Using rubrics to support graded assessment in a competency-based environment

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About the research

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Building the research capacity of the vocational education and training (VET) sector is a key concern for the National Centre for Vocational Education Research (NCVER). To assist with this objective, NCVER sponsors a community of practice scholarship program, where vocational education and training practitioners without any research experience are given the opportunity to undertake their own work-based research project. Scholarship recipients are supported by a mentor and NCVER publishes their research results.

Sherridan Maxwell participated in the 2008 community of practice program. Sherridan is a Senior Educator, Curriculum and Project Design, at RMIT University. Her research investigates the use of rubrics—in this context, sets of standards cross-referenced to assessment criteria—to support grading in a competency-based environment.

The study comprised mentoring a small group of teachers in developing their own rubrics for assessment, as well as interviewing these teachers to determine their thoughts on the use of rubrics.

Overall, the teachers found rubrics to be a useful tool not only for assessment but also for informing students of the assessment expectations.

The author also suggests the use of rubrics as a tool for assisting in articulation into higher education from the VET sector.

Tom Karmel
Managing Director, NCVER

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Introduction

Competency-based assessment regimes support vocational education and training (VET) students seeking to articulate to a university degree and/or who seek a graded outcome for employment or promotion. This paper reports on a research project on the options for offering graded assessment in a competency-based system. The aim of the research project was to explore the possibilities offered through the use of a rubric to specify assessment criteria referenced to both industry standards and academic potential.

A rubric contains a set of standards for assessment which are cross-referenced to criteria that specify levels of performance against the standards. Rubrics are commonly used as a tool for criterion-referenced assessment; that is, assessment which measures performance against explicit pre-defined standards rather than against a standard set by the population being tested as in norm-referenced assessment.

The research project included a literature review on the role of rubrics in criterion-referenced assessment; the review also looked at recent research on the application of rubrics in a range of contexts. A draft rubric for use in a competency-based assessment environment was designed. The rubric was tested with VET teaching staff. The findings of this preliminary exploration suggested that rubrics offer VET teachers a tool with which to design and implement assessment to meet multiple aims and are sufficiently encouraging to prompt RMIT to undertake further investigations. This has resulted in the incorporation of assessment using rubrics into a set of guidelines for the design and implementation of graded assessment in a competency-based environment.

As an educational designer working in the Australian VET sector, I have observed how the use of industry training packages as the basis for assessment and learning design can free vocational learners from the restrictions of traditional classroom-based teaching and learning and promote authentic work-based learning. The primary aim of training packages is to align vocational learning to the needs of the workplace by focusing on the assessment of competency against standards determined by industry. For this form of assessment to be successful, teachers and vocational learners need access to assessment methods and tools which are explicitly aligned to these industry standards, rather than to criteria derived from learning objectives and activities. To address this, assessment tools need to be discursive, adaptive and interactive and should also have the capacity to aid learner reflection on their practice, with a view to enhancement of competency beyond the minimum standards specified nationally.

It is these needs which stimulated my interest in rubrics, including their use to support graded assessment in competency-based programs. This is a particular need in my own dual-sector institution, where VET students can gain credit in degrees through articulation agreements which specify standards of assessment to be reached. To meet the higher education requirements for a specified grade, without compromising the authenticity of the VET competency-based assessment, there is a need for dual-purpose assessment methods and tools. The move to an environment in VET based on industry standards, demand from higher education (and students) for a grade other than competent, and requests from some enterprises for statements of outcomes differentiating levels of competency also demonstrate a need for assessment tools which can help teachers to gain a better understanding of how to conduct competency-based assessment in a complex environment.

Hence my interest in the application of rubrics to:

✧ support competency-based assessments in qualifications that articulate into degree programs

✧ offer learners a clear guide to the expectations of the program, assessment needs, and grade criteria

✧ offer students a multidimensional picture of their strengths and weaknesses, and where and how they can make improvements to their work.

For teachers and lecturers the rubric is a place where the validation of teaching and learning in a competency context can be analysed, discussed and understood.

Literature review

So what is a rubric?

Rubrics are neither new nor complicated, although their meaning in common usage has changed since they first appeared in illuminated mediaeval manuscripts as letters written with red ink to highlight initial capitals (particularly of psalms), or to provide the priest with instructions on what to do in a liturgical service (leaving the black text to be read aloud). In the twentieth century, the rubric took on a more specific meaning in educational practice, as a 'scoring tool'.

