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Testing the effectiveness of a quality assurance system: the example of Hong Kong

David Lim

Operating a quality assurance system in tertiary education is the rule rather than the exception, because of the belief that it will improve quality. However, proving this is not easy. This study examines three ways of providing the evidence: the \textit{a priori} method, the stepwise backtracking method, and the external evaluation method. The quality assurance system of the Vocational Training Council of Hong Kong is used as a case-study, but the findings on the advantages and disadvantages of using these methods have relevance for testing the effectiveness of quality assurance systems for other education institutions.

\textbf{Keywords:} quality assurance; vocational education and training; the Vocational Training Council of Hong Kong

\textbf{Assessing effectiveness of quality assurance systems}

The operation of a quality assurance system in tertiary education institutions is the rule rather than the exception, because of the belief that it will improve quality (Mok 2005), though often there is a big gap between the rhetoric of quality and the practice of improvement (Houston 2008). The need to provide greater quality itself is due to the much greater level of public scrutiny, with funding authorities requiring justification for the large public expenditure incurred, and students demanding better value for money (Currie and Newson 1998; Jones 1998). The shift to move higher education beyond the preserve of the rich with the usual subsequent reduction in the real resources per student is another reason.

Most, if not all, education institutions adopt the instrumental approach to quality assurance. This sees quality as something that fits its purpose or mission, provided this accords with publicly accepted standards of accountability and integrity (Bogue and Saunders 1992; Harvey and Green 1993), and the quality assurance system effective if it achieves this purpose (Lim 2001). While there are variations, the basic quality assurance system established under the instrumental approach requires the education institution to set its mission, introduce strategies and management processes to achieve the mission, use quantitative and qualitative performance indicators (PIs) to show how it is doing, and monitor its ability to implement what it has learned and its action plans. However, proving that such an essentially self-evaluating system will lead to better quality education is not easy. This study suggests three ways of doing this, using as a case-study the quality assurance system of the Vocational Training Council of Hong Kong,
though its findings will have relevance for other education institutions. The first method is an *a priori* method. Before the advent of formal quality assurance systems, most higher education institutions had a latent quasi-quality assurance system, where long-established management and academic committees, with external members, and the external examiner system operated, to provide external benchmarks and assure quality. There was also the compulsory requirement of professional bodies (e.g. in engineering and accounting) for courses to be accredited before their graduates can practise. However, these different but related measures to assure quality were presented in different documents and operated by different committees, often without reference to one another. This led to the belief that the different processes had very little to do with each another, overlapping in the documentation and management processes, and inconsistency in the details. The net effect was to reduce the impact of the quality assurance processes, and to suggest to staff and outsiders alike that they were incoherent and ineffectual.

The introduction of formal quality assurance in one document and system will, *a priori*, help to produce better quality education. Different sections of the institution are now able to see how, in the achievement of its mission, their seemingly unrelated activities are very much linked to one another. They can also see how only an integrated, not piece-meal, approach can produce significantly better results. For example, designing and delivering relevant and quality courses is not possible without proper strategic and financial planning, any more than it is possible without the presence of committed staff knowledgeable about learning and teaching methodologies, and adequate learning support services. Another important impact is the greater responsibility that operational units now have for their actions to improve quality. This change from the traditional top-down and directed way of doing things enables staff to identify their own areas of weakness and initiate improvement actions, thereby producing greater staff ownership of the operation.

However, on its own, an *a priori* assessment, no matter how well conducted, is not adequate, as there must be empirical evidence to support the claims. An assessment method that combines *a priori* reasoning and empirical evidence is the stepwise backtracking method. This asks first, if the strategies chosen can fulfil the mission on an *a priori* basis; second, if the management processes to implement the strategies are appropriate; third, if the PIs used to measure the effectiveness of the management processes are appropriate; fourth, if the targets for them have been achieved; and, fifth, if the monitoring system is capable of implementing improvement plans. These steps must be carried out sequentially because there is, for example, no point in having sophisticated PIs if the management processes whose efficacy they are measuring are inadequate for the job.

The stepwise backtracking assessment method is a logically sound method, but there are problems with the use of PIs. A common criticism of process PIs which presents staff views on the effectiveness of management processes is that they may not always produce useful answers. While this inclusive approach, much recommended in western societies, leads to greater staff understanding and ownership of the quality assurance system, it may not, in cultures and organisations that do not tolerate criticism, provide reliable
results, as staff will be reluctant to criticise their superiors, who are responsible for providing leadership, and introducing and implementing management processes. This reluctance will be most evident when people defer to their superiors, ‘power distance’ dominates (Hofstede 1994), or sycophancy prevails. Under such circumstances, self-censorship and over-statement of the effectiveness of the management processes is likely. This is an example of the difficulty of transporting methods between countries with different cultures, of what works in the one not working in another (Billing 2004; Brennan and Shah 2000; Gandolfi and von Euw 1996; Kells 1999). While there may indeed be a convergence in broad terms towards a ‘general model’ for national quality assurance frameworks (van Vught and Westerheijden 1993), the details will necessarily differ.

A common criticism of outcome PIs using ex-post data is that ‘they are always out of date – they refer to what has been done, not what may be going on now, or may happen in the future’ (Doherty 2008, 258). Another is that they encourage staff to take evasive action to protect themselves. Take, for example, the student pass rate. No academic unit likes to perform below the target set or worse than the previous assessment, as this could be seen to reflect poorly on its learning and teaching programmes. It will be tempted to achieve the target by having easier assignments and examinations, and/or more lenient marking. Another example is student evaluation of teaching. Typically, student attendance is low but increases significantly towards the end of the semester, when surveys are usually conducted, as students who do not attend classes normally and have not much idea of what and how the teacher has done, turn up in the hope of getting tips on the examinations. Teachers can also influence the results by giving very generous marks for assignments or setting a very easy midsemester examination, all just before the survey.

