. The UNESCO processes currently under way may be sufficient to gain some traction during this early period. A strong signal to the international community will also be necessary. The ENIC-NARIC networks may provide a useful platform for this purpose. Social media attention, beyond the scope of formal bodies, should also

42 M. Coles, interview, 4 April 2014.
43 Suggested by A. Aerden, interview, 10 April 2014, and D. Atchoarena, pers. comm.

be considered,[44] as social media impact on an individual rather than institutional basis. The direct involvement of social partners operating at the global level such as international trade organizations and international worker organizations is also necessary. Although an attempt was made to involve such partners in the research, little progress was made. This will clearly not be a straightforward matter.

The next step in the process will be more of a political nature to ensure legitimacy:

> In national [qualifications] frameworks [quality] questions are very thorny and contentious issues. Scale it up to the international level and for me it would be something that would be impossible to decide. I don't know who would have the legitimacy to come up with a set of standards internationally. (Sursock, in McGregor, 2014, p. 3)

UNESCO has the mandate and the legitimacy to undertake this task, but the involvement will have to be broadened to include other key international players, such as the OECD, the ILO and the World Bank, and also the social partners operating on an international level.

Lastly, world reference levels should serve individuals and not only systems. World reference levels can be used for a potentially limitless number of people regardless of where they are and regardless of where the set of individual learning outcomes is developed. In conjunction with other tools (such as electronic badges), world reference levels can help individuals to find a way to capture their learning and transport it across contexts and borders.

The purpose and added value of the world reference levels

The purpose of the world reference levels lies mainly in their potential to fill gaps and provide an independent reference point against which a level of learning can be compared internationally. There is a clear indication that the recognition of learning in the future will embrace new methodologies, many of which are still underdeveloped today. A set of world reference levels, *with the clear purpose to describe levels of learning achievements across different types of learning on a global level in order to promote the recognition of learning in a context where both people*

44 A. Deij, written input to this study.

and jobs have become, and will continue to be, increasingly mobile, has become a reality. The globalization of education and training, as well as the recognition of types of learning through open badges and other new approaches, creates a need for a reference point that can be used by different organizations across the world.

The EQF has started to fill this void in recent years,[45] but it remains a European model embedded in the European Union governance structures, in that is limited in its ability to embrace differences on an international level:

> In view of the ever-increasing importance of informal learning and of general orientation towards competences on the one hand and, on the other, the inadequacy of existing classifications of occupational and education that has been revealed by the EQF, the question arises whether we do not now have an extremely urgent need for a similar international standard classification of skills (ISCS), which at least takes account of these two dimensions .... If we end up with an international standard classification of skills and competences, not only would the world of science and academe and the political world have learned something, but the EQF itself would also have become much more powerful and would represent a coherent explanatory model. (Markowitsch and Messerer, 2008, pp. 51–5)

According to Coles,[46] the EQF levels are increasingly seen as 'generalisable indicators' of levels of learning. According to Coles, the fact that the EQF levels are not directly related to the levels of qualifications (as opposed to NQFs, where the qualification types are directly related to levels), provides the opportunity to see the EQF as a 'shared hierarchy that allows comparisons of any kind of learning' or a 'common metric'. A set of world reference levels can however also fulfil this purpose, and in a more balanced manner, as the strong European influence will be moderated. The reference levels will however have to be forward-looking, as the proposed global consultation will take at least five years, at which point the currently emerging methodologies will be better developed. One idea in this regard is to develop the world reference levels through a highly consultative and overtly electronic process, drawing on some of the lessons learned during the work of the LMTF.

The EQF level descriptors have resulted in another unintended consequence, as new developments, mainly in Europe and neighbouring regions, but also further afield, have tended to use these descriptors as a template. In some instances the EQF level descriptors are copied quite extensively into the country descriptors. This policy-borrowing results in the avoidance of the very necessary consultation processes, and

45 M. Coles, interview, 4 April 2014.
46 Interview, 4 April 2014.

the associated compromises that underpin level descriptors.[47] The incongruence of NQF level descriptors with the EQF level descriptors, which could potentially result in limited comparability, is also avoided. This results in similarities based on political decisions, which do not necessarily reflect the context or the need of the country concerned.

The added value of the world reference levels lie in their ability to provide a reference point for existing recognition methodologies, such as qualifications and qualification frameworks. NQF and RQF development could benefit from an internationally agreed reference point, including how progression within domains are defined. New sectoral frameworks also stand to gain from such a reference point, as many of these frameworks are gaining international traction. The internationalization of trade linked to the increased mobility of people and jobs, as well as programmes and institutions, will also be influenced.

Other examples include impacting on the quality of multinational and international qualifications, many of which at present remain completely unregulated, and have the potential to devalue the entire qualifications system. The world reference levels have the potential to provide a neutral and internationally agreed reference point that can be better understood by the public and that will imbue confidence in the system. Another example is in the area of credential evaluation, where a common international reference point can be included to strengthen existing methodologies. This applies too to the shift toward learning outcomes and the need for a common language. More examples include supporting the referencing of qualifications frameworks, and also the move towards representation, which is gradually gaining traction, as is evident in the Europass CV and Skills Passport.

World reference levels certainly also have the potential to facilitate the recognition of non-formal and informal learning (RNFIL). While there is a risk that formal systems in the industrialized world will receive the most benefit,[48] increased international awareness and understanding of learning and the methodologies used to recognize learning can promote RNFIL. In this manner the world reference levels can contribute directly to the post-2015 agenda on education and development.