Since the 1970s, rubrics have enjoyed a resurgence as a tool used in performance-based assessment. Typically, a rubric comprises a matrix which specifies learning outcomes as a continuum on the horizontal axis, with the elements (or the criteria) for evaluating learning outcomes at different levels of performance on the vertical axis. A rubric can typically be employed when a quality of judgment is to be made to evaluate a broad range of activities; by developing the standards in the learning continuum, the subjectivity of assessment becomes more objective (Moskal 2000). This provides clarity for the students' learning expectations and more consistency in assessment for teachers.

A rubric differs from a checklist in that it provides a clear description at each of the levels of performance expected in the learning criteria. It shows the quality of the performance rather than just a tick that the criteria have been achieved. This feature of rubrics makes them particularly useful in supporting assessment approaches where multiple criteria and elements of performance are being judged holistically; for example, in the Australian VET context, where individual units of competency are clustered together for the purposes of assessment.

In essence, a rubric is no more than a matrix: 'at its most basic, a rubric is a scoring tool that lays out the specific expectations for an assignment' (Stevens & Levi 2005, p.3).

The varied roles of assessment in different learning cultures

What happens when we bring in new tools to support assessment, such as e-portfolios, wikis, blogs and simulations? How is new knowledge conceptualised, analysed and applied within a prescribed unit of competency? Lorrie Shepard's (2000, p.4) viewpoint is that teachers, on the whole, have been working from an early twentieth-century behaviourist model, founded on FW Taylor's (1911) industrial measurement and social efficiency movement model, which consists of a number of beliefs, such as:

✧ Learning occurs by accumulating atomised bits of knowledge.

✧ Learning is tightly sequenced and hierarchical.

✧ Transfer is limited, so each objective must be explicitly taught.

✧ Tests should be used frequently to ensure mastery before proceeding to the next objective.

✧ Tests are isomorphic with learning (tests = learning).

✧ Motivation is external and based on positive reinforcement of many small steps.

Shepard (2000, p.5) has reviewed the early educational theorists, whose views were that learning is the 'accumulation of stimulus-response associations'. Further in her paper she quotes from Skinner (1954, p.94):

> The whole process of becoming competent in any field must be divided up into a very large number of very small steps, and reinforcement must be contingent upon the accomplishment of each step … By making each successive step as small as possible, the frequency of reinforcement can be raised to a maximum, while the possibly aversive consequences of being wrong are reduced to a minimum.

It could be argued here that Skinner is also describing a unit of competency from a training package. Are not the elements and performance criteria nothing else than 'large numbers of small steps' to be achieved in the learning process? However, a unit of competency, as an administrative device for describing standards of performance, necessarily segments whole work tasks. It is important to remember that units are expressions of standards, and *not* recipes for learning. Training packages offer the opportunity for assessment to be designed holistically and undertaken via a range of different tasks and demonstrated via different forms of evidence. This understanding, that the application of standards varies across their multiple contexts, differentiates twentieth-century behaviourism from twenty-first century standards-based teaching and learning, and this is what makes training packages a vehicle for meeting the dynamic needs of twenty-first century workplaces. Rumsey and Associates (2002) demonstrate these workplace changes from the twentieth to the twenty-first centuries and describe the changes that have taken place, both in the nature of work but also in the needs of training and the knowledge and skills required in the new ways of working (table 1).

Competency-based training and assessment is demonstrating the movement away from static, linear work performance to flexible application of knowledge and skills in a variety of contexts.

By moving to competency-based qualifications, we are in the business of developing the cogitative and meta-cognitive skills (for example, reflecting, conceiving, interpreting, evaluating, problem-solving, analysing, and hypothesising) needed in twenty-first century industries.

Table 1   Comparison of changing features of workplaces in the 20th and 21st centuries

