One of the consequences of training reform, as it has occurred internationally, has been a focus on on-the-job assessment and a concern to clarify its relation to off-the-job assessment. However, the relationships between on- and off-the-job assessment are obscured by a pervasive unclarity of terminology. This paper proposes and argues for definitions of the terms designed to remove this unclarity. Various advantages of the proposed definitions are discussed and the relations between the two types of assessment are expounded via a model of the developmental process by which a worker comes to achieve effective workplace performance. A proper understanding of the relations between on- and off-the-job assessment is important because, rather than favouring one to the exclusion of the other, the practicalities of assessment usually point to some combination of the two being most effective.

Introduction

A growing interest in on-the-job assessment and its relation to off-the-job assessment has been stimulated by recent aspects of education and training reform as it has occurred internationally. In the local vocational education and training (VET) sector, interest in the links between the two kinds of assessment (see, for example, Bloch & Thomson 1994; Hager 1997) is the product of training reforms that include the creation of workplace competency standards and, hence, the development of competency-based courses, as well as the implementation of the recognition of prior learning (RPL). The links between on-the-job assessment and off-the-job assessment have also become a topical issue in the higher education sector with the growing introduction of work-based learning degrees (Boud 1998; Seagraves et al. 1996). While an increase in the links between industry and the providers of VET has the obvious potential to enrich the quality of training, a major issue that first needs to be resolved is how to decide which competencies are best assessed in which environment.

While on-the-job assessment in one form or another has a very long history, aspects of recent training reform, such as RPL and the growing interest in assessing candidates against workplace competency standards,
have brought it to the attention of providers of VET more vividly than ever before. The most obvious attraction of on-the-job assessment is the possibility of assessing competencies that cannot be tested by off-the-job assessment. It can serve also to test a learner’s capacity to apply general skills and knowledge gained off the job to particular, sometimes unique, work settings and contexts. Likewise, on-the-job assessment provides opportunities for reinforcement and practice of acquired skills and knowledge within particular or unique work settings and contexts. This increased focus on on-the-job assessment has been accompanied by a growing awareness that its relation to off-the-job assessment is not as clearcut as it might have appeared to be at first sight.

Clarification of terms

That the relationship between on-the-job and off-the-job assessment has been unclear has been due, at least in part, to the meanings commonly assigned to the respective terms. Accordingly, to achieve the purposes of this paper, on-the-job and off-the-job assessment first need to be defined clearly. The following definitions have been designed to bring out the real differences between the two while, at the same time, serving to unmask those differences that are more apparent than real. It is accepted that however one attempts to distinguish on-the-job from off-the-job assessment, there will be some practical cases of assessment that appear to lie on the borderline and, hence, could be assigned to either or both categories. However, accepting the fact that some overlap is inevitable, it is still possible to draw the borderline in different ways. It should be noted that the way that on-the-job and off-the-job assessment are defined in this paper may not accord with some peoples’ initial intuitions of where the borderline between the two should be drawn. However, the paper will argue for the significant advantages of the proposed definition over other alternatives.

The proposed definitions of on-the-job and off-the-job assessment are:

In this definition, ‘actual workplace situation’ refers to a number of crucial features that jointly serve to distinguish on-the-job assessment from off-the-job assessment. It is suggested that these crucial features together characterise the complexity and uniqueness of actual workplace performance which sets it apart from training situations of all kinds. Training situations, whether they take place in the workshops/laboratories of either industry or of providers of VET inevitably lack some of the crucial features that characterise actual workplace conditions. These crucial features include:

- the physical surroundings of an actual workplace. (Though the full complexity of this feature is rarely approached in training situations, there is often great variability between the physical characteristics of actual workplaces in the same industry or occupation, e.g. differences in brand names of the equipment, differences in the age of the equipment, etc. Despite such differences, there is typically a minimal level of equipment, supplies etc. needed for someone to be able to carry out the job or occupation. One implication of the variability between the physical characteristics of actual workplaces is that it would be unfair to carry out an on-the-job assessment of someone who had not had some reasonable opportunity to become comfortable in, and familiar with, the physical surroundings in which they were to be assessed)

- the time demands of an actual workplace. (This includes the need to carry out work at a rate that is both effective in its outcomes while being efficient in economic terms. But it also includes the need for the candidate to plan and organise the work performance so that it fits in with the work of others in the same workplace and, where appropriate, draws on their services in a timely way. For this reason, on-the-job assessment normally would have to be carried out during rostered working hours)

- the rewards and incentives of an actual workplace. (This will mean, for instance, that the candidate will normally be being paid for the performance that is being assessed. While learners are usually paid during their training, the level of remuneration is typically somewhat less than the pay rates for fully competent workers)

- the performance that is assessed is a part of the candidate’s job (preferably a significant component of the performance of that job).
This also means that the candidate bears the normal degree of responsibility for the performance that is being assessed.