The world reference levels should broadly aim at supporting the mobility of learners and workers, participation in labour markets and lifelong learning. They could facilitate equity in recognition by including quality assurance principles while addressing the challenges of inter-regional mobility through capacity-building, development of shared orientation materials and the establishment of networks

47 A. Deij, written input to this study.
48 A. Deij, written input to this study.

and communities of practice. They could raise the profile of promising recognition practices among stakeholder groups, and highlight the inefficiencies caused by barriers to recognition. They could establish a framework for information provision, which is the basis of building mutual trust, an issue that is amplified at the global level. The world reference levels should complement NQFs and RQFs, and motivate monitoring of regional and international development.

The world reference levels need to be more than just level descriptors with no or little effectiveness in serving these goals. They could encompass several components, including:

- A set of level descriptors;
- Guidelines and orientation resources;
- Quality assurance guidelines.

Depending on the scenario that is adopted, these components can be further supported by two other enabling structures: a platform for a community of practice and knowledge sharing (networking), and monitoring/oversight structures.

These components are all envisaged in four scenarios and goals that can be attained progressively:

1. Reference point – world reference levels can contribute by providing a common language and approach to the use of learning outcomes through peer learning and international comparative analysis and application. In this scenario world reference levels could exert substantial influence on the structure of new qualifications and sector or occupational awards, as well as the allocation and accrediting of qualifications to recognized levels;
2. Transparency tool – similar to RQFs and specifically the EQF, the adoption of world reference levels could in future make learning and the recognition of learning more transparent across countries and regions, to the benefit of internationally based organizations and companies;
3. Facilitate recognition – ultimately, the world reference levels could impact directly on the recognition of awards and qualifications and on job learning on a global level;
4. Normative – world reference levels have the potential to become a global standard against which countries, regions, industries and professions benchmark their systems.

Broadly, the degree to which the world reference levels could potentially become standard-setting instruments can be categorized into three modalities, two of which would be considered actual standard-setting instruments of UNESCO, while the first scenario would contribute towards establishing standards without requiring endorsement by Member States, and as such would not be considered as a standard-setting instrument of UNESCO) (see ***Table 14***).[49]

Table 14: Potential normative role of the world reference levels

Guidelines	Recommendation	Convention
If developed in the form of UNESCO guidelines, the world reference levels can promote a common language and approach to the use of learning outcomes through peer learning and international comparative work. In this scenario the world reference levels may influence the structure of new qualifications, as well as the allocation of qualifications to levels	A UNESCO recommendation on the world reference levels will require endorsement from Member States (and thus becomes a standard-setting instrument), accompanied by the monitoring and reporting procedures related to such instrument, but will not be considered as legally binding for Member States. In this scenario the world reference levels will directly influence qualifications and qualification systems. Similar to RQFs, the world reference levels in the form of a UNESCO recommendation could in the future make learning and the recognition of learning more transparent across countries and regions	In the form of a UNESCO convention, the world reference levels will be adopted by Member States as a UNESCO standard-setting instrument. They would also be accompanied by monitoring and reporting structures, and they will be legally binding for Member States, obliging them to translate the provisions in their internal legal order. Akin to the existing regional and proposed global UNESCO conventions on the recognition of learning, the world reference levels will impact directly on the recognition of qualifications and learning on a global level. In this scenario the world reference levels take on a normative role, as they become a global standard against which countries and regions benchmark their systems
Guidelines will not require compliance from Member States, but will encourage uniformity. The risk is that this approach may take many years to gain traction	The risk here is that dependence on one single reference point may potentially stifle new initiatives, and ignore different national and regional realities	The risk is that the ratification process could take many years

Source: authors

49 This draws on input from J. Bjornavold, 20 March 2014, and was further developed following the peer review workshop held in Paris in September 2014.

While the three scenarios are not mutually exclusive, the manner in which they are presented suggests progression from a relative weak normative role (as guidelines) to stronger roles, such as for transparency and even recognition, in the form of a recommendation or a convention.

Limitations of the research

Research of this nature is always constrained by limitations of time and resources. The report has highlighted a number of areas for further research that could simply not be completed within the existing constraints. The research questions were deliberately kept narrow in focus to contain the research:

- What are the divergences and convergences across level descriptors used in NQFs, RQFs and other contexts, such as in international surveys?
- What are the key terms associated with level descriptors and how are they defined?

As is generally the case with new research, this project also drew heavily on existing work, but with a strong focus on applicability on a global level. Specific attention was paid to literature beyond Europe, where the most work has taken place to date. This is not to say that the European research was ignored: on the contrary, all relevant work was included. Language barriers proved difficult in the attempt to look across all the regions of the world. Latin American literature in particular proved difficult to access.

Next steps

This research represents the first of four stages designed to respond to the Shanghai Consensus Recommendation (UNESCO, 2012) in which the idea of a set of world reference levels was proposed. The four-staged incremental approach to be followed included the following:

1. Technical review of level descriptors at national and regional levels;
2. Conceptual development of the world reference levels;

3. Broad consultation;

4. Political process that will explore the technical and legal aspects relating to the desirability of defining and adopting world reference levels.