Feature	Workplace of the mid-twentieth century	Workplace of the twenty-first century
Stability	Relatively static	Dynamic—constant change
Basis	Process-based	Information- and knowledge- based
Scope of work	Focus only on the production and delivery of products and services to given specification	Wider consideration of a range of social and practical issues in the delivery of products and services; e.g. environment, safety, quality, aesthetics, ethics, discrimination
Definition of a job role	Prescribed job role	Flexible interpretation of job needs and ability to adjust roles
Approach to work	Conformity to prescribed rules and procedures	Adaptation to new situations and changes—need to be critically reflective, analytical and interpretive
Social emphasis	Individualistic	Collaborative
Overall context	Part of local industry	Part of global economy
Nature of job	Job was for life	Job will transition within an ongoing career of changing occupations
Focus on training	Preparation for a single occupation for life Pre-designed courses	Preparation for a career pathway (of changing occupations) Flexible adaptive delivery
Key skills and knowledge	Technical skills (particularly the use of tools to deliver products or services) Specific declarative and procedural knowledge needed to apply particular technical skills	Ability to access, evaluate and apply knowledge Interpersonal skills Cogitative and meta-cognitive skills, e.g. reflecting, conceiving, interpreting, evaluating, problem-solving, analysing, hypothesising Declarative, procedural, strategic and dispositional knowledge across a range of contexts/fields
Key technologies	Machines using electric motors Analogue communication systems Hand and power tools Typewriters, photocopiers and fax machines	Computers Digital and multimedia communication systems Computerised machinery and tools

Source: Rumsey (1997, p.7, cited in Rumsey 2002).

Assessment design

Assessment is often determined by the language used to describe the competency in the training package. Taras (2005) argues that assessment is a judgment which encapsulates all the evidence up to a given point in time and that for an assessment to be formative feedback is required (p.468).

Rubrics can offer a place where descriptors of competency can be written in a way that articulates the actions and concrete behaviours needed to demonstrate both the knowledge developed and the application of that knowledge, as well as being a place of feedback (Arter & McTighe 2001).

So let us further investigate why it is that teachers assess the way they do. Many teachers will talk about formative and summative assessments, but what do they actually mean?

Assuming that assessment is regarded as a series of educational activities undertaken to give us a picture of a student or a group of students, what is occurring is a series of subjective activities, including:

◇ marking, correcting and grading

◇ credentialling

◇ sorting the … from the …

✧ directing learning

✧ diagnosing learning

✧ giving feedback on learning.

In reality, assessment activity is often a postscript in teaching and learning experience rather than a developmental opportunity (Arter & McTighe 2001). Teachers test what they believe should be known. Also, assessments tend to be routine-based, and can be ritualistic events which mark the end of a semester, rather than activities to ascertain what is known, has been learned and can be demonstrated at any stage in the learning process.

Assessment and its design are pivotal to the learning experience; they should support the application of knowledge, be a place for critical self-reflection, and be an opportunity to provide feedback to both teacher and learner.

The attributes and skills being developed in competency-based learning are best supported if judgments of competent performance are soundly backed by an evidence-based approach. By providing a reasoned basis for making a judgment by reference to a set of externally determined measures (the criteria for assessment set out in a rubric), assessors can structure learning outcomes to define and describe levels of performance. The rubric offers the teacher and student a place of reflection and provides a rationale for the judgment made which is missing from the bald statement of 'competent' and 'not yet competent'. In this way, rubrics support formative assessment, which is described by Boston (2002) as providing opportunities to build, inform and instruct.

Dimensions of assessment in the Australian competency-based VET system

Graded assessment

There is much evidence that graded assessment is occurring in competency-based programs. Williams and Bateman (2003, p.23) conducted extensive research on both the occurrence of graded assessment and the models that institutes used for competency-based qualifications. They found that there is inconsistency of practice and policy on graded assessment, specifically in the following areas:

✧ validity, reliability and consistency

✧ cross-sectoral concerns

✧ costs associated with graded assessment

✧ change.

On the question of who or what should decide on policy about graded assessment, Williams and Bateman (2003, p.26) found that 'equal numbers of registered training organisations considered either it should be the organisation which is responsible for making these key decisions, or that industry training advisory body/training package developers should be responsible'.

Williams and Bateman (2003) further concluded that grading added to the complexity of assessment. However, the drivers for graded assessment came from industry and students, who showed dissatisfaction with the competent/not-yet-competent reporting (Williams & Bateman 2003). The models Williams and Bateman (2003) looked at for policy and procedure were broad ranging, with a focus on those Australian states that had principles and frameworks; they examined in particular the Queensland and Western Australian models.

The Western Australian model

Following work undertaken by Rumsey & Associates (2002), what is now known as the 'Western Australian Model' has been an influential contributor to the Australian debate on graded assessment in competency-based programs. The main principle underpinning this model is that:

✧ Competency must be assessed first, and grading is applied to the achievement of additional standards based on the Mayer key competencies.