Yet another criticism of output PIs is that they encourage the target set to be achieved without due regard to how it is done. This tendency to achieve output targets willy-nilly is often at the expense of quality, and is found in programmes that emphasise output goals. For example, development planning in developing countries is more about increasing the number of schools than upgrading the existing ones (Behrman and Birdsall 1983; Mincer 1974), and increasing the number of kilometres of roads than making sure that they last more than one monsoonal downpour (Killick 1976). The reason for this tendency is that having more schools and roads built is politically more visible and rewarding than having fewer but better quality ones. Education institutions can prevent such downward spiralling of standards by, for example, operating an external examiner system, though the tight time constraint and the wide range of topics that external examiners have to deal with will reduce its effectiveness.

The third method is the external evaluation method, which is to have the quality assurance system evaluated by an independent quality assurance organisation, as part of a national quality assurance framework. However, the usefulness of such evaluations has been widely questioned. External assessments that evaluate only quality assurance processes, as in Australia (Australian Universities Quality Agency 2008), do not, on their own, show that quality education has been provided, because the very nature of the
approach makes it hard to get at the truth. Institutions have learned to play the system effectively and succeeded in being rated more highly than they deserve (National Committee of Inquiry into Higher Education 1997). They have done this by employing consultants to provide advice on tactics and strategies, or by sending their key players to attend professionally-run tailor-made short courses, where they learn the unwritten rules of the game and on what and what not to do when presenting aims and objectives in quality portfolios, and providing evidence to support arguments (Alderman 1996). The audit team might not have been any closer to the truth after the site-visit because the staff, students, and external committee members they met would not be representative of the institution, having been chosen carefully for their loyalty, interest in, and knowledge of, the quality assurance system, and the ability to speak and think well in public and on their feet. Moreover, they would have attended briefings and mock interviews on what to expect and been provided with model answers to expected questions, prepared by a senior university officer responsible for quality assurance. Those assigned leading roles would probably have convened meetings of their sub-groups for further discussions and mock interviews, and given relief from teaching. The rest of the staff would hardly have noticed the quality audit and site-visit, with quality affecting them only through the conduct of the semester or yearly student surveys, whose results are used for the annual academic review, and promotion. The chances of them being questioned impromptu by a member of the audit team during the site-visit will be minimal. What is being assessed is, at best, the quality of the quality assurance processes and, at worst, the marketing of it, neither of which leads necessarily to providing better education. The same criticism applies even if the institutional audit is followed later by subject/discipline reviews, as in the UK (Quality Assurance Agency 2008), because the whole exercise ‘involves game playing to cast the programme or institution in the best possible light. The peer visit element, in particular, has been criticized for its theatricality: the peers and the review subjects perform as required, whether or not they endorse the role expected of them, and the whole is a stage-managed set piece’ (Harvey 2005, 272).

Supporters of external evaluations would argue that such criticisms do not give enough credit for the professionalism and integrity of the audit staff. These are university and industry people who are either in charge of quality assurance in their own organisations or have professional expertise and experience in the area. The university members would have been involved in the preparation of their own institutions’ quality portfolios in previous audit rounds, know the tricks that universities can get up to, and have useful benchmarks to judge the quality assurance processes of other institutions. The business members would have been part of their organisations’ seeking of quality approval (e.g. ISO 9001). They will also be helped by the officers of the quality assurance agency, who will have system-wide expertise and experience and a great deal more time to study the submissions. They have their reputation to protect and are not likely to do a shoddy job.

**The VTC’s quality assurance system**

We will now see how these three methods can be used to evaluate the effectiveness of the quality
assurance system of the Vocational Training Council (VTC) of Hong Kong. The VTC has been chosen for a number of reasons. First, there are very few studies on quality assurance systems in sub-university institutions. Second, there are even fewer studies of sub-university institutions providing vocational education and training, which is surprising since such skills are essential for sustained industrialization (Chowdhury and Islam 1993), especially for Hong Kong as it upgrades its manufacturing towards more skills-based activities in order to remain competitive (Hong Kong SAR Government 2005). The VTC was established in 1982, specifically to provide vocational education and training (Ashton 2002; Chan et al. 2006; Chung 1986). It is also chosen because its 160,000 full-time and part-time students, equivalent to 37,000 full-time students, make it the largest provider of such education in Hong Kong (VTC 2007). As these students are those who do not make it in mainstream education, the provision of quality education to such large numbers of so-called ‘academic failures’ makes it a particularly challenging task (Appendix 1).

The VTC adopted a formal quality assurance system to remain competitive in the post-Sutherland era (Sutherland 2002), where many previously government-funded courses (e.g. business) became market-fee courses, and institutions have to compete for those that continue to receive such funding (e.g. design). It had a latent quasi-quality assurance system, but replaced it in spite of this having served it well, as seen, for example, in the successful mandatory accreditation exercise conducted by the Hong Kong Institution of Engineers in 2002, where 12 of its 39 engineering Higher Diploma (HD) courses received full accreditation, with the rest receiving provisional accreditation status only because their first cohort of students had not graduated. Its HD graduates also enjoy employment rates consistently over 80%, and its design students consistently winning prizes in open competition in Hong Kong and overseas.