The research presented in this report completes Stage 1. The conclusions of the research will be discussed with a network of international experts and organizations concerned with the issue of level descriptors, and more broadly the recognition of learning on an international level. This work will continue in a context where rapid changes in the KSC required for the twenty-first century will continue. The landscape will also continue to change as a result of new forms of recognition, which are being created at an increasing tempo as learning opportunities become 'limitless, borderless and immediate' (European Commission, 2013, p. 2).

The wide diversity in the organizations and bodies involved in developing qualifications and using level descriptors should not be underestimated. In this context, quality assurance is the crucial dimension regarding value and recognition by the labour market. UNESCO should deepen its mapping of the approaches used for ensuring the quality of qualifications at national, regional and international levels.

During Stage 2 (Conceptual development of the world reference levels) the following issues should be considered.

An *international taskforce* can play a meaningful role in the development of the world reference levels. The taskforce could meet face to face once or twice a year, but open electronic collaboration should be far more regular and coordinated. The LMTF process can provide several useful insights in this regard. The taskforce can bring together experts in the field and representatives of international employer and worker organizations. The main mandate of the taskforce will be to propose internationally acceptable world reference levels based on a strong conceptual framework, the beginnings of which have already been put in place by the technical review of level descriptors at national and regional levels presented in this report. The taskforce should also meet regularly with the taskforce working on the recognition of higher education qualifications.

This leads to another important consideration: the intention of UNESCO (following the 37th UNESCO General Conference) to develop a global standard-setting instrument on the recognition of higher education qualifications is directly related to the proposed world reference levels. Work currently under way to exploring the scope and implementation modalities of a global convention, as well as the fit between the global convention and the regional conventions, should be aligned to this technical review of level descriptors. These two processes should be managed

in an interrelated manner by UNESCO. As was pointed out on numerous occasions on this report, and as is illustrated by the Lisbon Convention, there exists a very close relationship between regional conventions and RQFs. Likewise, there will be a close relationship between the proposed global recognition convention and the proposed world reference levels.

On a more practical level, the following initiatives could be considered to support the world reference levels:

- Setting up an international network linking the existing RQFs through electronic means and discussion forums, and involving newly created RQFs (for example ECOWAS, Latin America, ASEAN, SADC and the Pacific) as they develop;
- Developing a user guide to resolve referencing difficulties;[50]
- Engaging with the UNESCO/ETF/CEDEFOP global inventory on NQFs/RQFs as an important vehicle for access to reliable information on progress in reforming qualifications systems, regulation and quality assurance;
- Mutual and peer learning and capacity development should be encouraged and supported through initiatives, networks and countries. Substantial learning is already taking place through the UNESCO-UNEVOC e-forum and the ETF Qualifications Platform. It is very necessary, however, to upscale this learning and develop more targeted peer learning activities and capacity-building, drawing on the experiences gained through regional processes (Europe, ASEAN, Caribbean and others) and the numerous existing initiatives. The UNESCO-UNEVOC International Centre, in partnership with other similar institutions such as ILO Centre in Turin, is well placed to plan and organize these capacity-building initiatives.

The conceptual development of the world reference levels will further benefit from focused research in the following areas:

- Economic research that considers the changing nature of trade, as this will continue to be directly linked to skills and skills shortages;
- Sectoral qualifications frameworks and international sectoral qualifications, which offer a new model that can provide useful insights;
- Gathering more empirical data on the use and limitations of level descriptors;

50 A. Deij, written input to this study.

- Rethinking learning pathways within and between education and work;
- Investigating the use of quality assurance for recognizing qualifications on an international level;
- The debate on context dependency as it relates to transferable skills which is not fully resolved, so it is suggested that more research should be undertaken in this area;
- The further disaggregation of the knowledge and skills domains;
- The application of the Bloom and SOLO taxonomies to determine hierarchies in the knowledge and skills domains, and Dreyfus to the competence domain respectively – in this regard the SOLO taxonomy is least developed.

In particular it will be necessary to further develop the notion of global citizenship as a focus area that covers all the three proposed domains. This will potentially be a unique feature of the proposed world reference levels, and will require a review of existing applications (many of which have been mentioned in this report), followed by a collaborative process to agree on the KSC that best describe global citizenship.

Following a review of an earlier draft of this report, it is also clear that at least two additional focused research initiatives are required to support the development of the world reference levels. Both these areas were touched on in this report, but the scope of them proved to be too extensive to for them to be dealt with completely:

- The application and formulation of learning outcomes not only in level descriptors, but also in curricula and assessment tools, to fully understand the complexities related to behaviourist and constructivist formulations;
- A careful interrogation of the Anglo-Saxon, Germanic, French and Latin American traditions, and the manner in which KSC are defined and applied.

The assumption that learning outcomes are cumulative by level could also be considered, as it is another area that is not well conceptualized at present.

Finally, the three stages to develop the world reference levels should not necessarily be seen as sequential. It is proposed that the conceptual development of the world reference levels take place together with the initial broad consultation process, and that the political process to explore the technical and legal aspects relating to the desirability of defining and adopting world reference levels should also be initiated.