Those Mayer key competencies are described by Rumsey & Associates (2002, p.46) as:

✧ demonstrated breadth of underpinning knowledge applied to the assessment task

✧ communication, people networking, language and interpersonal skills

✧ techniques and processes

✧ autonomy and performance of work tasks

✧ work organisation.

Since the Western Australian model was developed in 2001, the employability skills originating from the Mayer key competencies have been embedded in training packages.

In their paper 'Principles underpinning graded assessment in VET: A critique of prevailing perceptions', Gillis and Griffin (2005) looked at a number of grading models, including the Western Australian model. They argue that the criteria and descriptor statements contained in this model are constant across industry and across competencies (Gillis & Griffin 2005, p.14). However, to reduce ambiguity and individual teacher interpretation, there must be clear criteria. Furthermore, Williams and Bateman (2003, p.23) also argue that 'grading should only be applied once competence has been determined'.

The reporting of assessment in the Western Australian model is based on students getting two reports: one with competent/not-yet-competent, and one with the grade and grading criteria.

Rubrics and units of competency as dialogical tools

There are emerging professional debates where the potential for the rubric and the unit of competency to act as dialogical tools is being discussed. What is meant here by dialogical is that a rubric is a place of dialogue, information, feedback and critique. For example, Bateman and Griffin (2003), Williams and Bateman (2003), and Gillis and Griffin (2005) all highlight the need for professional judgment and consistent and reliable assessment to ensure authenticity of training package and competency standards.

A unit of competency from a training package comprises the criteria for assessment and is itself a form of rubric. A competency specifies a set of standards (elements) and a set of criteria for judging performance against those standards (performance criteria). The potential for the unit of competency to be elaborated to specify levels of performance above that of competent is found in the application of the standard dimensions of competency (performance, management, contingent management), and in the elements in the context of their range statement and underpinning skills and knowledge.

It is in the far-from-simple application of training packages to meet multiple market needs (that is, work-related skills, access to employment for school leavers etc.) from which the various arguments for graded assessment—including what students want, what employers ask for, and what higher education demands of articulating students—arise. This is where the rubric can support the assessment of the 'difficult to assess performances' as it spells out the boundaries of the learning experience: the expectations, the complexities, the scope to grade the application of skills, and the knowledge gained within the learning experience.

The VET teacher and assessment

The demands placed on VET teachers to understand and work with a complex multifaceted assessment regime will mean that assessment design skills and knowledge will be pivotal and challenging in terms of their roles.

These VET teachers will require a variety of assessment tools to help support the students, the training packages, and the units of competency when assessing complex performances and products. These assessment tools will have to address perceptions of, and uses for, grading in competency-based delivery and assessment and tools such as rubrics to support those needs.

Guthrie (2009, p.28) argues that the extent of the role of a teacher needs to be changed to that of a highly skilled and 'new' professional who:

✧ has a sophisticated pedagogical repertoire

✧ uses more learner-centred, work-centred and attribute-focused approaches, rather than traditional pedagogies

✧ can work with a variety of clients, in multiple contexts and across a range of learning sites

✧ understands that integration of learning and work is a major feature of the contemporary work environment (p.28)

Mitchell et al. (2005, p.15) claim that there is still a poor understanding of assessment principles and that 'initial and ongoing professional development in graded assessment techniques and methodologies ought to be provided for new and existing trainers or assessors'. They say (2005, p.15) that assessors need:

✧ to develop their reflective and analytical skills in reviewing their practice

✧ to conduct a participatory process involving assessor and candidate, where the student is integrally involved in designing an effective means of providing the required evidence

✧ to give clear understanding of the standards and what is required

✧ to develop the capacity to articulate these standards and evidence requirements in well-documented assessment tools

✧ to involve candidates in decision-making and feedback on assessment processes

✧ to involve students in the process of deciding what methods of assessment are used.

So, if teachers are to be more reflective and more participatory and generate well-documented assessments, they could well use tools such as rubrics to support them. Gillis and Griffin (2005) discussed the demand from students and industry for graded assessment in competency-based training and found that there is a need for clear models and principles to support teachers.

What students are wanting

Students want fair and consistent judgments from teachers and a clear indication of what they (the students) need to do to be successful. They need clarity in their assessment tasks and want clear, unambiguous instructions, opportunities to discuss problems or issues with peers or teachers, and timely feedback (Mitchell et al. 2005, p.9).

