

# EDUCATIONAL PERFORMANCE INDICATORS

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**ABSTRACT:** This paper discusses the development and use of performance indicators in education and vocational training. Stakeholder issues and the role of the Quality Assurance Agency (QAA) within this area are additionally considered. The paper concludes with a brief discussion on developments in education and work-based learning

## 1. INTRODUCTION

Developing robust and meaningful performance indicators is difficult in any situation. Indicators for higher education and for vocational training are particularly difficult in view of the diversity of both institutions and students. There exists additional tension in determining comparable educational status as an applied field and status as an academic discipline (the so-called rigour versus relevance debate). This is especially difficult in any consideration of work-based learning. A wide variety of stakeholders maintain an interest in performance indicators (such as student staff ratio's, pass rates etc), and based on this recognition of the multiplicity of both market sectors an evaluation of the outcomes generated by appropriate performance indicators will encourage individual institutions to increase access, and maximise achievement for all who can benefit. Analysis of cumulative indicators that track performance over several years will prove far more informative than those for an individual year. The development of sector level and institutional levels of performance rather than descriptive statistics are required to ensure that the derivation of performance indicators is not merely regarded as a metrics project.

## 2. THE DEVELOPMENT OF PERFORMANCE INDICATORS

The definition of performance indicators as a “standardised approach to the professional assessment of an organisation’s effectiveness and efficiency which leads to a profile of the organisation’s performance on fundamental matters” (SOED, 1993) (McCulloch et al, 1996) can be directly related to the definition of quality given in BS EN ISO 9000:2000 “quality – degree to which a set of inherent characteristics fulfils requirements” Both definitions suggest that a qualitative or quantitative determinant may be derived as an outcome indicator of performance/quality

measurement. There is however a lack of consensus as to the appropriate paradigmatic approach for determining the robustness of this outcome measure.

Higher education establishments are finding that they are the subjects of increasing scrutiny. The more traditional providers of academic and vocational delivery they are faced with increased competition from virtual and distance learning provision, borderless education and a more globalised education market which uses delivery methods which range between synchronous and asynchronous. Concerns about standards and demands for public accountability have become prominent (Leathwood et al, 2000). At government level there is a renewed call for sound research evidence to inform policy (Blunkett, 2000) (Lambert report, 2003). Questions about standards are now raised which are framed with a renewed emphasis on vocationalism and the preparation of students for the world of work, moves to embed such skills into undergraduate provision have recently been taken in a number of universities. Figures relating to graduate employability have themselves become increasingly sought after statistics that have a determining impact on student selection of programmes and institutions. The ‘currency’ of a qualification in the wider marketplace is now the totality of a number of characteristics determined from both within and external to the host University.

The National Committee of Enquiry into Higher Education (the Dearing Committee) (NCIHE 1997) identified the need to establish a common system of measuring aspects of the performance of higher education institutions. In 1997 the funding councils were asked to discuss with government ways of developing performance indicators for the higher education sector. The Performance Indicators Steering Group (PISG) was established to develop indicators that would be acceptable both to institutions and to a wide variety of stakeholders in higher education. The first PISG report (HEFCE

99/11) published early in 1999, was followed by a consultation document that was sent to all UK higher education institutions. This report showed PISG's approach as one which intended to develop a series of specific performance indicators that would allow stakeholders to extract those indicators which they regarded as significant, in order to create their own group of key performance indicators. This self-selection of performance indicators would allow an assessment to take place that may consider externalities outside the formative evaluation of the learning process. The lack of consensus itself, however, presents a serious obstacle to the scientific growth of the determining factors. Robust performance indicators require a similar methodology to the management standards that are produced for the International Standardisation Organisation (ISO) that are developed according to the following principles (ISO. 2001):

- **Consensus** The views of all interests should be taken into account: manufacturers, vendors and users, consumer groups, testing laboratories, governments, engineering professions and research organizations.
- **Industry-wide** Global solutions are required to satisfy industries and customers worldwide.
- **Voluntary** International standardization is market-driven and therefore based on voluntary involvement of all interests in the market place.

### 3. PERFORMANCE INDICATORS

Initially assessment efforts strove for universal performance indicators.(Cabrera et al. 2001). Considerable effort was allocated to creating performance indicators that addressed the three main functional units of an educational establishment-research, service, and teaching and learning. Of the three areas, teaching and learning has been the subject of most attention (Burke and Serban, 1998; Whiteley et al.1992). The relevance of individual performance indicators is dependent upon the type of indicator that is required for the study.