Closing comments

Clearly there is still much to be done before a set of world reference levels is in place and widely used. This report provides an important basis for the work going forward. Stakeholders and experts across the world are encouraged to critique the research so that it can be strengthened. We trust that our rather ambitious attempt to map this area will be followed by many others that will be able to deepen our understandings, and where necessary, point out where we have been mistaken. We are confident that our intention to argue for conceptual clarity is timely and necessary. As an international community we can no longer argue that this is too difficult:

> While so far we have essentially used the words knowledge, skills and competence(s) in accordance with the contexts in which they are used (EQF Recommendations and discussion, ISCED, ISCO, etc.), in what follows we cannot avoid establishing our own interpretation. At the same time, we do not wish to go to the trouble of distinguishing between competences and skills, since in practice such a distinction has no effect. The question of whether we speak here of competences, skills or abilities is a matter of taste. In each case it is their individual development that is involved, and the words are often (and rightly!) used synonymously. (Markowitsch and Luomi-Messerer, 2008, p. 49)

We are arguing for a more nuanced model than that held by Markowitsch and Luomi-Messerer (2008) and many other proponents of a pragmatic approach which, in our view, has weakened the conceptualization of qualifications frameworks and level descriptors for many years. While there may not have been another choice in the early years, this argument no longer holds. Our understanding of KSC can no longer be a matter of taste. A set of world reference levels must be developed using a strong conceptual basis. Even so, we do note that pragmatic models have served an important purpose in the past, and that the development of a set of world reference levels will inevitably also have to involve some pragmatism.

In this research we have conducted a comprehensive review of the most current developments related to the use of levels in order to identify the most appropriate approach through which learning can be recognized in the proposed world reference levels. We recognize that there are still weaknesses in some areas of the analysis, many of which are there simply because the developments related to learning, recognition and levels are taking place at such a fast rate that existing methodologies simply cannot keep up. We trust that this review will be of great value to the next stage of the development of the world reference levels.

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LIST OF ACRONYMS AND ABBREVIATIONS

ANNEXES

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List of acronyms and abbreviations

ACF	American Credential Framework
ACTRAV	Bureau for Workers Activities
ADEA	Association for the Development of Education in Africa
AHELO	Assessment of Higher Education Learning Outcomes
APEC	Asia-Pacific Economic Cooperation
APQN	Asia-Pacific Quality Network
AQF	Australian Qualifications Framework
ASEAN	Association of South East Asian Nations
AUN	ASEAN University Network
BMBF	Federal Ministry of Education and Research (Germany)
CAMES	Conseil Africain et Malgache pour l'Enseignement Supérieur
CANTA	Caribbean Association of National Training Agencies
CARICOM	Caribbean Community
CAT	Credit Accumulation and Transfer
CDC	Career Development Competencies
CEDEFOP	European Agency for the Development of Vocational Training
CNED	Consejo Nacional de Educación
COL	Commonwealth of Learning
COHSOD	Council for Human and Social Development
CRA	Competent Recognition Authority
CVQ	Caribbean Vocational Qualifications
DISCO	Dictionary of Skills and Competences
DQP	Degree Qualifications Profile

DQR	Deutsche Qualifikationsrahmën
EAR	European Area of Recognition
EC	European Commission
ECOWAS	Economic Community of West African States
ECVET	European Credit System for Vocational Education and Training
EFA	Education for All
EI	Education International
EQF	European Qualifications Framework
ESCO	European Skills, Competences, Qualifications and Occupations
ETF	European Training Foundation
GATS	General Agreement on Trades and Services
GCC	Gulf Cooperation Council
GCE	Global Citizenship Education
GEFI	Global Education First Initiative
GMR	Global Monitoring Report
GVC	Global Value Chain
HAQF	Humanitarian Action Qualifications Framework
HECIW	Higher Education Credit Initiative Wales
IATT	Inter-Agency Task Team
IEBC	Institute for Evidence-Based Change
IEC	International Electrotechnical Commission
IEQF	International Events Qualifications Framework
IESALC	International Institute for Higher Education in Latin America and the Caribbean
ILO	International Labour Organization
IMF	International Monetary Fund

INSSO	International Skills Standards Organisation
IOE	International Organization of Employers
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
ISO	International Organization for Standardization
ITUC	International Trade Union Congress
JQI	Joint Quality Initiative
KNCS	Korean National Competency Standards
KSC	Knowledge, Skills and Competences
LAMP	Literacy Assessment and Monitoring Programme
LMTF	Learning Metrics Task Force
MDGs	Millennium Development Goals
MOOCs	Massive Open Online Courses
MOVE	Modelling Vocational Excellence
MQA	Malaysia Qualifications Authority
NARIC	National Academic Recognition Information Centre
NIC	National Information Centre
NICATS	Northern Ireland Credit Accumulation and Transfer System
NOS	National Occupational Standards
NQF	National Qualifications Framework
NQAI	National Qualifications Authority of Ireland (replaced by QQI)
NQAUAE	National Qualifications Authority of the United Arab Emirates
NQC	National Quality Council
Nuffic	Centre for International Recognition and Certification (Netherlands)

NUCCAT	Northern Universities Consortium for Credit Accumulation and Transfer
NVQ	National Vocational Qualification
O*NET	Occupational Information Network
OBE	Outcomes-Based Education
OECD	Organisation for Economic Co-operation and Development
OER	Open Educational Resources
PIAAC	Programme for the International Assessment of Adult Competencies
PISA	Programme for International Student Assessment
PQR	Pacific Qualifications Register
PRQF	Pacific Regional Qualifications Framework
QAA	Quality Assurance Agency for Higher Education
QF-EHEA	Qualifications Framework for the European Higher Education Area
QFUK	Qualifications Frameworks in the United Kingdom
QQI	Quality and Qualifications Ireland
QRF	Qualifications Reference Framework
RNFIL	Recognition of Non-Formal and Informal Learning
RPL	Recognition of Prior learning
RQF	Regional Qualifications Framework
SADC	Southern African Development Community
SAQA	South African Qualifications Authority
SBS	Subject Benchmark Statements
SCOTCAT	Scottish Credit Accumulation and Transfer Scheme
SCQF	Scottish Credit and Qualifications Framework