Under the Australian Quality Training Framework (AQTF) standards, assessments are to be valid, fair, transparent and reliable: students not only need to be competent, but also to hold the skills that make them employable; for example, to be able to think critically, to analyse and make decisions and to work in teams or autonomously.

Helping students to develop these skills will require changes in attitudes towards assessment models at the registered training organisation (RTO) and teacher level. What is needed for students in competency-based programs is a new approach—including project- and problem-based and alternative assessments, with grading criteria that will challenge the students and provide effective outcomes.

The research project

Over the last few years, new e-tools have emerged as educational devices to support competency-based programs; for example, wikis and e-portfolios. And, while these can support programs, we must be aware that robust assessment design needs to underpin the use of these tools, otherwise the relevance and purpose are lost to both teacher and student and to competency requirements. What is being argued here is that the underpinning pedagogy should not be swamped by technology. There must be an understanding of the need for, and the focus on, the educational content, context, and benefit of using these tools to provide meaningful educational experiences, rather than just considering that the use of a particular e-tool is, in itself, the assessment.

While looking for rigorous assessment tools to support the use of e-tools (e-portfolios in particular), I was led to rubrics via many websites that discussed 'what is' and 'why', together with 'how can' rubrics be used. Many of these sites also offered online tools for developing rubrics, but most of what I found was for writing-type assignments, aimed primarily at secondary-level education, rather than at competency-based training and assessment.

So, during this search of assessment methodologies, I asked myself 'why is it that we assess the way we do? Why is it that, searching through the assessments within the institute where I work, I found that many teachers working in competency-based programs fill them with hurdles, such as tests and exams and grading competency? Would someone with a 50% result (a pass grade) be deemed as competent?'

I would argue that, from my experience of looking at current assessment instruments across a number of programs in the institute, it emerges that teachers who take a linear curriculum approach to assessing competencies miss many of the critical elements contained within those competencies and ignore current industry needs.

At the end of each unit of competency, there is an 'essential assessment criteria' section, where the 'musts' for each competency are clearly stated; for example, 'to be observed over time'. It has been my experience that many teachers don't read all the way through to the end of a competency; that they tend to focus only on the elements of the competency, the performance criteria, and the range statement.

For me then, the issue is how do they (the teachers) differentiate and assess the more difficult attributes being developed, such as employability skills like problem-solving and team work? Is not 'competency' both a concept and a set of defined features; that is, the gaining of tacit knowledge and functional skills that are integrated and need to be assessed accordingly? So, how is it that teachers (in particular) and students (to some extent) still appear to believe that learning is a linear construct and a twentieth-century model?

I then began to investigate rubrics as scoring tools for supporting grading because they offer a role in the different stages of assessment; for example, prior to assessment, the rubric can be used for communicating the expectations of the learning experience. Students, too, can utilise rubrics for peer assessment and to provide feedback. There is also scope to use rubrics during an assessment period to ensure that students are on track, subsequently realigning teaching or content as needed.

In this context, I set out to undertake a small piece of research which began with an extensive web search of rubrics, including, for example, 'models of', 'how to build', 'language contained', and 'context in which they can be used'.

This initial web search gave me a broad picture of the application of rubrics; however, this did not give me 'on the ground' experience of working directly with teachers in real assessment situations.

The institute in which I work offers the Diploma of VET Practice as professional development for those staff who want to develop their teaching practice beyond the Certificate IV in Training and Assessing (TAA). It is from this platform (the Diploma of VET Practice) that I was able to put 'theory into practice'. Further, as my exploration of rubrics and my experience in a dual-sector institution intensified, I was able to develop rubrics and trial them with Diploma of VET Practice staff, as well as explore their experiences of using rubrics as a new tool in their assessment suite.

Methodology

The overarching methodology for this work was action research-based (McNiff & Whitehead 2006), as I needed a form of inquiry that supported teaching and learning.

McNiff and Whitehead (2006) state that action research supports both the individual and the collective in professional learning where new knowledge is to be generated and where teachers can investigate and evaluate their own work. The rationale for using action research methodology is that it enables those people involved in the research process (which is the teachers and me) to develop new practice-related knowledge and to move into new directions of working, through the action research cycles of:

✧ observing

✧ reflecting

✧ acting

✧ evaluating

✧ modifying.

I used the Diploma of VET Practice program as the vehicle for contacting and working with teachers. A set of broad questions was used during the action research phase (see p.19). I then followed up with informal interviews with those teachers who took up the challenge of building and using rubrics. And it was those questions and interviews that helped to inform this paper.