The VTC’s quality assurance system, based on an instrumental approach, has four parts. The first is the Quality Policy, which sets out the institution’s commitment to provide quality, and the principles and concepts (e.g. Total Quality Management) that underpin this. The second is a Quality Assurance Framework, which sets out the framework for implementing enabling management processes and the PIs to measure their effectiveness. The third is the Evaluation System, which measures the impact of the enabling management processes on the provision of quality learning and teaching. The fourth is the Internal Monitoring System, which tracks the institution’s ability to implement improvement plans. The quality assurance system was introduced in two stages, starting with the Quality Policy in 1998, which was initiated by the VTC’s leadership, in line with the worldwide practice of having top management providing the leadership, drive, and direction (Tovey 1992). The Quality Assurance Framework was introduced in 2000 and was modelled initially on the Malcolm Baldrige Education Criteria for Performance Excellence, but using only those PIs that fitted in with the VTC’s requirements and that it felt ready to adopt. It was modified later to incorporate elements of the European Foundation Excellence Model (European Foundation for Quality Management 2009) and the Singapore Quality Award Framework (SPRING Singapore 2009), which resulted in the adoption of a Plan-Do-Check-Act quality cycle. The framework has three components (Figure 1).
The first is the Driver Component, which highlights the crucial role played by leaders. The second is the Enabler Component, which sets out the key management processes for achieving quality, which were identified as enabling processes for managing strategic planning, financial and human resources, and educational and support services. The third is the Result Component, which measures the impact of the enabling management processes on student performance, stakeholder satisfaction, budgetary and financial performances, and organisational effectiveness. Sixteen PIs are used, seven of which are process indicators, with data collected by soliciting staff views on the effectiveness of leadership and different management processes (Table 1). Nine are outcome indicators, which measure the effect that management processes have on student performance, student, employer, and staff satisfaction, the unit cost of operation, and the ability of the institution to provide adequate study places and programmes that attract students and provide them with employment.

The third part of the VTC’s quality assurance system is the Evaluation System, which has two elements. The first is an Annual Assessment Report (AAR), a comprehensive review of the effectiveness of the enabling management processes in achieving targets set for the PIs. It also identifies the areas of strengths and weaknesses, and produces an improvement plan for the forthcoming year. The AAR was originally carried out using all the PIs, but since 2005/2006, on the advice of the Hong Kong Council for Academic Accreditation (Appendix 2), it includes all the PIs only on a biennial basis, to allow time for actions taken under the improvement plan to take effect.
The first AAR was conducted early in the academic year of 2001/2002 and included only 12 PIs, with the full list of 16 PIs not used until the academic year 2003/2004. The AAR builds on the Course Quality Analysis Report (CQAR), which is conducted on each course every December by the course leader and was in place before the introduction of the formal quality assurance system. This uses those PIs that are directly relevant to the running of individual courses, excluding those that deal with issues concerned with the operational unit as a whole, which are leadership (PI 1), strategic development and implementation (PI 2), and staff satisfaction (PI 11). It also includes comments from external examiners and identifies areas for improvement. To ensure staff have greater ownership of the quality assurance system and take further responsibility for their own continuous improvement, the AAR is carried out by the operational unit’s Quality Co-ordinating Group (QCG), whose core members are its change agents, with clearly defined responsibilities, authority, and accountability to facilitate the development of its quality programme. The QCG also monitors the implementation of the improvement action plan. Each unit has its own Quality Policy, which is based on the corporate Quality Policy but tailored to the unit’s objectives and characteristics. The second element of the Evaluation System is a periodic quality review (QR) of the AARs of operational units, carried out by the Quality Assurance Unit (QAU), a central supporting body, to validate the findings of the AARs, and to see if they have addressed the weaknesses and built on the strengths set out in the improvement action plan of the previous assessment. To ensure the credibility of its work, the review team has external members.

The fourth part of the quality assurance system is the Internal Monitoring System. At the top is the Steering Committee on Quality Assurance (SCQA), chaired by the Executive Director of the VTC to show
that continuous quality improvement must begin at the top. Up until early 2006, the overall responsibility for quality assurance lay with the Deputy Executive Director (Quality and Administration), but now rests with the Executive Director. The SCQA sets strategic directions and monitors the overall implementation, with support from the QAU. Under the original system, the SCQA was supported by three quality assurance sub-committees, one in each of the three branches of the VTC (IVE, T&D Centres, and Corporate Services), with widespread representation from their constituencies but chaired by the Deputy Executive Director (Quality and Administration) for consistency. The IVE sub-committee saw only the aggregated report for each of the nine campuses and three nexuses, not the individual AARs of the 113 operational units. The nexus vice-principals were responsible for implementing the improvement plans of the campuses in their nexuses. A new system for IVE, shown in Figure 2, was introduced in 2006.

Figure 2. New monitoring system for the CQAR and AAR, IVE.
The monitoring system for the AARs of T&D Centres and Corporate Services is simpler. For the T&D Centres, each centre’s QCG prepares the AAR, which is examined by the Centre Manager. The Committee of Centre Managers then examines the centres’ AARs and prepares a consolidated report for the Vocational and Training Academic Board and, after that, the QASC. The QCG of each Corporate Services Division prepares its AAR, which is then examined by its Head. The Corporate Services Management Committee, chaired by a Deputy Executive Director, with the Heads of Divisions of Corporate Services as members, examines the reports and prepares a consolidated report for the QASC. This monitoring system ensures that the AAR of each T&D Centre or Corporate Services is seen and discussed by the Heads of other Centres and Corporate Services Divisions, respectively, leading to crossfertilisation of ideas and sharing of good practices.