SEEC	Southern England Consortium for Credit Accumulation and Transfer
SOLO	Structure of the Observed Learning Outcome
SPBEA	South Pacific Board for Educational Assessment
SSC	Sector Skills Councils
STEP	Skills Towards Employment and Productivity
TnSS	Transnational Skills Standards
TQF	Transnational Qualifications Framework
TVET	Technical and Vocational Education and Training
UAE	United Arab Emirates
UIL	UNESCO Institute of Lifelong Learning
UN	United Nations
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	UNESCO International Centre for TVET
UNICEF	United Nations Children's Fund
VBC	Vocational Basic Competencies
VET-LSA	Vocational Education and Training – Large-Scale Assessment
VRQA	Victoria Registration and Qualifications Authority
VUSSC	Virtual University of the Small States of the Commonwealth
WCED	World Commission on Environment and Development
WSI	WorldSkills International
WSSS	WorldSkills Standards Specification

Annex 1: Glossary of key terms

The definitions of this glossary are provided by the authors, drawing on a wide range of literature in the field, and in particular the cited references for this publication. They do not necessarily coincide with official positions of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Term	Contextual definition	Comments
Comparability	The comparison of one qualification with another based on high-level criteria that enable the degree of similarity of the qualification to be established by a non-subject matter expert.	Comparability is a more generic form of evaluation (i.e. at a level that does not require subject matter experts) typically performed by a national information centre.
Competence	The application of knowledge and skills in context which is described using learning outcomes.	Influenced by the competency-based approach used in the vocational sector. Main types of competences include affective, core and applied.
Equivalency	The comparison of one qualification with another based on a curriculum comparison that enables the degree of similarity of the qualification to be established by a subject matter expert.	Equivalency is typically determined by competent recognition authorities.
Global citizenship	A distinct set of competences to act collaboratively and responsibly to find global solutions to global challenges, and to strive for the collective good.	Global citizenship also includes: – a sense of belongingness to common humanity, respect for diversity – understanding of the process of globalization, interdependence/ interconnectedness, the global challenges which cannot be adequately or uniquely addressed by nation states, sustainability as the main concept of the future – reasoning and problem-solving skills supported by a multi-perspective approach – global empathy, sense of solidarity – ethical approach.

Term	Contextual definition	Comments
International qualifications	Qualifications awarded at international level, outside public authorities' jurisdiction.	These non-state qualifications are awarded by a range of bodies, organizations and multinational companies representing a wide variety of stakeholders and interests.
Key competences	The application of universal knowledge and skills across a range of social, work, and geographical settings.	Key competences are also referred to as critical cross-field outcomes, transferable skills and core competences.
Knowledge	The ability to recall and present information which is described using learning outcomes.	Influenced by the move to develop a knowledge-based society. The main models of knowledge include the empirical, idealist, rational and constructivist.
Learning	The acquisition and mastery of knowledge, skills and competences through non-formal or formal, public or private, provided online, or in communities and life situations such as intergenerational, peer-based and self-directed learning.	This understanding of learning is directly influenced by the notion of lifelong learning.
Learning outcomes	Results of what a learner knows, understands and is able to do upon completion of a learning process.	Learning outcomes are mainly formulated using either behaviourist or constructivist approaches.
Level descriptor	A statement, using learning outcomes, that describes learning achievement at a particular level of a qualifications framework and that provides a broad indication of the types of learning that are appropriate to a qualification at that level.	The use of levels in a qualifications framework helps improve the hierarchical and distinguishing characteristics applicable between levels as well as within a level. It provides those designing qualifications with a finely drawn vertical and horizontal structure (grid) to facilitate easy alignment.
Level of learning	The increased complexity of process, learning demand, responsibility, and application of different types of learning.	The level of learning across different types of learning is related but must also be distinguished.

Term	Contextual definition	Comments
Online credential	The electronic representation of the different types of learning acquired and mastered by an individual.	Examples include the Europass CV, test-based credentials, online badges and online certificates.
Qualification	A proxy for the different types of learning required by an individual using learning outcomes.	Qualifications are limited in the extent to which they are able to describe different types of learning, but are nonetheless accepted as an acceptable proxy.
Qualifications framework	The hierarchical classification of the levels of formal learning programmes and their associated qualifications and certificates.	More advanced NQFs can also play a role in facilitating stakeholder interactions, creating coherent qualifications systems, ensuring fit-for-purpose qualifications, supporting wider quality assurance processes, recognizing learning gained outside formal education and training and for driving broader educational reforms. They also make national qualifications systems more transparent to foreigners.
Recognition of learning	The principles and processes through which the knowledge, skills and competences of a person are made visible, mediated and assessed for the purposes of certification, progression and professional standing.	Recognition can take place by making learning explicit through the codification of knowledge, skills and competences in qualifications, but it is not limited to this form.
Referencing of qualifications frameworks	A process that results in the establishment of a relationship between the levels of two qualifications frameworks.	Through this process, national authorities responsible for qualifications systems, in cooperation with stakeholders responsible for developing and using qualifications, define the correspondence between the qualifications frameworks.

