Skill Standards & Occupational Testing in China: Implications for Australian VET

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Abstract

This paper provides a brief overview of VET arrangements in China, including some detail on the setting of occupational skill standards and certification for professionals and skilled workers. Delivery, assessment and certification arrangements for skilled workers are then considered in more detail, including a comparative analysis of the format and content of Australian competency standards and skill standards administered by China's Ministry of Labour and Social Security (MOLSS). The paper concludes with a discussion of issues related to implementation of China's occupational skill standards and the implications for RTOs looking to deliver MOLSS pre-employment certification through trans-national programs involving partnerships with Chinese VET schools and colleges.

Introduction

This paper has been produced as a result of work conducted by the author in China as a short-term adviser in 2006 to the Australia-China (Chongqing) Vocational Education and Training Project (ACCVETP). ACCVETP is an AusAID funded project managed by Hassall & Associates International (HAI) and the Royal Melbourne Institute of Technology (RMIT). The views expressed in this paper are those of the author and do not reflect the views or policy of either AusAID, HAI or RMIT. The information contained in the paper has been drawn from a range of sources, including translated policy documents and interviews with Chinese government VET stakeholders in China.

Skill Standards and Certification in China

Under national guidance from the State Education Commission, the administration of VET in China is shared between a number of government departments (UNESCO 1995). As noted by Simmons & Polgar (2005), China does not have a VET 'sector' or 'system' under unified administrative arrangements. Indeed, VET arrangements in China are complex and multi-layered. Generally speaking, vocational education in China is managed by the Ministry of Education (MOE) and the related provincial and county education commissions and bureaus. MOE conducts national examinations and issues qualifications. At the provincial and municipal level, education commissions are responsible for school-based vocational and general academic education. The vocational education delivered through these arrangements is typically broad in scope and less practical in focus than vocational training. Vocational training is delivered by secondary and tertiary vocational schools which are managed by range of different industry ministries including MOE.

In addition to general academic programs, these schools deliver programs oriented towards a system of occupational standards and qualifications administered by the Ministry of Labour and Social Services (MOLSS). These qualifications and assessments are based on occupational standards which reflect an analysis of professional functions and their activities (Zhang 2002). Secondary and tertiary vocational schools issue awards of successful course completion, with some also endorsed through the MOLSS system to conduct assessments for these skill occupational qualifications. As noted by Simmons & Polgar (2005), vocational training aligned with the MOLSS administered system provides specific skills and knowledge for skilled worker occupations in accordance with this skill standard and assessment certification system.

For professional and para-professional occupations, a similar system of standards and qualifications exists, although supplemented by a system of permits for more sensitive occupations such as the medical professions. This system is administered by the Ministry of Personnel (MOP). Within MOP, the Department of Professional and Technical Personnel Management is responsible for 'the professional qualification accreditation system' and 'for conducting overall co-ordination of the qualification standards for professional and technical personnel of various occupations' (MOP 2006a). Qualifications for MOP administered occupations however, do not use a standard template, do not comply with a standard national framework and appear specific to particular occupations (see for example CATTI 2005). However, in both the MOLSS and MOP arrangements, skill standards and certification arrangements follow the gazetting of specific occupations.

MOLSS Certification and Skill Standards

Within MOLSS, responsibility for setting occupational standards and assessment requirements rests with the Occupational Skills Testing Authority (OSTA). Since inception of the MOLSS system, standards for some 113 occupations have been established (Simmons & Polgar 2005). Whilst MOLSS has final responsibility for endorsing new standards, other Ministries can also initiate the development and or review of standards.

Occupations that occur in more than two industries are considered general industry occupations. Skill standards for these occupations are developed by MOLSS and credentials have the MOLSS stamp. Occupations considered specific to a particular industry are considered specialist occupations. Skill standards for these occupations are developed by MOLSS and the relevant industry ministry. Credentials for these occupations have two stamps from MOLSS and the relevant industry ministry. MOLSS may request an industry Ministry to manage the development of standards where the occupations are overly technical and specialized. In most cases, relevant

Ministries cooperate with MOLSS over the development of new standards. In the MOLSS system, there are five grades of vocational certification and qualifications:

- Junior National Professional Certificate – Grade 5;
- Middle National Professional Certificate – Grade 4;
- Senior National Professional Certificate – Grade 3;
- Technician National Professional Certificate – Grade 2; and
- Senior Technician National Professional Certificate – Grade 1 (ACCVETP 2003).