Off-the-job assessment: Any assessment of performance in a situation which, though it replicates or simulates many of the features of an actual workplace situation, nevertheless lacks some the above crucial features that characterise actual workplace conditions. This means that for any case where some key aspect of full workplace performance is missing from the assessment situation, it does not count as on-the-job assessment. The repeated use of the word 'normally' in the above outline of the crucial features that characterise actual workplace conditions points to the inevitable overlap that will occur between on-the-job and off-the-job assessment, however they are defined.

It follows from the above definitions that, though assessments of simulations of workplace performance have important uses and advantages (e.g. for assessing responses to emergency situations), such assessments are not part of on-the-job assessment. It is recognised that the term 'on-the-job assessment' has commonly been applied to assessment of performance in situations that lack some of the above crucial features that this paper claims characterise actual workplace conditions. However, the disadvantages of using the term in this common way will become apparent in subsequent discussion.

At this stage it is important, perhaps, to emphasise that the distinction between on-the-job and off-the-job assessment involves more than just a debate about words. There is currently much confusion about the relation between the two types of assessment and what this means for the various groups involved in the provision of VET. However, this confusion is not one about how to use words. Rather, it is about the practical differences that the new approaches to VET will make to the daily operations of the traditional providers of VET. Since it is therefore crucial for the purposes of this paper that what counts as on-the-job and off-the-job assessment should be made clear, the proposed definitions have been presented right at the outset.

As already indicated, these definitions of on-the-job and off-the-job assessment will be defended and justified by the ensuing discussion.
Before moving on to that, however, it is worth pointing out that the proposed definitions have some immediate implications for the debate about what counts as on-the-job and off-the-job assessment. For example, a naive first impression might be that assessment that takes place in training carried out on industrial sites is 'on the job', while assessment that takes place in formal VET courses, whether in public or private training institutions, is 'off the job'. It should be clear though that the mere fact that assessment occurs in industry training rooms can't be enough for it to count as 'on the job'. Otherwise, much of the assessment that currently takes place in public and private training institutions, which is not in itself significantly different from much of the assessment that occurs in industry training rooms, would also have to be counted as 'on the job'. Reflection suggests that neither is real on-the-job assessment. In both cases, some of the crucial features of on-the-job assessment discussed above are missing. Likewise, the case of an apprentice having a practice run at using a piece of equipment at her or his workplace, in order to see whether they have the knack of it yet, also typically falls short of on-the-job assessment. That is, some of the crucial features discussed above are likely to be missing, e.g. the consequences of failure are normally not as significant for a practice run as they are for a real job. On the other hand, it seems clear that there are important cases of on-the-job assessment that occur rarely, if ever, in training situations. An example would be an apprentice being informally assessed by an employer or by fellow workers as they carry out basic tasks that are part of their normal workplace activities. Such an assessment is clearly on-the-job assessment, yet it is not a part of the apprentice's formal course assessment. It is these crucial similarities and differences between a variety of assessment situations that the definitions proposed above seek to capture.

A model for understanding the relationship between off-the-job and on-the-job assessment

This model aims to describe what is involved in the process of a worker achieving effective work performance. The model includes the contribution of VET programs to this overall achievement of effective
work performance. It will turn out, according to this model, that some kinds of assessment are best carried out off the job, while other kinds are best done on the job. In a relatively small number of cases there may be a choice, each alternative having its own advantages and limitations. This conceptual model of education, training and assessment for workplace performance has three hierarchical levels. The three levels of the model are:

1. development of knowledge, skills and attitudes
2. performance in simulated or practice situations
3. competence in the full practice of the occupation

Each of the levels is to be thought of as nested in, and as a prerequisite for, the next level. Because each of the levels has its own appropriate curriculum and types of assessment, the model thereby helps us to understand the respective contributions of on- and off-the-job assessment to the overall achievement of effective work performance. It should be noted that for many occupations the first two stages of the model have been considered sufficient preparation for novices. For instance relatively few formal VET courses include more than the first two levels. One of the lessons from the introduction of occupational competency standards in Australia has been that courses that feature only the first two levels of the model are unable to produce graduates that fully meet the competency standards. As argued later, this challenges the ‘front end’ assumption of most traditional VET courses. Likewise, it is still common in some regulated professions to register graduates who have completed a course based on just the first two levels of the model. Similarly, problem-based learning courses, which are intended to remedy deficiencies of traditional approaches to vocational preparation, mostly feature only the first two levels of the model.

