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TOWARDS A TAXONOMY FOR SKILLS

1. INTRODUCTION

This paper considers how 'skills' might be classified and thereby defined. It argues that occupationally specific training is a distinct route to developing skills, and there is value in considering the benefits and challenges of this route (as distinct from skills development through a general university degree, for example).

Unfortunately, the term 'technical and vocational education and training' (TVET) has meant that, sometimes, skills developed through this route are defined in an overly narrow way. TVET has become synonymous with the training offered to trades people. This definition is only partially correct – TVET is for all types of occupational specialists. The narrowness of the definition has also generated a perception in many societies that vocational education and training is *'for other people's children'*.[1] Too often, an artificial division has been created whereby the most able are encouraged to participate in academic education at upper secondary and tertiary levels, and the less academic are siphoned off into vocational education routes.

The poor perception of TVET created by such definitions needs to be addressed if populations are to continue to develop the skills needed for economic and social development. By demonstrating the range of skills imparted through TVET and the number of occupations and businesses supported and enhanced by such skills, perceptions around TVET can be changed for the better. The skills required for all work and life are extensive. A narrow conception of TVET, therefore, not only damages the TVET provision available but also damages any attempts to improve it.

The views contained within this paper are based on experiences from the UK further education sector and more specifically, the English system. The paper includes a short exposition on the evolving nature and associated debate around skills development in the UK before going on to suggest a more coherent and holistic approach to developing a taxonomy for skills.

This contribution is intended as an opinion piece but the positions expressed in this paper are supported by case studies and evidence where appropriate and available.

[1] Wolf, A. (2002). *Does Education Matter? Myths about education and economic growth.* London: Penguin

2. THE PURPOSE OF SKILLS

Skills are important in a range of contexts. Often the usefulness of skills development is considered in terms of its relevance to different stakeholder groups, namely:

- individuals,
- businesses, and
- nations.

Skills help individuals to participate in the labour market, empower them to maximise their earning potential and development opportunities, and enable them to act as responsible members of their community and society. Businesses require individuals to use their skills to improve their performance and ultimately, grow in profitability. At a national level, longer-term economic planning, growth strategies and societal wellbeing are seen to be underpinned by skills development. National governments, particularly in the UK as we shall see, have also become preoccupied with the importance of meeting the challenges of global economic competition by staying ahead in the skills race.

The diverse nature of skills in these different contexts demonstrates how definitions of skills and skills development need to be broadened and then embedded within education systems. To consider TVET in isolation from academic or school-based learning is to miss the true point of skills development as it benefits individuals, businesses and nations. The situation in the UK is used to illustrate this point.

3. A SHORT NARRATIVE ON THE SITUATION IN THE UK

Retrospectives of training and education in the UK pinpoint that it was during the 1980s that government became more heavily interventionist in skills development policy. The picture of education and training in England in 1988 was nothing short of depressing: 33 per cent of school leavers were found to have no useful qualifications, 47 per cent of companies said they were unable to meet their skills needs, and 52 per cent of workers reported they received no formal training.[2] The recession of the 1980s had undoubtedly exacerbated some of these trends. It was felt that improving the nation's skills levels would help address high unemployment levels and grow business productivity. On an international stage, there were increasing concerns that without the skills to support future economic development, the UK would not be able to compete with other countries. For example, improved skills levels are seen as an enabler for greater technological development. Training, particularly technical and vocational training, therefore, was seen as key to developing multiple types of skills and addressing a number of different needs. So at some levels in the UK, for example within key government departments, TVET and skills development has been explained in terms of national importance.

The adoption of the term 'skills' in the UK was not started by the Government. Although the change in government rhetoric has clearly shaped the sector as a whole, it was UK industry groups that first used 'skills' in relation to the training needs of school leavers and those in employment. The Confederation of British Industry (CBI) produced '*Towards a skills revolution'* in 1989; and in the same year, the Trade Union Congress (TUC) published '*Skills 2000*'. Both papers sought to establish the skills requirements of businesses in the latter part of the twentieth century and the importance of looking ahead to understand future skills needs. What is also apparent is the holistic vision they have of skills. They do not simply talk about the need to develop technical or job-specific skills but the inter-relationship of different types of skills. McBride's analysis of the CBI paper summarises two of CBI's key points as:

'Foundation skills are the foremost priority, and transition from education to work has been the weakest element of Britain's training provision. This has made updating difficult and expensive.'