Term	Contextual definition	Comments
Representation	A proxy for the types of learning acquired and mastered by an individual, which include, but are not limited to, qualifications.	Representation may include the changing value of qualifications in certain settings, the occupational standards on which the qualification is based, the extent to which social partners contribute to the design and assessment of the qualification, the extent to which non-formal and informal learning is recognized, the quality of the providing institution, and the extent to which learning has advanced since the award of the qualification.
Skill	The ability to do in context which is described using learning outcomes.	Influenced by work-based learning; linking of education and training systems with the labour market and employability. Main types of skills include foundation, transferable, technical and vocational.
Transparency	The degree to which the value of qualifications can be identified and compared in education, training, the workplace and elsewhere.	Increased transparency is achieved through comparability (more limited), equivalency (broader), and representation (highest level).
Types of learning	The contextually demonstrable different forms of learning that an individual is able to acquire and master.	The term 'domain of learning' is used as a synonym for types of learning. The three most frequently used domains are knowledge, skills and competences.
World reference levels	A unique set of cross-cutting knowledge, skills and competences that enables an individual to act collaboratively and responsibly, to find global solutions to global challenges, and to strive for the collective good.	The world reference level is a special type of level descriptor that functions outside a qualifications framework. A global convention or recognition agreement may in future provide a basis for this purpose.

Annex 2: Mapping of level descriptor domains and progression

	Domains				Levels	
	Knowledge	Skills	Competences	Others	Number	Progression
National qualifications frameworks						
Australia	Yes	Yes	Yes, but not explicit: reference is made to the application of knowledge and skills	Generic learning outcomes: fundamental skills, people skills, thinking skills, personal skills	1–10	No explicit description: reference is made to complexity and depth of achievement
Afghanistan	Yes Knowledge and understanding	Yes Practice and skills	Yes Attitudes and competences, further divided into generic cognitive skills; communication, ICT and numeracy skills; and autonomy, accountability and working with others	NA	1–8	No explicit description
Bangladesh (TVET only)	Yes	Yes	NA	Responsibility	1–2 pre-vocational, 1–6	No explicit description
Bhutan	Yes Depth, complexity and comprehension of knowledge	Yes Application of knowledge and skills	NA	Degree of autonomy and creativity in decision-making Breadth and sophistication of practices Communication skills	1–8	No explicit description
Botswana	Yes	Yes	NA	Achievements	1–10	Differentiated by the complexity of learning required; linked to ISCED levels

	Domains				Levels	
	Knowledge	Skills	Competences	Others	Number	Progression
Cambodia	Yes	Yes Cognitive skills Psychomotor skills Interpersonal skills and responsibility Communication skills Information technology skills Numeracy skills	*	*	1–8	*
Ethiopia	Yes	Yes	Yes Social competence	Conditions of work Independence Creativity	1–10	No explicit description
Gambia	Knowledge and understanding	NA	NA	Independence and creativity Range and sophistication of practice Roles taken in relation to others in field General role	Foundation, 1–4	No explicit description
Germany	Yes (as part of professional competence)	Yes (as part of professional competence)	Yes Professional (including knowledge and skills) Personal (social competence and autonomy)	NA	1–8	The knowledge and skills contained in the description of professional competence at each higher reference level do not necessarily in every case include the knowledge and skills in the level below
Indonesia	Yes	Yes	Yes Seen as overarching domain	Science Distinguishes between general and specific descriptors	1–9	No explicit description
Kosovo	Yes	Yes	Wider competences	Personal responsibility	1–8	Increasingly complex and demanding outcomes of learning

	Domains				Levels	
	Knowledge	Skills	Competences	Others	Number	Progression
Malaysia	Yes Knowledge of subject area	Yes Practical skills Social skills and responsibilities Communication, leadership and teamwork skills Problem-solving and scientific skills Managerial and entrepreneurial skills Information management skills	Not explicit	Values, attitudes and professionalism	1–8	No explicit description
Norway	Yes	Yes	Yes General competence	NA	1–7	No explicit explanation
Poland	Yes (including scope and depth of understanding)	Yes (including problem solving and practical use of knowledge; learning)	Yes Social (including identity; cooperation; responsibility)	NA	1–8	No explicit explanation
Rwanda	Yes Knowledge and understanding	Yes (as applied know ledge and understanding) Cognitive Skills Communication, ICT and numeracy skills	*	Autonomy, responsibility and working with others	1–7	No explicit explanation
South Africa	Yes, but not explicit (including scope of knowledge; knowledge literacy)	No, not explicit	Yes Applied competence	*	1–10	No explicit explanation, some references to the Bloom taxonomy
South Korea	Yes	Yes	Yes	Complexity Autonomy of job	*	No explicit explanation
UAE	Yes	Yes	Yes Autonomy and responsibility Role in context Self-development	NA	1–10	An indication of the relative complexity and/or depth of achievement, and the autonomy required