The three hierarchical levels of the model will now be considered briefly. In the process, the various sorts of learning and assessment situations that are most appropriate for each of the levels will also be mentioned. It turns out that for one level, on-the-job assessment is clearly to be preferred, while for the others, off-the-job assessment is the more appropriate.
The nature of the three levels of the model

1 Development of knowledge, skills and attitudes

The competent performance of any occupation requires that the worker possess a range of underpinning knowledge, skills and attitudes. The breadth and depth of these essential underpinning attributes increases with the skill level of the occupation. In cases where the courses that prepare people for an occupation extend over several years, the development of these underpinning knowledge, skills and attitudes is typically the focus of the initial years. This reflects the view not only that the knowledge, skills and attitudes provide a necessary foundation for the later levels of the model, but also that the development of the required amounts of these underpinning knowledge, skills and attitudes is a process that typically takes some time. The assessment of each of these separate components—knowledge, skills and attitudes—will now be discussed briefly. (For more extended discussion of this see Hager, Gonczi & Athanasou 1994.)

Knowledge

While many assessment methods assess knowledge to some extent, methods that are based on questioning of some sort are usually the ones most direct and efficient for testing basic knowledge. Methods other than questioning will be more appropriate for testing application of knowledge. So the choice of method in any given case will depend largely on the purpose of the knowledge assessment. If testing for recall, memorisation and understanding of a diverse range of knowledge is the major purpose of the assessment, then some form of traditional pen-and-paper testing will very likely be most suitable. If, on the other hand, the major purpose is to test the candidate’s ability to apply knowledge in a workplace problem situation, then it may be better to simply place them in the problem situation and ask them to solve it. In this latter case, it also can be very productive to supplement the assessment of performance on the problem situation by oral questioning of the ‘what would you have done if such-and-such had been different’ kind. This sort of questioning can be also very effective for testing understanding.
of safety requirements and procedures. In such cases it is usually not feasible to place candidates in the dangerous situation to see how they will react. Rather some form of simulation supplemented by judicious questioning is likely to be the most viable option.

It is notable that virtually all of the methods for testing knowledge are off the job. Questions that test recall, memorisation, and understanding in direct relation to the workplace are common. These sorts of testing of knowledge or job 'know how' can also be done by simulations, practical tests, etc. However, in such cases the assessment is still off the job. Indeed, it follows from the way that on-the-job assessment has been defined in this paper that knowledge testing by questioning will lack at least one of the crucial features of on-the-job assessment. In particular, on-the-job assessment, as it has been defined above, requires that the performance that is assessed be a part of the candidate's job. Answering questions about the job clearly will not come into this category.

Skills

It is common in the early stages, both of formal courses and of industry-based training programs, that learners practise basic skills until their performance reaches required levels of proficiency. In many cases further practice is needed to appropriately combine simpler skills so as to enable the performance of more complex skills. Learning to play musical instruments provides many examples of this type, as do those occupations that involve significant amounts of physical or manual skill. However, the same principles are true of the learning of 'mental' skills, such as the performance of mathematical calculations. In all of these cases, direct skills assessment for both formative and summative purposes is common. A variety of testing types can be employed for these purposes, e.g. direct observation and rating of performance, assessment of the product of the performance against a rating scale, etc. It is equally clear that virtually all of these cases are straightforward examples of off-the-job assessment because they will lack some or all of the crucial features outlined above that characterise actual workplace conditions, e.g. the performance of particular skills in isolation for the purposes of practice is rarely a significant component of a job.
Attitudes