**Assessing the effectiveness of the VTC’s quality assurance system**

**A priori method**

There is little doubt, *a priori*, that the formal quality assurance system has produced greater cohesion to the programme to improve quality. However, the coherence would have been easier to see if the Quality Assurance Framework had been presented differently. Figure 1 shows clearly, in a horizontal format, the impact that each component of the system has on one another. Leaders provide the drive for designing and implementing the enablers (the enabling management processes), acting, in fact, as the primary enabling management process, with the others acting as secondary ones, to achieve quality. However, the flow from the enabling management processes (i.e. the means) to the quality results (i.e. the ends) is not reflected in Table 1, which accompanies Figure 1. While it presents logically the driver, enablers, and results components in one column to show the intended flow from the means to the ends, it confuses the matter by presenting, in another column, PIs against each component. The function of the enabling management processes is to produce quality results, and it would have been better to have the first column showing only the management processes and the second, the PIs used to measure their effectiveness. This is done in Table 2, which breaks down the enabling management processes into the primary one of leadership and the secondary ones of strategic planning, financial planning, human resource planning, and the provision of educational and support services. It then presents two different types of PIs to measure the effectiveness of these processes. The first is the process PI, which is, in fact, a direct specific measure, as it obtains views directly from the staff concerned on the effectiveness of each process. The second is the outcome PI, which is, in fact, an indirect holistic one, as it measures the cumulative effect of all the processes on student performance, stakeholder views, the cost of operation, and the ability to attract students and provide adequate study places. For example, student satisfaction with the VTC depends not only on the quality of the educational and support services provided (e.g. the use of student-centred learning and teaching programmes), but also the quality of strategic planning (e.g. courses providing them with the skills required for employment), financial planning (e.g. adequate financial assistance for needy students), and human resource planning (e.g. a performance management system that requires poor teaching to be
remedied in a timely manner). In the new presentation, the first column presents the enabling management processes, the second the effectiveness of these processes, measured by direct specific process PIs and indirect holistic outcome PIs.

<table>
<thead>
<tr>
<th>Enabling management process</th>
<th>Direct specific process PI</th>
<th>Indirect holistic outcome PI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td></td>
<td></td>
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<tr>
<td>Leadership</td>
<td>PI 1 Leadership at various levels of the operational unit</td>
<td></td>
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<tr>
<td>Secondary</td>
<td></td>
<td></td>
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<tr>
<td>Strategic planning</td>
<td>PI 2 Strategy development and implementation</td>
<td></td>
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<tr>
<td>Financial planning</td>
<td>PI 3 Financial planning and budgetary control</td>
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<tr>
<td>Human resource planning</td>
<td>PI 4 Human resource management and development</td>
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<tr>
<td>Provision of educational and support process</td>
<td>PI 5 Programme design and development</td>
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<td></td>
<td>PI 6 Teaching and learning</td>
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<td></td>
<td>PI 7 Educational support</td>
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</table>

Stepwise backtracking method

However, having a more coherent quality assurance programme on its own, even if presented properly, does not produce quality education. We now turn to see how the system has fared when assessed by the stepwise backtracking method. The requirement of the first step that the strategies lead *a priori* to the fulfillment of the mission is met. The mission is to provide ‘cost-effective alternative routes and flexible pathways for school leavers and adult learners to acquire skills and knowledge for lifelong learning and enhanced employability’ (VTC 2008). The strategies to achieve this are to (1) improve the quality, relevance, and responsiveness of its programmes; (2) enhance its productivity, cost-efficiency, and flexibility; (3) maximise its existing and future market opportunities; and (4) produce a high level of staff involvement and increase their capability to deal with change. To provide alternative and flexible education pathways that produce lifelong learning and enhanced employability, there must be quality programmes that serve the immediate and long-term needs of society (Strategy 1). To do well in a more competitive period, the programmes must be run more cheaply and with greater flexibility (Strategy 2), and supported by new sources of funding (Strategy 3). All this requires the support and involvement of staff members who understand the need for change and are able and willing to deal with it (Strategy 4).

The requirement of the second step that the enabling management processes to implement the strategies are *a priori* appropriate is also met. Strategic planning is essential in the more competitive post-Sutherland period (Sutherland 2002), as the VTC has to decide how to compete in the market for students in previously highly subsidised programmes and in those that remain subsidised but at a lower level and serviced by more providers. The reduction in government funding for its traditional programmes also requires the VTC to think strategically on how it can move into previously untapped markets (e.g. China
and vocational modules in schools). A better financial and budgeting control system is needed to cope with fewer funds from the lower funding per student in subsidized programmes, income lost from previously subsidized programmes, and the need to find venture capital to move into new areas. Human resource development and planning is needed to train staff to cope with a changing world, and to facilitate the exit, through a voluntary retirement programme, of those who cannot change or are unwilling to change. Programme design and development must be improved to ensure that courses and programmes keep up with rapidly changing societal needs and are delivered using best practice, with adequate learning and teaching support for students and teachers alike.