(McBride, 1990: 78)

[2] Data as reported by McBride, P (1990) from DES Statistics in Education, 1988. McBride, P. (1990) 'Towards a skills revolution: A summary and critique of the CBI Report of 1989', *Journal of Vocational Education & Training*, 42: 112, 75-80

'All education and training [should] be designed to develop self reliance, flexibility, broad competence as well as specific skills.'

(McBride, 1990: 78)

The clearest articulation of the UK Government's views of how skills could enhance economic and social development was provided in December 2006 with the final report from the Leitch Review of Skills, *Prosperity for all in the Globalised Economy: World Class Skills*. The Leitch Review was commissioned by the UK's Treasury department and is founded on a belief in the causal relationship between skills and productivity levels.[3] The Leitch Review makes the case that in order to compete with increasing levels of competition from developed and emerging economies, the UK needs to improve the skills of both current and future labour forces.

Such rhetoric continues to shape government policy today and the commitment to skills and skills development remains just as strong. The relevant department is now called the Department for Business, Innovation and Skills (BIS)[4] and, in autumn 2010, BIS published a strategy document entitled *Skills for Sustainable Growth*. The title of this document alone demonstrates how clearly the UK Government perceives the relationship between skills, growth and economic development. The foreword to the executive summary by John Hayes, the Minister for Lifelong Learning, Further Education and Skills, begins:

'*Skills are vital to our economy.*'

(Skills for Sustainable Growth, 2010: 4)

In addition to the perceived economic advantages of having a skilled population, UK policy has pushed the social benefits of education and training. Again, John Hayes has spoken on this topic:

'And raising skills levels brings social as well as economic benefits, like better public health, lower crime-rates and more intensive engagement by individuals in the sorts of voluntary and community activities that fuel the common good and power the national interest.'

(John Hayes' speech to the Royal Society of Arts, 26 October 2010)[5]

In the UK, therefore, the multi-faceted nature and purpose of skills development is an accepted part of policy rhetoric. It is not the case, however, that this rhetoric has led to a universal acceptance of skills development or to greater levels of understanding of the post-compulsory education and training landscape, particularly for younger cohorts of learners, their parents or employers. The system that has been put in place to develop skills, in England at least, has often been criticised for the frequent changes, brought in at a policy level, to review and revise the system, the high number of agencies and actors working in different parts of the system and, fundamentally, a lack of lifelong careers information, advice and guidance that ensures young people and their guardians have the information they need to make informed choices.[6]

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[3] SKOPE has questioned the assumptions around causation. In Scotland, for example, national skills levels have risen (mainly through government intervention) but productivity has failed to grow at the same rate. SKOPE argue that this is because business productivity is related to a wider range of factors, including research and development strategies and investment, physical capital and infrastructure. Skills are just one part of this equation. See Keep, E., K. Mayhew & J. Payne (2006). 'From Skills Revolution to Productivity Miracle – Not as easy as it sounds?' *Oxford Review of Economic Policy,* Vol 22, No 4

[4] It should be noted that the policy remit for education and training has now been divided by age groups. BIS is responsible for all education and training post 19 including higher education; the Department for Education is responsible for education for those under 19 years old. The picture is also slightly complicated by the continuing role of the Department for Work and Pensions in training for jobseekers.

[5] For more comprehensive references on the social and economic benefits of skills, please see CSD's webpage, The benefits of vocational skills

[6] See for example, Perry, A., C. Amadeo, M. Fletcher, E. Walker (2010). *Instinct or Reason: How education policy is made and how we might make it better*. Reading: CfBT; Wolf, A. (2009). *An Adult Approach to Further Education.* London: Institute of Economic Affairs; or Stanton, G. (2008). *Learning Matters: Making the 14-19 reforms work for learners.* Reading: CfBT

Crucially, definitions of skills, and by association TVET, have been complicated and confused because skills are often viewed as the answer to any number of social and economic problems. Furthermore, TVET may be just one branch of the education system but it can play a significant role in contributing to several types of skills.

Developing a taxonomy for skills that seeks to inform the question 'what are we hoping to achieve through skills development?' may go part of the way to increasing acceptance and understanding for the process of skills development in occupationally specific areas and TVET, and for the broader outcomes of TVET – skills of all kinds, not just technical or manual skills. Equally, having a clear rationale as to what TVET is seeking to achieve can assure and improve the quality of provision.