Though sometimes overlooked, attitudes and values of various kinds are, in fact, important in the performance of all occupations and training courses typically seek to inculcate them in one way or another. However, attempts to measure attitudes and values directly are notoriously unreliable. For one thing, a person’s attitudes and values are constructs that are not themselves directly observable, but can only be inferred from what is observable, viz. overall performance. As well, attitudes and values are highly sensitive to context. For this reason, direct assessment of particular job-related attitudes is not usually a major feature of formal vocational education courses or training programs. Nevertheless, trainees are sometimes assessed in a global way for such things as ‘neatness’, or ‘systematic approach to work’ which, while not attitudes or values in themselves, can be seen as indicators or products of trainees’ attitudes and values. The main principles for making such assessments are that valid assessment of attitudinal factors will be greatly facilitated by longitudinal and multiple holistic assessments that take account of contextual factors. Longitudinal and multiple evidence of attitudes and values may be gathered through a variety of sources:

- direct observation of work activities
- supervisor assessments/ratings
- evidence from prior achievements
- oral questioning
- written tests
- self-reports
- performance during a practicum, internship, professional year, etc.

Some holistic combination of these methods carried out over a period of time, e.g. direct observation of performance by supervisors supplemented by oral questioning, would assist sound judgements on the development of trainees’ attitudes in the early stages of VET courses and programs. Thus, it is possible to make such assessments in an off-the-job situation. However, unlike the cases of knowledge and skills, there is a time factor in the assessment of attitudes and values, i.e. valid assessment requires a longitudinal collection of evidence.
These considerations suggest that full assessment of attitudinal factors is best carried out in on-the-job assessments that are holistic and longitudinal (Hager, Athanasou & Gonczi 1994, p.59). An important reason for this is that attitudinal factors are often specific to the context and culture of a particular workplace. While formal VET courses and programs will develop the major attitudes and values associated with an occupation, usually they will not focus on the attitudes and values that are specific to particular workplaces. Thus, while all trainees in a paramedical training course would be required to develop an attitude such as 'empathising with the patient', the course might itself put much less emphasis on (say) 'a concern for social justice', even though some of the trainees might be destined for a workplace where this is a major concern.

Though, from the perspective of assessment theory, attitudes and values are best assessed in a longitudinal way in actual workplace contexts, this will normally be impractical for logistical reasons when trainees are in the early stages of their vocational training. This will be so whether they are in formal VET courses and programs, whether public or private, or in internal industry training courses. Thus only limited off-the-job assessment of attitudes and values, for the reasons described above, will be appropriate in these cases.

In summary, learner's/trainee's progress in the development of the knowledge, skills and attitudes, that together comprise the first level of the model for understanding the relation between off-the-job and on-the-job assessment, is usually best assessed by off-the-job means. It makes no difference to this conclusion whether the education and training are provided by a public or private training institution, or by the industry itself.

2 Performance in simulated or practice situations

Performance in this second level of the model for understanding the relation between off-the-job and on-the-job assessment involves a higher level of integration of knowledge, skills and attitudes. This integration of knowledge, skills and attitudes presupposes the attainment of some parts of the previous level. The learner/trainee at this level can be
placed in simulated or practice settings to perform detailed procedures of a more holistic kind. The performance is still conducted in a contrived setting, but it requires the learner/trainee to operate at a level that integrates several knowledge areas and skill components. Performance in simulated or practice situations of this kind has always been an important way for novices to acquire and hone the basic skills of their occupation. Examples would include the routines followed by learner drivers; the simulations of hotel reception desks and restaurants in colleges that conduct hospitality industry courses; the repair of trainers' and friends' automobiles by panel shop trainees; etc.

From the preceding discussion it is clear that assessment at level two of the model is still off the job as defined earlier in this paper. This is so because, for example, learners/trainees staffing the simulated hotel reception desk in the hospitality college, or the panel shop trainees repairing a friend's automobile, both lack some of the crucial features that, as suggested above, serve to distinguish actual workplace situations. Though the physical features of an actual workplace may be closely approximated, other crucial features are lacking, such as time demands, rewards/incentives, and full responsibility for the work performed.

3 Competence in the full practice of the occupation

Not only does performance in level two situations lack some of the elements of actual workplace performance, but experienced workplace performers are no more likely to engage in these skill routines than they are to take a written exam on their work knowledge. That is, those who reach the third level on the model for understanding the relation between off-the-job and on-the-job assessment leave behind the activities at the two earlier levels, which were nevertheless vital in the process of them attaining level three performance. This is so because significant 'know how' or practical knowledge is derived from on-the-job experience, thereby providing a different dimension to level three performance. This different dimension is characteristically more holistic than the level two activities, which may be thought of as a ladder which, having served its purpose to provide ascent to level three, is then kicked away. Thus, for example, experienced doctors do not follow the
sequences of steps that are employed by novice doctors to arrive at a diagnosis. Rather they arrive at a diagnosis in a much more holistic fashion whose details they themselves have difficulty describing (Tennant 1991, p.51). Likewise, beginning teachers are provided with a logical, stepwise lesson preparation procedure that works. However, research has shown that experienced teachers take a more holistic approach, rarely using the stepwise procedure, though they agree that it is the best starting procedure for novices (Clark 1988, p.8). The full significance of this extra dimension of the third level of the model for understanding the relation between off-the-job and on-the-job assessment is the main focus of this section.