On the surface, the requirement of the third step that the PIs used to measure the effectiveness of the management processes are appropriate is satisfied. The seven process PIs deal with management areas generally considered important for ensuring quality outcomes and the method for collecting data, from soliciting staff views, is common among quality assurance systems that want staff to be directly involved. The nine outcome PIs are also widely used to measure the performances of students (retention and pass rates) and the organisation (stakeholder satisfaction, unit cost, number of planned student places, enrolment rate, and employment rate). However, the collection of the data for the process PIs may be problematic, with the actual data collected and a priori reasoning suggesting that there might have been some self-censorship. The normal pattern is for the scores to be lower at the beginning of the process because of inevitable teething problems with implementation, and for them to rise over time, but this has not happened. Instead, the first AAR conducted, in 2001/2002, produced very high scores (e.g. the vast majority of staff stated that they were satisfied with the leadership qualities), which is unexpected given the circumstances. Even if staff had been cautious in the first assessment and had given generous scores as they had little understanding of the principles and practice of self-evaluation, they would have been expected to give a more realistic assessment and lower scores in subsequent rounds as they gained more expertise and experience. However, the scores have remained at the same very high level or have even improved, possibly because old habits die hard, in spite of announcements that the traditional top-down management style would be changed to one that encourages constructive criticism in a collective effort to improve quality. This has not been helped by the fact that the Confucian respect for hierarchy and loyalty to superiors still prevails in Hong Kong.

The outcome PIs for student performance (PI 8 Retention or Completion rate and PI 9 Pass rate) and organisational performance (PI 15 Enrolment rate) may be problematic if, as shown earlier, there is an over-emphasis on achieving output goals, though the use of an external examiner system would have dealt with the former, especially after the implementation of the recommendation of the Hong Kong Council for the Accreditation of Academic and Vocational Qualifications, the body responsible for assuring the quality of education of all non-self-accrediting institutions in Hong Kong (Appendix 2), to increase the number of external examiners and their responsibilities. There are no a priori reasons to fault the collection of data for the other six outcome PIs (PI 10 Student/Trainee/Internal Client satisfaction, PI 11 Staff satisfaction, PI
12 Employer satisfaction, PI 13 Unit cost, PI 14 Number of planned vocational education and training places, and PI 16 Employment rate), especially those on unit cost, as the accounts of the publicly-funded VTC are audited yearly by the government, and those on employer satisfaction and the employment rate, as they are collected by Policy 21 of the University of Hong Kong, an independent and respectable consultancy company experienced in such work.

It is not possible to assess if the requirement of the fourth step, that the targets for the PIs are met, has been met for the process PIs, because no targets are set for them, beyond the expectation that the scores should not worsen over time. In this respect, the requirement is met, but, as shown earlier, there is some doubt on the validity of the data collected. There may also be doubt on the validity of the data collected for the outcome PIs on student and organisational performances. For the other outcome PIs, targets have been achieved in most cases and where they were not could be explained by extenuating circumstances.

The requirement of the fifth step that the monitoring system is capable of implementing improvement plans has been met, as the system has improved significantly over time. For example, under the old system, the data presented to the IVE quality assurance sub-committee, an IVE-wide committee, was far too aggregated. The AAR for a nexus could present aggregated data for up to 28 AARs, made up of teaching and administrative units. This data is not useful as teaching and administrative issues are different, and members from other nexuses and Corporate Services could not contribute much to the discussion. Moreover, nexus-level data has little operational use because quality improvement is about identifying problems at a more disaggregated level and implementing changes at that level. In addition, none of the VTC’s important policy and management committees dealt with quality issues, with these appearing mostly as items for noting. This was unsatisfactory because the quality system should interact with other decision-making systems to reinforce the culture and management processes for continuous quality improvement. On its own, the quality assurance system appeared as an add-on, seemingly with little or no connection and relevance to other committees, when, in reality, it could not work effectively without their support. Under the new system introduced in 2006 (Figure 2), the full and limited versions of the AAR and Course Quality Analysis Report (CQAR) go through the committee system, and all staff members with important roles in providing quality teaching and learning are involved in monitoring the improvement plans. In addition, these reports are presented in an appropriate form and level of aggregation. For example, individual CQARs are no longer presented to a VTC-wide committee because it will not have the time to go through them nor the information needed to assess their significance. This system also ensures that value will be added to the findings of the AAR and CQAR as they go up the hierarchy of committees, because they are commented and acted on by committees and people with increasingly higher and wider responsibilities and broader perspectives, so that the interests of the department, campus, nexus, the VTC, and Hong Kong are taken into account. These findings reinforce each other and will be implemented better, as they appear before the same committees (Nexus Board, Academic Policy and Quality Committee, and the Vocational Education and Training Academic Board) later in the reporting cycle.
The periodic Quality Reviews carried out so far show that operational units have addressed the weaknesses and built on the strengths set out in the improvement action plan of the previous assessment. While they reveal that the Local Quality Policy has to be reviewed and updated regularly, the management system streamlined, and the monitoring system formalized more, they also show that staff are more involved in implementing the quality assurance system, have learned to work as a team, understand better the principles and practice of quality assurance, especially the practical aspects of self-evaluation, and believe that the whole process has led to continuous quality improvement. While the Quality Review is an internal assessment, its findings have credibility because there is a senior external member on the panel and it is chaired by a senior VTC staff member from outside the unit whose AAR is being evaluated.

Testing the VTC’s quality assurance system against the stepwise backtracking method shows it has, \textit{a priori}, all the necessary steps in the right sequence. However, it also shows that some of the PIs, especially the process ones, could have exaggerated the effectiveness of the system. Thus, another method to test its effectiveness is needed, and we now turn to its evaluation by an external body skilled in assuring quality and accreditation, the Hong Kong Council for the Accreditation of Academic and Vocational Qualifications (HKCAAVQ).