4. A TAXONOMY FOR LEARNING – AND ITS IMPORTANCE FOR SKILLS

Despite its age, Bloom's Taxonomy of Educational Objectives (1956) continues to be cited in teaching and learning reference materials and it has exerted a strong influence on modern day approaches to skills development. The taxonomy remains a starting point for many discussions on the overarching goals of education. Explanations of Bloom's taxonomy often begin with a brief overview of three types of education, called 'domains':

- The **Cognitive** domain: relating to the mental skills or knowledge imparted by education;
- The **Affective** domain: often described as the attitudinal changes and developments that come from education; and
- The **Psycho-motor** domain: the manual or motor skills developed through training.

Bloom's original taxonomy stressed the inter-related nature of these three major domains of learning. The cognitive domain has been unduly prioritised, however, in subsequent discussions and approaches to teaching and learning – partially because this was the area prioritised by Bloom himself. Bloom and colleagues worked extensively on the characteristics that would define a sequential learning process for the cognitive domain and also explored in some depth the affective domain, but he personally never completed a similar level of definition for the psycho-motor domain. Although colleagues and enthusiasts of Bloom have subsequently developed the learning processes for the psycho-motor domain, it is still seen as less important than the cognitive and affective domains.

In reviewing Bloom's taxonomy of educational objectives, TVET has too quickly been assigned as of relevance to only the psycho-motor domain. Perhaps without even knowing of Bloom's taxonomy, researchers and policy makers alike often make assumptions that TVET is about the delivery of manual skills. In 2009 and 2010, there was a flurry of media interest in both the UK and the USA in a new book called *The Case for Working with Your Hands* by Matthew Crawford. Crawford was a highly educated, high profile director of a think tank in Washington DC. Increasingly, Crawford developed a sense of frustration with his work and a belief that his and others' contribution in similar office roles was less than important. He even began to wonder whether such contributions would be missed at all if they were no longer provided. Crawford found solace in pursuing what had once been a hobby – motorbike maintenance and repairs. Eventually, he left his high paying job in Washington to turn his hobby into a business venture. He reports the satisfaction of working with his hands and the beneficial nature of being able to point out at the end of every day exactly what his contribution has been.

Unfortunately, some reports on Crawford's book have been rather one dimensional, tending to focus too heavily on the manual skills developed through Crawford's new career. Crawford's message is more far-reaching than that, however; he clearly demonstrates how a variety of skills are developed through his work. He reports how he has found that the motorcycle repair shop stretches the boundaries of his intellect: he has developed skills in business planning and budgeting; he has also honed his customer service and communication skills. The technical ability to fix motorbikes is just one part of the skills development journey for Crawford.

To conflate TVET as a process for developing manual or technical skills alone is to fundamentally misunderstand the nature of TVET. Like all branches of the education system, TVET is only successful when pedagogical approaches

seek to develop the psycho-motor, knowledge and attitudinal domains in concert. No matter the level, technical skills alone will not, in all probability, win individuals jobs or see them keep those jobs; moreover, they will not enable businesses and nations to meet their targets. A more holistic approach to understanding skills is therefore needed.

5. TOWARDS A TAXONOMY FOR SKILLS

We have seen how the drivers for skills development can be very different at an individual, business and national/societal level. We have also seen how individuals learn and use a wide range of skills, as in the case of Crawford, that go beyond the technical. There is no one type of 'skill' that will meet all these needs and the delivery of TVET will not be successful if it sets about delivering technical skills in isolation from other types of skills. Furthermore, in an ever-changing industrial landscape, it is simply not cost-effective or practical to deliver technical skills in isolation. Technological developments over the last 100 years have taken place at a faster pace than at any other point in history. Rather than slowing down, the pace of change is actually increasing – the development of new technology in telecommunications and renewable energy sources is just one indication of this. It is impossible to second guess the skills needs of tomorrow, so today's technical skills will need constant updating. Instead of seeking to train in those areas we currently know well, labour forces need to be equipped with skills that enable them to adapt and innovate as required. A more holistic and integrated approach to skills development should underpin such training programmes and we need to move away from the narrowly defined versions of TVET being for technical skills alone. A taxonomy demonstrating the breadth of learning and skills imparted by TVET could be useful in improving general understandings of skills and TVET.