The building of the rubrics

The Diploma of VET Practice program is delivered in both the classroom and in the workplace. I was able to propose the idea of using rubrics to the group of teachers when giving a session on assessments and possible assessment tools, after which a number of staff asked me to mentor them as they developed their own rubrics.

The research project began with four staff who were interested in developing rubrics. The process of developing the rubrics was based on the Western Australian model of graded assessment in competency-based training, as discussed earlier. A combination of research literature, useful websites and individual mentoring was used in the planning and set-up stage.

Sharing and reflecting on the experiences of building and using rubrics was carried out in the Diploma of VET Practice classroom sessions and again in the mentoring sessions. The mentoring sessions were also used for reflection and review of the assessment and rubrics being developed.

The building of the rubrics took a little time because of the need to make decisions about the criteria for particular assessments; that is, the setting of competency expectations and developmental activities within the assessment task. But what else was it that the teacher (as the subject matter expert) expected from the student by undertaking this activity? How would the teacher describe the expectations of assessment? Would the scale description maintain the competency and industry benchmarks?

As part of the process of designing model rubrics, we discussed, sketched out, and focused on competency only, rather than determining grading. We were referring to the student in a learning continuum; that is, the student who was achieving competency with support and the student who would be an independent learner, such as those described in the scale levels depicted in tables 2 and 3.
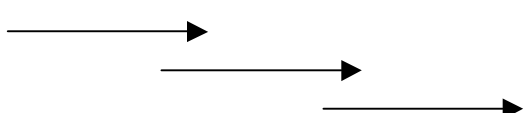
Table 2   Components of a standard assessment rubric

Dimension of competency/ criteria to be assessed	Task description (this can be the instructions attached to a specific assignment)			
	Scale level 1 e.g. not-yet-competent	*Scale level 2* e.g. achieving competency with support	*Scale level 3* e.g. competent	*Scale level 4* e.g. competent independent performance
e.g. task performance (Rows of elements added to reflect the number of criteria to be assessed within the task)	A description of this particular element, that is, what would be found at this scale (the quality expected)			

Table 3   Sample descriptions at different scale levels

Dimension of competency/ criteria to be assessed	Task description (this can be the instructions attached to a specific assignment)			
	Scale level 1 e.g. not-yet-competent	*Scale level 2* e.g. achieving competency with support	*Scale level 3* e.g. competent	*Scale level 4* e.g. competent independent performance
A sample of descriptions that can be customised to the criteria being assessed	Little or none Never Incomplete Inadequate Unsatisfactory Unclear Rarely Lacks	Fewer than Seldom Less than Sometimes unclear Vague Minimal Somewhat relevant Somewhat reasonable	Satisfactory Competent Clear Always Accurate Logical Appropriate	Excellent Always All Complete Superior Significant Logical

At this point of the rubric building we are only describing possible samples of language rather than assigning grade expectations. However, all that is needed to create grading is to contextualise the rubric table scales to 'competent', 'competent with credit', competent with distinction' and possibly 'competent with high distinction'. Grading is describing the worth of each dimension listed, in either numerical points or as a set of qualitative text descriptions, thus allowing for holistic judgments. Building a qualitative (text-based) rubric to support grading need not be a huge leap as we already know what competency is. The next step is focusing on the highest expectations, that is, what does exemplary look like? And would exemplary be a distinction or a high distinction? And again what does a credit look like?

Where the scale tables described above differ from the Western Australian model is that the Western Australian model involves building on the five grading criteria (as described on p.13). A further five dimensions for each criterion (outlined in the model) are added, thereby creating a numerical rubric, with each cell in the table being assigned a score of 1, with a maximum score achievable of 25.

Thus a student's results are described in points. For example, a student with an average score of 21 points or greater is awarded Performance with Distinction (PD). If the student has scored 15 or greater but fewer than 21, they are awarded Performance with Merit (PM). If a score of below 15 is achieved, the student's performance is graded as Competent (PC).

In the planning phase I found that clearly spelling out the expectations of the assessment required considerable reflection in relation to the task being set for the students. Furthermore, the language used in the task-dimension fields of the rubrics changed as the teachers became more confident in building their assessment tools, and I observed a shift in the teachers' thinking as they moved from being *subjective to formative* in terms of how they viewed and spelt out the expectations of their assessment tasks.