	Domains				Levels	
	Knowledge	Skills	Competences	Others	Number	Progression
Transnational qualifications frameworks						
ASEAN QRF	Yes Knowledge and skills combined		Not explicit	Application in context Responsibility	1–8	No explicit description
CARICOM	Yes Knowledge and understanding	Yes Life skills; Application and practice	Yes Communication, numeracy and ICT; Autonomy, accountability and working with others	NA	Access 1–2, 1–8	No explicit description
ECOWAS RQF	Descriptors not developed yet					
EQF	Yes	Yes	Yes	Wider competences: autonomy and responsibility; learning competence; communication and social competence; professional and vocational competence	1–8	Indicative levels provided through 'brief indicators'; complementarity with Dublin descriptors also indicated
Pacific QR	Yes Knowledge and skills combined		No	Application Autonomy	1–10	No explicit description
QF-EHEA	Yes Knowledge and understanding	Yes, but not explicit Applying knowledge and understanding	Not explicit	Making judgments Communication skills Learning skills	Short cycle followed by three cycles	No explicit description (Dublin descriptors)
SADC RQF	Yes	Yes	Not explicit	Autonomy and responsibility	1–10	No explicit description
VUSSC TQF	No domains are used				1–10	Complexity of the quantum of learning

	Domains				Levels	
	Knowledge	Skills	Competences	Others	Number	Progression
Other recognition methodologies						
PIAAC	NA	NA	NA	Literacy, numeracy, problem-solving	NA	Proficiency levels
PISA	Testing the skills and knowledge of 15-year-old students		Students' capacity to apply knowledge and skills in key subject areas	NA	NA	Proficiency levels
ISCED	Yes	Yes	Yes	Learning experiences	A three-level hierarchy of broad fields, narrow fields and detailed fields using a four-digit coding scheme	Degree of complexity and specialization of an educational programme
ISCO	NA	Skill level Skill specialization	NA	NA	Major, sub-major, minor and unit groups	Skills level as a function of complexity and range of tasks and duties
LAMP	NA	NA	NA	NA	1–5	A five-level hierarchy of literacy proficiency
STEP	Three elements are recognised across the five steps as integral to build skills for employment and productivity: behavioural skills, path dependence and labour market clearing			Interlinked steps: getting children off to the right start; ensuring that all students learn; building job-related skills that employers demand; encouraging entrepreneurship and innovation; and matching the supply of skills with demand.	1-5	Five interlinked steps
WorldSkills International	NA	High level skills	Excellence for competency	Focus on excellence as key differentiator	NA	NA

	Domains				Levels	
	Knowledge	Skills	Competences	Others	Number	Progression
O*NET	Yes	Yes	NA	Six domains: worker characteristics, worker requirements, experience requirements, occupational requirements, workforce characteristics, and occupation-specific information	Each domain is organized hierarchi-cally	Taxonomy of descriptor variables in a hierarchy
Tuning	NA	NA	Key competences and programme learning outcomes, mix of competences considered useful and necessary for the academic, professional and/or vocational area	Degree profile made up of seven entries	NA	Reference is made to the level descriptors of regional and national qualifications frameworks
LMTF	NA	NA	Learning for all; age and education matter for learning; reading; numeracy; ready to learn; citizen of the world; and breadth of learning opportunities	NA	1-3	Progression across early childhood, primary and post-primary levels
INSSO	knowledge and understanding	skills	NA	Personal qualities	NA	Mapping of occupational competences at transnational level
SBS	NA	NA	NA	Attributes and capabilities	Linked to particular qualifica-tions	Provide a minimum standard or threshold

Annex 3: List of interviewees

The following individuals (in alphabetical order) were interviewed between February and June 2014. Individuals also included in the first round of reviews of the draft report are indicated by 'R'. Individuals who further participated in the peer review consultation held in Paris from 29 to 30 September 2014 are indicated by 'PRC'.

Stephen Adam	United Kingdom	Qualifications expert
Axel Aerden	Netherlands	Qualifications expert
Gilberto Alfaro-Varela	Costa Rica	National expert (PRC)
Nourah Al Matrooshi	UAE	National Qualifications Authority (PRC)
Alexander Amiri	Italy	WorldSkills (PRC)
Kate Anderson	USA	Brookings Institution
David Atchoarena	France	UNESCO (R) (PRC)
Michael Axmann	Switzerland	ILO
Simon Bartley	United Kingdom	WorldSkills
Sjur Bergan	France	European Commission
Sara Bin Mahfooz	France	UNESCO (PRC)
Jens Bjornavold	Luxembourg	CEDEFOP (R) (PRC)
Diane Booker	Australia	National expert (R)
Agnieszka Chłoń-Domińczak	Poland	National expert
J. Y. Cho	Republic of Korea	National expert
Mike Coles	United Kingdom	Qualifications expert (R)
Katrien Daelman	France	UNESCO (PRC)
Robert Daniel	France	UNESCO (PRC)
Arjen Deij	Italy	ETF (R) (PRC)
Alexander Gloss	USA	O*NET (PRC)
Paulina Gonzales-Pose	France	UNESCO (PRC)
Helen Guiol	France	UNESCO (PRC)
John Hart	Scotland	Qualifications expert (R) (PRC)
David Hoey	Australia	WorldSkills
Keith Holmes	France	UNESCO (PRC)
Morella Joseph	Caribbean	CARICOM (PRC)
Anita Kremo	Belgium	European Commission
Gabriella Lopez	Costa Rica	Msur