There are some existing taxonomies that may be useful to consider. In Latin America, for example, employment training programmes have been founded on four major competencies:

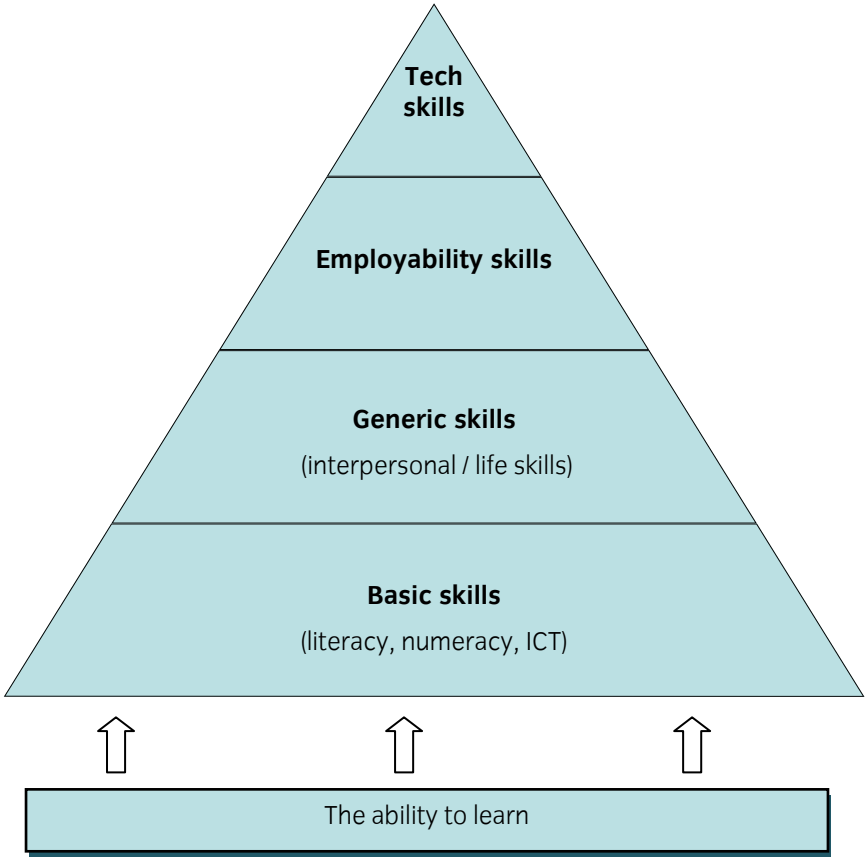
- ***Basic competencies*** which enable individuals to 'learn how to learn', and prepare them for lifelong learning (including literacy and numeracy skills where needed).
- ***Mainstream competencies*** (learning how to do) where individuals learn how to apply knowledge and skills to problems. This includes planning and managing resources, and starting up businesses.
- ***Attitudinal competences*** (learning how to be) including the development of personal skills, leadership skills, team working and negotiation skills.
- ***Technical sector competences***, which extend and refine mainstream competences so that they can be used in a particular occupation.[7]

It is apparent from the Latin American example how different types of skills build on one another. As with all taxonomies, there is an amount of overlap between these definitions. The purpose of considering skills through such a lens is to recognise and accept this overlap. Focusing on technical skills or 'technical sector competencies' in isolation would miss the true potential of vocational education.

A new model for a skills taxonomy that draws on the experiences of the UK and of existing taxonomies might look like this:

[7] From Silveira, S., & Matosas, A., (2005). Gender and the Informal Economy in Latin America: New Challenges and Possible Answers for Labour Training Policies, in Singh, M. (Coord.) *Meeting basic learning needs in the informal sector: integrating education and training for decent work, empowerment and citizenship*. Dordrecht: Springer/UNESCO UNEVOC

Figure 1: Towards a taxonomy for skills



Of course, the labels used for this taxonomy may benefit from further development to ensure they apply to other nations and regions. The prioritisation and combination of different skills types will depend on the location and the need, as seen by governments, social reformers, economists and industry.[8]

The layers suggested for this taxonomy are meant to be permeable and are **not** associated with levels of expertise. At the heart of this concept is a perception that, when delivered effectively, TVET can develop the right mix of these skills and therefore, in tandem with other factors - for example (and most importantly) capital investment - fulfil some of the objectives for economic and social growth.

Explaining the taxonomy

Starting at the bottom of the diagram and underpinning all these types of skills as depicted in the pyramid, teaching approaches need to consider how to instil the ability to learn (**learning to learn**) in students so they can continue to develop their skills over the course of their lifetime. A positive attitude to continuing or lifelong learning is also important to impart. This is incorporated within different pedagogical approaches and at various times in a learner's lifetime and therefore is not seen as a 'skill' in the sense of the others listed here.