This third level of the model involves the complexity of actual workplace performance and all that that entails (as outlined above in the crucial features that characterise actual workplace conditions). This level of competence reflects the highest level of integration of knowledge, skills, personal qualities, and accumulated reflective experience. It includes the previous two levels but goes well beyond them in the sense that their contributions are incorporated into higher order thinking and acting in the context of complex practical problems. It is this form of reflective, integrative thinking and acting that needs to be the focus of assessment. For these reasons, competence in the full practice of the occupation—workplace competence—ideally should be assessed in an on-the-job situation. However, while it is difficult to imagine a case where off-the-job assessment was, by itself, adequate to this task, there are many examples of competence in the full practice of the occupation being assessed effectively by a combination of on-the-job and off-the-job assessment. Some examples to illustrate this will be discussed shortly, together with the reasons for choosing a combination of on-the-job and off-the-job assessment rather than just straight on-the-job assessment.

It needs to be stressed, however, that what is here called ‘competence in the full practice of the occupation’ involves substantial learning from experience in the workplace. As discussed briefly in the last section, the full significance of this extra dimension of the third level of the model is often overlooked. This is so because there is a traditional assumption that good VET courses supply all of the knowledge that is needed and that workers simply apply this knowledge to the various problems that
arise during work. However Eraut (1985) is one of many to claim that significant knowledge and know-how exists about, and is created within, the practice of occupations. Eraut claims that this practical knowledge is typically not recognised, or is undervalued, by those who design and deliver the formal courses. (For more on this see Hager 1994, 1996). This position is supported by research on the development of expertise or practical intelligence. This research suggests that expertise involves the development of domain specific mental schema that enable the perception of large meaningful patterns that are not apparent to the novice (Glaser 1985; Tennant 1991). Amongst other things, this domain specific ‘know-how’ enables experts to work faster and more economically than novices. Further support for the view that competent workers derive significant practical knowledge and know-how from the practice of their occupation comes from Cervero (1992, p.98) who argues that the procedural or practical knowledge that is essential for effective professional practice can only be ‘acquired through practice or reflection on practice’. (See also Kennedy 1987.)

The implication of this is that formal courses in VET have a limited capacity to produce graduates with competence in the full practice of the occupation. Short of the course incorporating significant components of realistic workplace learning, together with effective on-the-job assessment, it would appear that a course can merely produce a novice who is well prepared to engage in the learning from practice that the development of expertise will require. For many formal courses in VET, the provision of significant components of realistic workplace learning, together with effective on-the-job assessment, are impractical anyway, since a majority of the students are not in employment of a kind related to the course in which they are enrolled. Though the proposition that a course can merely produce a novice who is well prepared to engage in the learning from practice that the development of expertise will require may not be a welcome one for many teachers and trainers, it does appear to be well supported by a diverse range of research evidence. The contrary view might be labelled ‘the Front End Fallacy’. This assumes that an initial period of training is sufficient to provide the knowledge, skills and attitudes for a lifetime of practice in the occupation. It is doubtful whether this view was ever plausible. The traditional path from apprentice to journeyman [sic] to master [sic] recognises the ongoing on-the-job learning that high level performance
requires. Similarly, it is no accident surely that many of the professions have long recognised that the formal course cannot provide all of the learning that the early years of competent practice requires. Hence various arrangements for completion of the formal course to be followed by an internship, a professional year, a probationary year, etc. Rather than the front end model, lifelong learning would seem to offer a more appropriate model for VET in the 21st century.