Levels 1 and 2 are considered to be the technical levels while levels 3, 4 and 5 are considered skilled levels (CPTTM 2006). Whilst not every occupation has five qualification grades, each qualification is linked to employment in the relevant vocation. Whilst MOLSS employment regulations stipulate that employers should only engage employees that possess the relevant qualification, in practice not all industries demand that new employees are certified (Chen 2003).

Whilst Chinese industry has traditionally placed less emphasis on practical skills (Simmons & Polgar 2005), the structure of skill standards has recently been reformed to move away from the traditional, subject-directed model of basic, professional and relevant knowledge (Zhang 2002). In developing national skill standards, MOLSS aim to ensure that the standards are nationally applicable, graded, nationally consistent, broadly relevant and verifiable (MOLSS 2002a). The template for MOLSS standards is described in the *Compilation Manual for Writing National Vocation Standards* (MOLSS 2005). Translation of this document indicates a nationally consistent template with four major sections.

Section 1: Vocational Summary

This section provides a range of general information relating to the vocation and its relevant occupations. It includes sub-sections which detail:

i. name of the vocation;
ii. definition of the vocation;
iii. the different occupational grades within the vocation (Grades 1 – 5 where applicable);
iv. an overview of the typical working conditions;
v. general abilities required to master the vocation;[1]
vi. minimum literacy requirements;[2]
vii. an overview of teaching requirements;[3]
viii. pre-requirements for each of the five occupational grades with reference to academic qualifications, vocational qualifications and work experience;
ix. overview of assessment requirements, key outcomes and method of assessment;

[1] This will include reference to required motor skills and a range of generic skills including communication, numeracy and information analysis.
[2] Detailed through reference to the minimum years schooling required.
[3] Includes some detail on the required training duration, minimum teacher qualifications, training requirements and training facility requirements.

x. ratio between assessors and candidates;
xi. duration of assessment; and
xii. venue and equipment requirements for assessment.

Section 2: Basic Requirements
This section contains more detailed information on underpinning knowledge and skills for the vocation. It includes:
i. statements on the ethics and key principles required in the vocation;[4]
ii. statements on the key areas of knowledge relevant to the vocation, including important definitions, key work processes, relevant legislation and detail related to the use of important equipment and materials.

Section 3: Work Requirements
This section sets out the key tasks of the vocation and provides further information on the required skills and knowledge necessary to complete those key tasks. This information is provided in tables, one for each of the different levels of the vocation.[5] These tables are similar in format and content to the main sections of competency standards as they exist in countries where competency based training has been a feature of VET reform.

Section 4: Proportion Table
This section includes tables that set out the relative weightings of specific knowledge and skills for both the theoretical and practical components of the vocational standards for each of the qualification grades of the occupation.

Assessment of Chinese Occupational Standards

Academic qualification pre-requisites exist for each MOLSS qualification grade. Junior applicants must be vocational school graduates or apprentices who have served their apprenticeship. Intermediate applicants must possess junior grade certificates and have worked for more than five years, and senior applicants must possess medium grade certificates for five years and have worked for at least ten years (MOLSS 2005).

Assessment pre-requisites for each grade of qualification also refer to the different levels of work detailed in Section 3 of the standards. Whilst Section 3 of the MOLSS standards includes different levels of work tasks for each occupation, the number of levels varies between occupations. Timber framing workers for example, have three levels, whereas automotive maintenance technicians have five. As these levels reflect the available qualifications for that vocation, timber framing workers can only obtain Junior, Middle and Senior National Professional Certificates ie: Grades 5, 4 and 3 but

[4] Includes for example, a willingness to be innovative, a commitment to work safely and respect for fellow workers.
[5] Each vocation contains up to five levels. Certification at these levels, combined with varying degrees of work experience, determine eligibility for grades 1-5 of the national MOLSS qualifications.

not the more senior qualifications. MOLSS qualifications are nested in that each qualification is a pre-requisite for the next grade.

Separate theoretical and practical assessments are mandatory for each of the MOLSS qualification levels. According to Zhang (2002), the main elements of national skill assessments include vocational knowledge, operational skills and vocational ethics. Assessment requirements are set out in the relevant national skill standards, and include guidance on the skill assessment standard and relevant teaching materials. Zhang also indicates that in addition to a written examination, applicants are required to demonstrate their skills in practice at the worksite in three key ways: by producing a typical piece of work; by producing an item as requested; and by copying a particular operation. The final result is based on the total of the theoretical and practical assessment scores. To qualify, the candidate must have a score of above 60 out of a total 100 (MOLSS 2005). A good score is considered to be above 80 and an excellent rating is above 95 (Zhang 2002).