At the base of the skills pyramid is **basic skills** - these are the building blocks and foundation for developing all other skills. In the UK, Whitbread, the UK's largest hotel and restaurant company, has found that an integrated approach to developing both the job-specific technical skills and the basic skills of their employees at all levels has

[8] For example, greater importance may be attached to employability skills in more flexible labour markets, whilst the emphasis may be on technical skills in less fluid labour markets.

paid dividends in terms of customer relations, stock taking and handling money.[9] There is an ongoing discussion as to whether employers should be addressing the literacy and numeracy skills of their employees or whether they are merely making up for the failures of an inadequate public education system. There is evidence, however, that a more contextualised approach to developing basic skills can build the confidence and skills levels of individuals in these areas more readily.[10] For example, high school mathematics can seem more relevant if it is applied in a context – from the retail sector through to basic engineering.

Generic skills are also known as interpersonal or life skills, and sometimes they are referred to as soft skills. Organisation, communication and learning to use your initiative are examples of generic or life skills. Their broader relevance to daily life, not just to the workplace, is why they have been separated out from employability skills.

Employability skills build on the generic skills and while they are specifically about helping individuals become and remain active participants of the labour market, they are transferable between sectors and occupations. The application of communication skills in terms of customer relations or giving presentations are examples of employability skills. Whilst there is a technical dimension to some leadership and management skills, overall they are transferable between industries: therefore, leadership and management skills are also considered to be a type of employability skill for the purposes of this taxonomy.

Finally, **technical or job-specific skills** are defined as the skills needed to work in a particular industry or business. One person may have more than one area of technical expertise. For example, an expert in vocational education and training may also be a researcher or a teacher or even both, and each distinct occupation requires additional technical skills. The fact that technical skills are at the top of the pyramid and therefore the smallest part of this diagram is not meant to suggest they are the least important subset of the taxonomy. Being at the top of the pyramid signifies that they are the least transferable of the skills types outlined here.

There are many examples of successful TVET programmes that take a more holistic approach to skills. In many senses, apprenticeships continue to embody such approaches and the successful combination of different skills types can enhance their effectiveness. In the UK, apprenticeships include modules and full qualifications intended to impart basic and technical skills in a structured way. The knowledge competencies also included in apprenticeship programmes have a strong focus on the more generic and employability skills required in today's economy that will allow apprentices to grow and adapt in a changing industrial landscape.

6. CONCLUSION

This paper aims to establish that a more holistic approach to understanding and defining skills is required if policy makers, development agencies and training providers are to develop TVET programmes that can deliver on goals of economic and social growth. In short, it asserts that technical skills alone cannot be expected to deliver on the breadth of those goals. Furthermore, successful TVET programmes do not deliver only technical skills but a broad range of skills.

There is still some way to go to get this right in many countries, including in the UK. The ongoing debate about the relevance and importance of TVET in the UK is shaped, in part, by a lack of understanding about the wide range of skills that can be delivered through TVET. A more holistic approach, through taxonomies perhaps, would inform this debate.

[9] More information on Whitbread's approach to training can be found in 'Whitbread gets the right blend for training: E-learning combined with classroom teaching benefits company and employees'. *Human Resource Management International Digest*, Vol. 16 Iss: 7, pp:18 - 20

[10] Collett, K (2008) *Developing Adult Basic Skills in the Workplace.* CSD Briefing note

In many societies, the first step towards developing a skills system should be an attempt to understand the drivers behind skills development and the promotion of skills. This may require looking beyond the stated objectives. In understanding these drivers, the types of skills that are perceived to be important often come through more clearly.

This is not to say skills are a panacea. Skills and skills development opportunities can make an important contribution to economic and social growth but they cannot deliver this in isolation. More structured approaches where skills development and TVET is embedded within development strategies are therefore vital. There are many actors, not just policy makers, who need to participate in these discussions and it is important to remember the relevance of contributions by different stakeholder groups in understanding the problems and devising solutions.

The intrinsic value of education is understood globally and this should include an appreciation for TVET. A more holistic approach, perhaps through a taxonomy for skills, can enhance the reputation of the TVET branch of the education system and may go some way towards breaking down the artificial distinctions between so-called vocational and academic routes. Most importantly, greater understanding for TVET and skills may also help improve the training provision so it better prepares individuals for the variety of challenges they will face in life and at work.

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