\textit{External evaluation method}

The HKCAAVQ is an autonomous body responsible for assessing the quality of education in Hong Kong’s national quality assurance framework for non-self-accrediting education institutions (Appendix 2). It evaluates their self-evaluations, which are produced under the framework of an instrumental approach to quality assurance, in which they demonstrate their achievement of stated educational objectives with learning programmes that meet the Hong Kong Qualifications Framework’s threshold standards and their stated learning outcomes (HKCAAVQ 2008a). The HKCAAVQ evaluated the VTC’s quality assurance system twice. The first was in 2002/2003, as part of the VTC’s 8-year Strategic Plan, 2003/2004–2010/2011, when it underwent an Institutional Review (IR) of its operations and the Programme Validation (PV) of a sampler of its courses (10 IVE and six T&D Centre courses). The results of the exercise, which had overseas members on the panels, were positive. While certain changes were recommended (e.g. to increase the number of external examiners and their responsibilities), the VTC was seen to fulfil its mission well, with courses that met their objectives and whose standards were comparable to those of similar courses offered elsewhere. The second was in 2005/2006, when it was evaluated for Programme Area Accreditation (PAA) status, which required the submission first of an IR, to be followed by 21 Discipline Reviews (DRs), which consisted of (i) nine for Higher Diploma (HD)/Diploma (D) courses and seven for Higher Certificate (HC)/Certificate (C) courses, covering 16 of the 21 programme areas of \textit{The List of 21 Areas of Study and Training} of the HKQF’s Qualifications Register (HKQF 2008b); (ii) four DRs for Basic Craft Certificate (BCC) and Technical Foundation Certificate (TFC) courses, covering four programme areas; and (iii) one DR for Certificate in Vocational Studies (CVS)/Foundation Diploma (FD)
courses, which are not discipline-specific. While the IR has the same coverage as in 2002/2003, the DR was very different to the PV, as it covered all the courses in the discipline (e.g. the 11 HD and one D courses in the Electrical and Electronic Engineering Discipline), compared to the PV, which dealt with only one course (e.g. the HD in Electronic Communications Engineering). In addition, it required the award levels claimed for the courses (e.g. Level 4 for the HD award) to be justified against the HKQF’s general and discipline-specific descriptors.

The results have also been positive. For courses offered by IVE and the SBI, a total of 62 sub-areas within the 16 programme areas were approved for PAA status. For the vast majority of established HD and D courses, the validity period is 5 years. For new courses, the validity period is only 2 years after pre-conditions, which are not onerous, have been met by a certain period. HC/C courses have been granted PAA status for the same periods as their HD/D counterparts. The new multiple-entry-and-exit 4-year HD was given PAA status for all the sub-areas approved for HD, D, HC, and C courses, and for the same respective periods. The HKQF Levels claimed for HD, HC, D, and C programmes are 4, 4, 3, and 3, respectively, which were granted except for HC programmes, which were accorded Level 3. The HKQF Levels for the exit awards of the 4-year HD after Year 1, Years 2 and 3, and Year 4 are 2, 3, and 4, respectively, as claimed. CVS/FD courses have been granted PAA status for 4 years at the claimed Level 2, with the status for CVS courses limited only to the existing three streams, but granted to all future streams of FD courses. For courses offered by the T&D Centres, a total of 16 sub-areas within five programme areas were granted PAA status, subject to certain pre-conditions being met, the most important of which are the integration of the practical training and academic modules in all aspects and levels of the courses, and the passing of both categories of courses before students can graduate. The validity period for most of the BCC and TFC courses is 3 years at the claimed HKQF Level 2. There are recommendations for change for all courses, but these were sensible and not difficult to implement.

It is unlikely that the VTC would have given the good results for the first assessment, if it had not a formal quality assurance system. Even though the HKCAAVQ’s template then had no discernable coherent framework and paid too much attention to administrative details, such as the frequency of committee meetings and too little to an organisation’s mission, with the word appearing only once in the document, seemingly unrelated to what appear before and after it (Lim 2008a), it was clearly looking for evidence of a documented quality assurance system, no matter how rudimentary. What it received from the VTC was a system developed along best-practice lines. There is little doubt that by the second assessment, the HKCAAVQ was looking for a formal quality assurance system, as it had explicitly adopted the instrumental approach to quality and was actively looking for evidence of a coherent system that worked. As the HKCAAVQ is the statutory body responsible for assuring quality and setting standards in non-self-accrediting organizations, its positive findings is adequate proof that the VTC’s quality assurance system has worked.
In spite of this, the questions raised earlier about the usefulness of institutional reviews *per se* should not be forgotten, as, like all other education institutions undergoing the same process, and indeed universities undergoing the University Grants Committee’s teaching and learning quality process reviews (Mok 2005), the VTC had prepared well for the exercise. Against that, it can be argued that the HKCAAVQ’s teams on both occasions consisted of senior members of local universities, industry, and professional associations, who were expert and experienced in the disciplines concerned and in quality assurance matters, and, in the first evaluation, had experts from overseas. The HKCAACQ itself is also expert and experienced in quality assurance matters, as it began life in 1991 as the Hong Kong Council for Academic Accreditation (HKCAA), which had accredited non-university tertiary institutions and their programmes at degree and sub-degree levels. In addition, as with audits carried out by the Quality Assurance Agency of Higher Education of the UK (2008), on which the HKCAACQ is based, the institutional reviews were combined with subject/discipline reviews. The latter, apart from examining course contents, learning and teaching methods and materials, assessment methods, staff academic qualifications and industry experience, and learning and teaching support facilities, also evaluated the outcomes of the learning and teaching process by going through samples of student work by grade and by talking to students and employers. In the second review, the VTC also had to pass the new test of meeting the threshold qualification levels set by the HKQF for the levels it claimed for its different programmes. In addition, by having members of the IR panel acting as chairs of the discipline reviews, the HKCAAVQ provided consistency for the entire exercise, as IRs and disciplines/subjects are two sides of the same coin, good learning and teaching being not possible without good management processes.