Lomthandazo Mavimbela	Botswana	SADC Secretariat
Jack Matthews	United Kingdom	INSSO
Sally Messenger	United Kingdom	WorldSkills
Anna-Carla Pereira	Belgium	European Commission
Volker Rein	Germany	Qualifications expert (R) (PRC)
Brent Richardson	Namibia	Qualifications expert
Joe Samuels	South Africa	SAQA (R) (PRC)
Megawati Santoso	Indonesia	ASEAN Secretariat (R)
Jenny Shackleton	United Kingdom	WorldSkills
Liliana Simionescu	France	UNESCO (PRC)
Sit Chuan Soo	Malaysia	MQA (PRC)
Sobhi Tawil	France	UNESCO (PRC)
Lori Foster Thompson	USA	O*NET (PRC)
William Thorn	France	OECD
Stamenka Uvalic-Trumbic	France	International education expert
Alex Valerio	USA	World Bank
Mari Yasunaga	France	UNESCO (PRC)

Written responses based on the interview questions were received from the following individuals:

Zita Fahmi	Malaysia	Malaysian Qualifications Agency
John Hart	Scotland	Qualifications expert
Sandra Haukka	UAE	UAE Qualifications Agency
Volker Rein	Germany	Qualifications expert
Lafi Sanervi	Fiji	SPBEA
Jenny Shackleton	United Kingdom	WorldSkills

Annex 4: Interview schedule

Introduction

UNESCO has commissioned the South African Qualifications Authority (SAQA) to undertake a global study on level descriptors. This includes:

- A review of level descriptors defined by both national and regional qualifications frameworks;
- A broad mapping of level descriptors used in other contexts, such as longitudinal studies, international competency assessments, and diagnostic reviews;
- Identification of key terms related to level descriptors to be included in a glossary.

This study flows from a UNESCO organized 3rd International Congress on Technical and Vocational Education and Training (TVET) held in Shanghai on 14–16 May 2012. The Congress recommended the UNESCO Director-General to explore the possibility of developing international guidelines on quality assurance for the recognition of qualifications, based on learning outcomes, and identify a set of world reference levels, to facilitate the international comparison and recognition of TVET qualifications. Subsequently UNESCO, in cooperation with European Commission, organized a workshop on 'Engaging Global Conversations on Recognition of TVET Qualifications Based on Learning Outcomes' on 25 September (am) and 27 September (pm) 2013 in Brussels, Belgium.

In this context, UNESCO (TVET Section), is initiating a review of the use of level descriptors at global level. The aim is to build an overview of existing level descriptors at national and regional levels and the way they are used for defining learning outcomes and classifying qualifications. The overview would provide the basis for a first analysis of the level descriptors and the learning outcomes terminology used in different countries and regions. The overview will also allow for the identification of the extent to which across-regions descriptors converge and/or differ. In addition to the work on descriptors, there is also a need for clarification on what is meant by qualification and how this concept relates to the reference levels and learning outcomes.

Request for an interview

Dr Borhene Chakroun (UNESCO) and Dr James Keevy (SAQA) will interview you for between 30 and 45 minutes. As far as possible, the interview will be conducted via Skype, although a telephone option will also be possible as a backup. Please consider the questions below which will be discussed during the interview.

Interview questions

1. Briefly describe your past and current involvement in learning outcomes-based qualifications framework developments. Has this included the development of level descriptors, or in some cases, the development of descriptors/learning metrics as part of international comparative studies and/or surveys? Please elaborate.
2. Please give us an overview of level descriptors within your context. Focus on the following:
    a. To what extent did the development follow a consultative process and who was involved in this process?
    b. How were the 'domains' or 'categories' of the level descriptors determined?
    c. Was a distinction made between learning outcomes, skills and competences? If so, please provide a brief description of the underlying thinking.
    d. What was the extent of international comparative/benchmarking work done?
    e. Can you give some practical examples of how level descriptors have been used by different sectors?
    f. How have the level descriptors been 'popularized' in your context?
3. In your view, what are the main drivers for the development of level descriptors?
4. What is the relationship between lifelong learning and level descriptors? How is the lifelong learning perspective included in the way level descriptors are defined?

5. How best can formal, non-formal and informal learning be recognized through level descriptors?

6. What steps need to be taken to ensure the legitimacy of level descriptors in your context?

7. What is the difference between level descriptors developed for national, and for regional, purposes?

8. If relevant to you, how do level descriptors differ from learning metrics used in international comparative studies?

9. Lastly, in your view, what could the advantages/disadvantages of a set of 'world reference levels' be?

    a. What is the feasibility of developing world reference level descriptors (justification, drivers, etc.)? According to you what are the key challenges?

    b. From your point of view what consultation/facilitation process is required?

    c. According to you, what are the possible purposes and scope and what should be the key guiding principles for the world reference levels?

    d. According to you, what additional research (theoretical and empirical) is required?

The study presented in this publication explores the global phenomenon of learning across boundaries, but with a specific focus on the manner in which the level of learning is recognized through the use of level descriptors based on learning outcomes. The study is a first of its kind in that it provides a comprehensive overview of the different ways in which learning is assessed and recognized in the modern context, but more importantly, provides key insights into how learning may be recognized in the future. The effort by the authors, supported by key experts from across the globe, to map the landscape provides an important basis for further work in this area.

The publication will be of interest to experts and practitioners working in the field of the recognition of qualifications and to the broad Education and Training community and beyond. It is intended as a resource for qualification systems reforms and development at national level as well as for regional and international debates and developments.

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