A 'comprehensive assessment' is also required by those candidates seeking certification at Grades 1 & 2, the higher skill levels (MOLSS 2005). Details of what is required by this assessment are not provided in the MOLSS guidelines. Whilst the emphasis on workplace assessment is supported by industry, the growth of VET programs in secondary and tertiary VET colleges has meant that practical assessments for school age candidates generally do not occur in the workplace due to the ad hoc support from industry coupled with concerns over OH&S and student welfare (ACCVETP 2006).

Australian and Chinese Skill Standards Compared

Table 2 shows the relationship between MOLSS occupational standards and key features of the current template for Australian competency standards.[6] This analysis indicates that whilst there are commonalities, the different TVET frameworks that exist in China and Australia limit the direct comparisons that can be made. Whilst Chinese standards are much broader than Australian units of competency, both approaches have at their core, descriptions of work activities and outcomes that are representative of workplace practices in different industries.

However, whilst far less detailed than the Australian equivalents, the descriptions of work tasks in the Chinese standards do not clearly specify the required standard of performance in the workplace, and do not link workplace conditions to the requirements for practical assessment.

[6] See DEST (2005) for further detail on the content and format of Australian competency standards.

Table 2: Comparative Analysis of Australian and Chinese Skill Standards

AUSTRALIAN COMPETENCY STANDARDS	CHINESE SKILL STANDARDS	
	Yes/No	**Comments**
Unit Title	Yes	Section 1.1
Unit Code	No	Standards do not appear to have a discrete number although MOLSS presumably maintains a register.
Unit Descriptor	Yes	Section 1.3
Employability Skills		Covered to some extent in Part 1. Generally not evident as to how the Chinese Core Skills are embedded or assessed.
Pre-requisite units	Partly	Section 3 contains three levels of work requirements. Level one is a pre-requisite for levels two and three. Level two is a pre-requisite for level 3. Each set of standards contains a discrete set of work skill and knowledge requirements unrelated to other standards within different vocations.
Application of the Units	Partly	Detail on the scope, purpose and operation of the standards does not occur at the level of individual work requirements but is covered to some extent in relation to the overall vocation in Sections 1-3.
Competency Field & Sector (optional)	Partly	Detail on the industry sector, specialisation or function is covered in Section 1, but as there is no inter-relationship with other standards there is no detail on related units or sectors in the same industry.
Elements	Yes	Covered as Work Content within Section 3.
Performance Criteria	Yes	Covered as Skill Requirements within Section 3.
Required Skills & Knowledge	Yes	Specific knowledge requirements of individual work tasks are detailed as Relevant Knowledge within Section 3 and supplemented by general areas of knowledge identified in Section 2.
Range Statement	Partly	Detail on the different work environments and situations that will affect performance are addressed to some extent in Section 1, although not at the level of detail found in Australian standards at a unit level.
Evidence Guide	Partly	Sections 2 & 3 provide information on underpinning knowledge and skills required.

Whilst the analysis in this paper is based on only three sets of translated MOLSS occupational standards, it also appears that whilst Chinese standards clearly describe job tasks, they do not necessarily address other dimensions of competence.[7] Using the Australian definition of competence, Chinese standards focus on task skills but generally do not address task management skills, contingency management skills or job/role environment skills.[8]

Significant differences also exist in terms of the specification of relevant knowledge and skills. When viewed together, the Evidence Guide and Required Skills & Knowledge sections of Australian standards provide more detail on required knowledge and skills for an individual unit, but do not contain the same information on the assessment process contained in the Sections 3 & 4 of the Chinese standards.

Another major difference between the two sets of standards is the modular approach of Australian standards. As is the case with many standards based VET systems, Australian units of competency can typically be bundled with other individual units to underpin flexible training programs that deliver skills to suit local industry conditions. The need for this flexibility has influenced the development of competency standards in Australia, and reflects the ongoing development of a VET system oriented to respond to changing forms of work and work organization (OECD 2001). However, Chinese standards have a narrow and fixed range of units that are aligned with specific vocations. There appears to be no mechanism for drawing on standards from other vocations, thus limiting the opportunities for credit transfer and articulation between programs of study aligned with both MOLSS and MOP occupational standards. Research suggests that policy and systems oriented to vocations are incompatible with contemporary theories of skill development (Briggs & Kittay 2000). This view is supported by anecdotal evidence from a number of Chinese industry ministries which indicate concern over the suitability of MOLSS defined vocations and their relevance to current industry practices and skill sets (ACCVETP 2006). Notwithstanding these observations, the system of Chinese skill standards clearly provides a strong foundation for ongoing VET reform aimed at increasing the relevance of TVET to industry in China.