**Concluding remarks**

The *a priori* method, the stepwise backtracking method, and the external evaluation method should not be used in isolation, but as complementary methods in testing the effectiveness of a quality assurance system. If their findings complement each other, then we can be more confident of the results. The *a priori* method shows that the VTC’s formal quality assurance system is superior to its latent quasi-quality assurance system in showing how quality can be achieved because it presents the ingredients for quality in a coherent manner, rather than as discreet parts. However, on its own, it does not show that the quality assurance system has done better than the system it replaced, because this would have required a control group, such as a section of the VTC that continued to use the old system, to assess what would have happened in the absence of a formal quality assurance system, and this is clearly not possible. It does not even show that quality has been produced, because it does not present any empirical evidence. Such evidence was provided by using the stepwise backtracking method, but while this shows that the strategies to achieve the VTC’s mission would do the job *a priori* and the monitoring system is efficient, the way data was collected for the process PIs leaves some doubt on the reliability of the results obtained. However, there is enough evidence from properly collected data on theoretically sound outcome PIs to suggest that the quality assurance system has made a difference. This is especially when taken in conjunction with the...
positive results of two assessments by the HKCAAVQ, both of which required an institutional review and subject/discipline reviews, with the second assessment a far larger and demanding exercise that conferred programme area accreditation or self-accrediting status in conventional terms to the disciplines evaluated. The HKCAAVQ, the official arbiter of quality for non-self-accrediting institutions in Hong Kong, was satisfied that the VTC provides courses that fulfil its mission, are of a standard comparable to those of competing education institutions, and meet the required professional standards and threshold levels of the Hong Kong Qualifications Framework. On top of this, an increasing number of overseas universities, including members of the prestigious Russell Group in the UK, have entered into ‘top-up’ programmes with the VTC. These institutions’ quality assurance systems and their national quality assurance agencies would have found the VTC’ quality assurance system to their satisfaction.

Of course, these conclusions are made with the usual caveats about the usefulness of external evaluations. It should also be remembered that the primary objective of overseas universities in top-up agreements is to generate income to make up for reductions in government funding back home. Under these circumstances, they may be tempted to short-cut the quality assurance processes in their off-shore programmes. While their national quality assurance processes can weed out some poor practices without much delay, others have been allowed to continue for far too long (Lim 2008b; Smith 2003).

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Notes
1. This stepwise backtracking methodology was introduced by Lim (1994; 1996) to explain economic growth in developing countries. When applied for this purpose, the first step is to identify the sources of output growth (e.g. capital accumulation), the second the factors behind the sources (e.g. domestic savings for capital accumulation), the third the economic policies to produce the factors (e.g. high interest rate for domestic savings), and the fourth the social and political values to introduce the economic policies (e.g. an authoritarian regime to introduce high interest-rates).

2. The preferred option for students in Hong Kong who have done well academically in the 9 years of compulsory primary and lower secondary education is to proceed with upper secondary and sixth-form education before going on to university. However, only 17% of students go on to university (Hong Kong SAR Government 2007), which is low by OECD standards. Students who do not make it in mainstream education can pursue further education in the VTC, charitable bodies (e.g. Caritas, founded by the Catholic Diocese of Hong Kong),
commercial firms (e.g. The Hong Kong College of Technology), and the continuing education arms of local universities (e.g. The School of Professional and Continuing Education, SPACE, of the University of Hong Kong). These institutions provide such students a second chance in education.

3. The respondents have to say whether they very strongly agree, strongly agree, partially agree/partially disagree, disagree, or strongly disagree with positive statements on the management processes (e.g. for strategic planning, that ‘strategies and policies are made with due consideration to the present and future needs and expectations of stakeholders, analysis of the external environment and the capability of the operational unit’).

4. This is conducted on each of 113 operational units, consisting of 84 from IVE (48 teaching and 36 administrative), 13 from T&D Centres, eight from Corporate Services, and eight from the rest of the VTC.

5. There are 32 QRs over the first 4-year cycle, 2003/2004–2007/2008, and, up to the end of August 2008, 29 had been completed. For IVE, an operational unit is a campus and not a teaching department. For T&D Centres, it is a centre, and for Corporate Services, it is a division (e.g. Finance and Supplies Division).

References
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Appendix 1: The Vocational Training Council of Hong Kong (VTC)

The VTC offers courses in nine disciplines (Applied Science, Business Administration, Child Education and Community Services, Construction, Design, Printing, Textiles and Clothing, Electric and Electronic Engineering, Hospitality, Services and Tourism Studies, Information Technology, and Mechanical, Manufacturing and Industrial Engineering). These lead to awards ranging from Craft-level awards for 15-year olds (e.g. the Certificate in Vocational Studies and the Basic Craft Certificate) to Technician-level awards for 17-year ones (e.g. the Foundation Diploma, Diploma, and Technical Certificate) and Higher Technician-level awards for 17 and 19-year olds (e.g. the Higher Diploma), with the last two categories being far more important (92%) than the first (8%). As part of its through-train education, the VTC’s HD holders can go on to so-called inbound ‘top-up’ degree programmes offered by overseas universities (e.g. University of Manchester, UK and the RMIT University, Australia) in Hong Kong, in partnership with the VTC.