Conceptually, this was a leap from the standard 'competent' or 'not yet competent' and was a necessary step in progressing to the issues of grading. This stage of reflection on the action research process was characterised by shifts in the teachers' views of both assessment tasks and outcomes.

Reflection on the process

Mentoring was the primary method for giving and receiving feedback in the stage when teachers were in the process of developing their rubrics. It was a case of 'trial and error' during the building of the rubrics; drafts were drawn up, and discussions about questions such as; 'would you call someone competent with that description?', and 'would you consider this to be a credit when grading?' There were also shifts in assessment expectation, including rethinking assessment criteria, rewording scale dimensions, and enormous growth in understanding the scope of rubrics in support of competency-based assessments.

Four teachers from the areas of dental technology, conservation and land management and electrical were interested in building rubrics. From this group, only three proceeded but only two were interviewed. Due to work commitments, one teacher was unable to be interviewed for this paper; however, he did indicate that he was successfully using within his program.

Interview questions

A set of open questions was used as a starting point when interviewing two teachers for this paper. Those questions were:

◇ What has using a rubric meant for you as a teacher?

◇ How do you think the tool (rubric) works for your students?

◇ How did you develop your rubric?

◇ How was the rubric a useful tool for communication?

◇ When and where would you use a rubric?

The interviews were of a discursive nature, and the teachers who participated were open and frank in their answers.

Extracts from the interviews

Before this research project began, the teachers participating had little or no experience of using rubrics; the common factor was that all were enrolled in the Diploma of VET Practice and were exposed to the application of rubrics as part of their training program.

The overall impression from the interviews was that each teacher had positive experiences from the designing process and with using their rubrics as part of the suite of assessment tools. This can be demonstrated in the extracts below.

Teacher 1 interview:

> As a teacher, I have been able to teach rather than 'wing it'; I now have a concrete tool to assess from. It has been good to show how it is possible to make a tool that is reproducible, that is valid and not subjective, a tool that ensures uniformity across assessors; it is fairer and more objective.
>
> The rubric informs assessment expectations; it enables the students to meet the bar and excel if they want to. Some teachers don't like to show the bar—that is, teaching the way we were taught—and may not understand assessment; they are just 'marking'. The rubric is a better way to assess; rather than just mark. [The student] is looking at the performance descriptor [rather] than the score.
>
> Building a rubric was not all that difficult to do; the biggest obstacle is those [teachers] who don't use them [rubrics] and go back to old models [of assessment], not understanding the rationale [uses] behind rubrics. It is not a question of just relying on professional judgment, rather an opportunity [the rubric] to funnel [the student] into the ball park rather than just playing at the extremities.

Teacher 2 interview:

> The concept of using a rubric provided me with a resource and provided the students with a clearer guide to their learning experience, rather than the subject being created in the moment and going off track and leaving the training package intent. Before using a rubric, I had an assignment and students going off track; I tried to make improvements and was ignored. The first rubric I developed allowed for feedback and reflection of where the students were. It shifted the goal posts and gave the students a clear indication of where they were going. For the students, there was a shift to being competent.
>
> The initiation into rubrics has been restitution, an after-the-fact/just-in-time device that has allowed me to get [the project] back on track, and the students ended up producing a plan [the assessment task] that satisfied the requirements of the training package.
>
> The rubric very quickly and clearly showed the students where they were, currently, in the development of their project, and where they needed to get to. The rubric shifted the students' thinking, so it was a powerful tool, a brilliant support for teachers and the students, in black and white; we all know what is required.
>
> I [the teacher] had used a Wiki for communication and guidance throughout the project and found that it was largely ignored; however, the rubric in this instance [for the project] was a stronger tool. I was able to describe the reflective and cooperative elements to be developed in the project; the rubric was able to show the requirements that each student needed as evidence of their input and engagement.

Teacher 2 went on to say that he would use the rubric 'upfront and as a guide for the students from the beginning of the next project'; that is, he would use the rubric to communicate the assessment; he had initially trialled the rubric at the end of the assessment process (as a final assessment guide). He has also decided that he will use a rubric for field trips and will give the rubric to the students to take with them, as he feels the rubric will be useful for opening up questions and will, in turn, make the field trip more effective.