Factors in choosing between on-the-job assessment and off-the-job assessment

For the assessment of full workplace competence, the data sometimes is wholly derived from on-the-job performance, on other occasions it also includes data collected by off-the-job assessment methods. In fact, it is very common for the assessment of full workplace competence—the third level of the model—to employ some combination of on-the-job and off-the-job assessment. There are various reasons for choosing to incorporate some components of off-the-job assessment. These reasons include:

- full on-the-job assessment being impossible for safety reasons
- full on-the-job assessment being impossible for ethical reasons
- partial off-the-job assessment saving considerable time and/or resources

While the performance assessment of, for example, senior pilots largely occurs on the job, the assessment of their capacity to respond to various emergency situations necessarily involves off-the-job assessment, such as some kind of simulation. Likewise, in certain professions some off-the-job assessment is necessary because on-the-job assessment would intrude on the privacy or confidentiality of patients and clients. In still other cases, there are considerable savings in time and/or resources by using at least some off-the-job assessment. For example, in the medical and paramedical professions simulated patients are likely to be much less satisfactory than real patients for purposes of performance assessment. So, where ethical considerations tell against the use of real patients, some form of off-the-job assessment other than simulation needs to be
employed. However, simulated clients can have distinct advantages in fields such as law. Provided that the person playing the role of the client has been well trained, thereby minimising relevant differences from a real client, it is possible to employ carefully designed cases that are much richer from an assessment point of view than are typical real cases. Thus a well-designed simulation can readily yield data that is much more cumbersome and costly to obtain from an appropriate combination of real cases. Another common instance of savings in time and/or resources by using at least some off-the-job assessment occurs when it enables a larger repertoire of knowledge and skills to be assessed quickly, than does a similar investment of time and resources in on-the-job assessment.

These, then, are the sorts of practical considerations that influence the decision whether or not to opt for straight on-the-job assessment. In summary, while it is true, in general, that assessment of performance in real work situations is more valid than in simulated work situations, practical and ethical considerations, the relative weight of which varies with the nature of the occupation, can sometimes tip the scales in favour of simulations. Thus, rather than opting for straight on-the-job assessment, the choice often made is to employ some combination of on-the-job and off-the-job assessment.

Conclusion

There are other issues—educational, staffing and staff development, and administrative—concerning the relation between on-the-job and off-the-job assessment which there is no space to discuss here. This paper has suggested that the major issue that needs to be resolved if on-the-job assessment is to play an increasing role in VET is 'how to decide which competencies are best assessed in which environment?'. It has been argued that on-the-job assessment is best suited to assessing the full practice of an occupation. It was questioned whether this should be the concern of VET courses anyway, since there are formidable practical difficulties involved in the inclusion of full scale on-the-job assessment in a VET course. If such a system was to be implemented, it appeared that the award of the qualification might need to occur at some significant time after the completion of the formal part of the course, i.e. when full workplace competence had been attained.
It was also pointed out that even when full workplace competence is being assessed, it is common for a mixture of on-the-job and off-the-job assessment techniques to be employed. Thus on-the-job and off-the-job assessment are not as disparate as is sometimes assumed since many of the assessment techniques are the same at both sites. One advantage of defining on-the-job and off-the-job assessment in the way recommended in this paper is that it underlines how in most instances assessment is broadly the same whether it is conducted in industrial and commercial training situations or in formal VET courses. Conversely, defining on-the-job assessment in the common wider sense discussed early in this paper misleads us into thinking of assessment as being quite different in the two contexts. Thus, where a course assessment strategy includes some components based on work experience, regardless of who does the assessment, the assessment itself will be typically off-the-job assessment, as defined in this paper.

Defining on-the-job and off-the-job assessment in the way recommended in this paper suggests a clear answer to a question sometimes asked in the new education and training environment: 'how to ensure parity of esteem between on-the-job and off-the-job assessment?'. Since the two types of assessment are not essentially different, parity of esteem comes down to assurance that the assessment is done competently. To achieve this, the need for assessors to be trained adequately, the value of assessment manuals and other related matters need to be addressed.

A further advantage of defining on-the-job and off-the-job assessment in the way recommended in this paper is that attention is drawn to the fact, well supported by research, that a significant part of the acquisition of occupational competence typically comes from on-the-job learning. Overall, then, this paper has provided a case study of advantages and difficulties in attempting to cross traditional boundaries.

Endnote

1 This model has been the product of joint work that I have undertaken with Dr Jim Butler of the University of Queensland (Hager & Butler 1996). His contribution is gratefully acknowledged.
References


Clark C 1988, 'Asking the right questions about teacher preparation: Contributions of research on teacher thinking', *Educational Researcher*, vol.17, no.2, pp.5–12.