Courses in vocational education are run at the Institute of Vocational Education (IVE), and courses in vocational training at its Training and Development (T&D) Centres. IVE was established in 1999 by merging two former Technical Colleges and seven former Technical Institutes, which ran lower-level courses and had staff with lower qualifications. For administrative purposes, the nine campuses are organised into three nexuses (Chai Wan, Sha Tin, and Tsing Yi), each consisting of a head campus and two associate campuses, the latter traditionally offering lower-level programmes, but recently more Higher Diploma programmes. Each nexus has a nexus principal and a nexus vice principal, who run not only the head campus but are also responsible for the nexus as a whole, though principals of the associate campuses are responsible for the day-to-day operation of their campuses. For operational efficiency, nexuses are given a high degree of autonomy but have to operate within the corporate guidelines. Each nexus has a School of Higher and Professional Education, which runs the ‘top-up’ degree programmes with overseas universities. The universities, with their areas of study, from the UK are the University of Manchester (Accountancy and Business), Queen Mary College of the University of London (Computer Science), University of Northumbria at Newcastle (Hospitality and Tourism), Leeds Metropolitan University (Accountancy and Business), and the Central University of England (Design). From Australia, they are the RMIT University (Engineering) and Swinburne University of Technology (Information Technology). All give the VTC’s HD graduates an advanced standing of 67%, with the exception of Manchester and Queen Mary College, which grant one of 50%.

Alongside IVE is the School of Business and Information System (SBI), established originally to offer market-fee courses mainly in business studies to students who failed to secure government-funded places in IVE. After the implementation of the Sutherland recommendation to abolish government funding for popular courses requiring low establishment and maintenance costs (Sutherland 2002), it competes with equivalent IVE market-fee courses. There are 16 T&D Centres offering trade-specific courses, each advised by an industry-specific board or a cross-industry board, with members drawn from industry, professional or trade associations, and the government. The centres’ staff members have industry experience, but not the same level of formal or academic qualifications of staff from IVE. Traditionally, the courses are less subject to the vigorous academic vetting that goes on in tertiary education institutes. The VTC has also three Skills Centres, which run courses for students with disabilities, and are funded by a different government department. There is also the Institute of Professional Education and Knowledge, which runs market-fee short continuing professional development courses. More recently, Youth Colleges have been established, which run short ‘taster’ courses for the non-engaged youth, who can attend bridging courses to progress to IVE and T&D Centre courses. There is also a senior secondary school, which provides a more diversified curriculum by offering vocational education and training and academic subjects.
Appendix 2: The Hong Kong Council for the Accreditation of Academic and Vocational Qualifications (HKCAAVQ)

The HKCAAVQ was known earlier as the Hong Kong Council for Academic Accreditation (HKCAA), which was established by statute as an independent body in 1990 to provide, among other things, accreditation services for non-self-accrediting education institutions and their programmes at degree, sub-degree, and secondary levels (HKCAAVQ 2008a). With the implementation of the Hong Kong Qualifications Framework (HKQF) in May 2008, the HKCAAVQ became the Accreditation Authority and the Qualifications Register Authority to ensure that the academic and vocational training operators and their learning programmes are quality-assured. The HKQF rationalises the plethora of qualifications and programmes in the free-wheeling education market of Hong Kong into a hierarchy of seven levels (Certificate, Certificate, Diploma, Higher Diploma/Associate Degree, Degree, Master, and Doctorate), with each based on outcome-based Generic Level Descriptors that set out the common features of qualifications at each level, which helps to locate a qualification on the framework (EMB 2006). In its role as the Accreditation Authority, the HKCAAVQ ensures that an operator’s programmes are quality-assured before they can be recognised under, and lead to awards on, the HKQF. In its role as the Qualifications Register Authority, it ensures that only programmes that have been quality-assured can be entered on the Qualifications Register (HKQF 2008a).

The quality assurance process has four stages (HKCAAVQ 2008b). The first is the Initial Evaluation (IE), which evaluates if operators have the institutional competence to effectively manage and provide adequate resources to develop, deliver, assess, and quality-secure their learning programmes and educational services. The second, a Programme Validation (PV) available only to operators with a valid IE, evaluates the planning and management, syllabus, delivery, assessment, and learning outcomes of learning programmes to ensure their appropriateness for the intended qualifications. Upon a successful PV, the qualifications can be entered into the Qualifications Registry (QR), but the programmes have to be re-validated regularly to remain on it. The third stage is the Programme Area Accreditation (PAA), which is available to operators who have completed at least two cycles of programme re-validation in the relevant programme area. A successful outcome gives operators PAA status in the programme area for a specific period. It also allows them to develop and offer new programmes within that area at the specified QF levels, and enter the qualifications into the QR for the validity period, without being subject to another examination. The fourth stage is the Periodic Review, a monitoring and external review exercise for operators with valid PAA status repeated regularly.

The HKCAAVQ adopts an instrumental approach to quality assurance, which requires the operator to demonstrate that it can achieve its stated educational objectives, with learning programmes that meet the required threshold standards and their stated learning outcomes, with reference to the Generic Level Descriptors (HKCAAVQ 2008a). The operator has to provide evidence to support its claim, including evidence that it has a system for continuous quality enhancement, which is examined by a panel consisting of people from the relevant sector or industry, with expertise and experience in the discipline, industry, or quality assurance. The possible outcome of the assessment is approval, approval with pre-conditions and/or requirements, or non-approval. Where pre-conditions and/or requirements are stipulated, their fulfilment within a specified period is mandatory to obtain and maintain valid accreditation status.