Implementation Issues

One of the key challenges for ongoing reform of standards based VET in China is the development of a more coherent qualifications framework that overcomes provincial boundaries and current industry demarcations. As noted by Misko et al (2002), central to this challenge is the need for improved linkages between academic education and vocational qualification standards. Keating et al (2002) have observed that the curriculum and standards upon which Chinese curriculum is built are frequently outdated and irrelevant to the needs of industry. MOE certification also appears to lack guidelines for defined certificate levels and does not clearly relate to the MOLSS qualifications (ACVETP 2003).

[7] The occupational standards reviewed were timber framing worker, automotive maintenance technician and purchasing officer.
[8] See DEST (2005) for a more detailed discussion on what constitutes competence.

Whilst the industry relevance of VET is a challenge for many countries, the dual qualification systems of MOE and MOLSS further compromises the relevance of VET to industry in China. Furthermore, many MOE VET school graduates do not obtain MOLSS certificates, even though they have studied at a higher level, as MOLSS requires payment for the separate examinations. However, both the key agencies have acknowledged the issues surrounding dual assessment, with MOE recommending that 'linkages between the content of relevant curriculum and occupational standards needs to be enhanced' (MOE 2004: 4). This view is supported by Ma (2005) who also argues that academic credentials and vocational qualifications should be integrated so that student adaptability and competitiveness can be enhanced. A system of mutual recognition and recognition of prior learning would clearly overcome this barrier, as would the use of common assessment criteria aimed at providing for dual certification from MOE assessments.

The overlap between MOLSS and MOP standards and qualifications also presents challenges for VET reform in China. Whilst many occupations administered by MOP are outside the scope of VET due to links with university education, many industries are affected by demarcation issues between these two government Ministries. Indeed, a number of national Ministries are looking to move away from the traditional boundaries between skilled and professional workers in their industry as a way of overcoming demarcations between the different Ministries. These Ministries believe that this will generate an increased emphasis on practical skills rather than academic qualifications, which they consider a problem with current arrangements (ACCVETP 2006). These Ministries also indicate that they prefer to deal with all workforce skill development issues on a common basis rather than persist with the traditional demarcations between MOLSS and MOP administered occupations. Some agencies have indicated that they are willing to develop a more comprehensive assessment system more aligned with current industry occupations.

ACCVETP research has also established that a number of national Ministries have the view that MOLSS occupational standards are too narrow, reflecting outdated occupational classifications more relevant to the traditional state planned economy (ACCVETP 2006). This view is supported by Zhang (2002) who claims that MOLSS certification needs to be reviewed due to industry complains that content is outdated and too focused on narrow skill sets. Indeed, during 2006, one national ministry developed and released new skill standards without endorsement from MOLSS with the intention of using them as the foundation for occupational testing in that industry (ACCVETP 2006).

One key issue for MOLSS is their capacity to obtain industry input. As China shifts to a market economy, MOLSS and partner Ministries will need to establish new industry networks that involve multi-national companies to ensure that contemporary industry practices are captured in new and revised occupational standards. Despite these issues, MOLSS has acknowledged criticism of its assessment system and the standards on which it has been based and has committed to update standards that are the basis for skill certificates (ACVETP 2003). However, whilst Chen (2003) suggests that MOLSS have recognized the need to review the nature, structure and content of occupational standards, it is not clear if this work has progressed.

Conclusion

During the period 1985–2000, Chinese VET experienced a period of rapid progress that included the ongoing development of links with industry and the introduction of occupational classifications and standards (Misko et al 2005). Whilst much has been achieved in the last decade, further work will be required to address some of the significant challenges identified in this paper that currently impede standards based VET reform in China.

Until resolved, these issues clearly impact on those Australian RTOs who aim to deliver MOLSS pre-employment certification through trans-national programs involving partnerships with Chinese VET schools and colleges. Whilst the additional cost of assessment under the MOLSS system is clearly a factor to consider, RTOs should also recognise the lack of alignment between the MOE and MOLSS qualification frameworks, and the fact that program outcomes might be positioned at different levels within the Australian Qualifications Framework. On a more practical level, RTOs should also be aware that none of the MOLSS or MOP standards documentation is available in English. Finally, it should be noted that whilst many Chinese Ministries and schools are restrained by the standards and qualification system currently in place, they are interested to utilise Australian expertise in new qualification and career paths and how these can be supported by innovative program design and cross-sectoral links with other providers.

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