I went on to ask if using a rubric had improved his personal practice. He explained that the rubric allowed him to more closely follow the training package and, in particular, the critical aspects of a competency. He further claimed that using rubrics had improved his teaching practice and provided clarity to the students' main project, which any number of classroom discussions and wikis (a tool he had used for communication) had failed to do.

At the time of interviewing the teachers who had been developing the rubrics, I had an unplanned and casual conversation with one of their students. I asked the student whether he had noticed a difference in his overall training experience, and, if so, what it was.

The student commented on how he and his fellow students had benefited significantly in a major assignment when they had been given a rubric that clearly outlined the assessment expectations. He went on to say that the rubric had been invaluable to the overall learning outcome because he and his fellow students had clearer expectations of the assignment. He said that, prior to this, they had been struggling to understand what was really being expected of them.

Although the teachers interviewed came from different disciplines, there were similarities in their overall experience of developing and using rubrics. Themes were emerging for the teachers: the need for a rigorous assessment structure; the resources required to support assessment; and the clear guidance necessary for students in competency-based training. Outcomes for students included feedback and directions of assessment.

What also came out strongly from the experience of building the rubrics with the teachers, and is further reinforced in the interviews, is that a rubric supports assessment while decreasing subjectivity and ambiguity; it is also a reflective tool for competency-based teaching and learning.

Conclusion

The conclusion from both the literature and teacher feedback is that rubrics can not only provide a framework for supporting students and teachers in competency-based training and assessment, but they also have the capacity to support a graded assessment process. However, the value is not in the rubric alone, but in how it is used in the process of assessment. This will underpin individual teaching styles and methods and clearly convey intentions and expectations to students, as well as providing a place for feedback and peer review.

In summary, the use of rubrics can be of benefit in the following ways:

✧ They can *aid in the clarity of assessment expectations,* since they spell out clearly the criteria and scale of the assessment task that is being asked of a student.

✧ They *offer a place for student reflection and aspiration*, because a student can clearly see the assessment expectations of the task set. A student can use the rubric as a guide to reflect on their strengths and weaknesses in particular criteria, and to reflect on what they may need to do to change assessment outcomes. The rubric can also be used to determine the scale (grade) they wish to achieve.

✧ A rubric can be a *place for student feedback*, as it clearly spells out the assessment expectations. Therefore, a teacher can use the rubric as a communication tool because it can be used both before and after an assessment task.

✧ A rubric offers great strength in supporting the *expectations of assessment as set out by Standard 1 of the AQTF,* covering fairness, transparency, reliability and sufficiency. Having all the expectations and standards clearly articulated in a rubric avoids bias (subjective assessment) and poor communication, leading to the assessment being more readily moderated.

✧ They aid in teacher *validation and moderation*; the rubric has clearly stated expectations of assessment. Validation processes are then able to be engaged openly and without ambiguity. It should be clearly evident through the criteria and scale whether the assessment meets the competency/ies and task requirements.

✧ They offer *transparency for purposes of articulation.* By having well set-out criteria and scales, the learning and teaching levels achieved by students articulating from competency-based assessments to higher education programs will be clearly and confidently assessable.

✧ They can be used *as part of the recognition of prior learning (RPL) assessment process.* Assessment methodologies for RPL can be supported by rubrics, as RPL should be no more than the assessment a student would normally undertake to demonstrate competency.

It is clear that there are many models of graded assessment, and that currently graded assessment takes place in an ad hoc fashion. However, for validity and consistency, a number of recommendations have emerged from this research project and associated work that will assist those institutes and programs that require graded assessment to support students and industry.

Recommendations for supporting rubrics and graded assessment are that:

✧ there be a wider use of rubrics as an assessment tool in competency-based programs, in particular, for assessments where grading will take place

✧ the Western Australian model be considered for graded assessment in competency-based programs, including the steps of 'assessing as competent in the task/s' and 'knowledge first'. These should be followed by additional criteria that are clearly stated as for grading, such as the employability skills

✧ professional development programs be developed to support the understanding and building of rubrics, as well as the principles embedded in the Western Australian graded assessment model. Teachers need to have a clear understanding of where and how these tools and concepts can be applied in assessment tasks

✧ the principles of graded assessment be embedded in competency-based assessment and the construction of rubrics into Certificate IV in Training and Assessing programs to add consistency across registered training organisations and states

✧ institutes have comprehensive policy and procedural guidelines to explain graded assessment practices in competency-based programs

✧ rubrics designed to support graded assessments be validated as per the Australian Quality Training Framework standards.

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