The difficulty in determining relevant performance indicators can be overcome by the strategy of once having defined the object of the study, deconstructing it into activities whose performance can be measured (Levy, 2001). The classification of indicators as simple (neutral descriptions), general (data unrelated to goals) and performance (possessing a point of reference or goal against which a performance is compared) (Cave et al. 1997) allows study to be undertaken across the extent of the organisational / delivery function. For example, in an educational establishment or training

organisation overall enrolment is a simple indicator as it provides a neutral description (Barnetson et al. 2000). Student's feelings of how enrolment affects the feeling of community would be a general indicator, because the indicator's evaluation is unrelated to institutional goals. If however, the institute is targeted to increase students admissions by > 2% each year the percentage change in admissions would be a performance indicator as it is derived from a point of reference against which a performance can be compared.

The identification of five organisational elements through a configuration analogous to the "simple process" model and the identification of the "changing role of the process owner" in BS 7850 to which performance indicators may be applied (Kaufman, 1998) considers the following elements:

1. Inputs are raw materials (e.g. resources, policies, communal characteristics)
2. Processes are how inputs become products, outputs and outcomes
3. Products are results that are fed back into the system to become outputs and outcomes (e.g. module results which lead to the qualification award)
4. Outputs are aggregate products of a system ( e.g. qualification awards, publications)
5. Outcomes are the effects of outputs on society (e.g. employment rates, life expectancy).

By focussing attention on specific areas of performance, performance indicators can be used to shape what issues we think about. For example, a destination survey which measures employment rates indicates to institutions that this outcome is of importance to the agency that mandated its introduction; by the action of measurement it makes the institutional performance on this issue public. By focussing institutional attention on their performance indicator results, governments may impose a policy agenda on institutions by embedding assumptions related to purposes, goals or values into the selection and structure of indicators (Barnetson et al, 2000). Performance indicators have the ability to alter the power to set priorities and goals to those who create and control the documentary decision-making systems (Newson, 1994).

Performance indicators can also be used to shape how we think about an issue. For example the inclusion of performance indicators that demonstrate positive outcomes of a policy agenda and the exclusion of performance indicators that demonstrate negative outcomes generates evidence that legitimate a particular policy agenda.

Consequently, the use of performance indicators affects how institutions and policies are evaluated, as the power to delineate what evidence is considered relevant is shifted to those who create and control the performance indicator systems.

Performance indicators are occasionally complicated, and often controversial. In general terms they consist of a ratio, which comprises a numerator and a denominator. A robust indicator requires general agreement about the values that go into both of these. Additionally performance indicators need consensus that a higher ratio is 'better' or 'worse' than a lower ratio. The interpretation of indicators is generally at least as difficult as their construction.

#### 4. EXISTING INDICATORS

Although there is a wealth of information collected and published about education and vocational training, it does not always lend itself to the construction of performance indicators. Interpretation is especially difficult given the heterogeneity of the sector, the student population and the qualifications offered. The use of statistics at both sector and institutional level are available for:

- Financial profiles and unit expenditure statistics
- Research statistics
- Student population profiles
- Qualifications obtained
- Participation rates for the sector
- Post qualification, first destination statistics
- Application and admission statistics

While not claiming to be performance indicators, these statistics provide a wealth of information designed to assist in institutional management decisions, and provide information to others outside, but involved with the sector.

Existing indicators are based upon, but not limited to the following:

- Student numbers
- Nature of provision
- Student completion
- Student qualifications
- Student progression
- Funding Outturn
- Non-funded income
- Participation of under-represented groups
- Learning outcomes
- Efficiency of learning and teaching
- Student employment
- Research output / extension of knowledge

- Application of the knowledge and resources of education to the needs of business and society more generally.

In developing performance indicators there is a pressure between the needs for accuracy and simplicity. An indicator will usually be more meaningful if shown by subject, or age of student etc. This approach has however in the past lead to pages of tables with small sub totals. Information regresses to being simple data. Performance indicators require measures which, so far as is possible are defined by clear unambiguous descriptions, which limit the scope of interpretation and are able to be audited.

#### 5. STAKEHOLDERS

Differing stakeholders will regard differing indicators as particularly important. In setting out performance indicators the higher education funding council England (HEFCE) in the report HEFCE, 99/11 considered the following stakeholder groups:

- Government departments
- Funding councils
- Research councils
- Senior management and governors of institutions
- Employers of graduates and employer organisations
- Prospective students and their advisers
- Current students
- Alumni
- Other providers of funds, such as regional Development Agencies, Training and Enterprise Councils, local education authorities, charities etc.
- Academic staff
- Central bodies concerned with education, representative bodies, the QAA etc.
- Professional bodies
- The general public

The background to the HEFCE study centred on the needs of prospective students and of the general public. Additionally, interest has been shown in the employment record of students-enabling a more informed choice to be made by prospective students. Recognising the claims of stakeholders is part of the new vocabulary of education management (Macfarlane et.al. 1999). The active management of stakeholder interests involves control linked to market forces and based on performance indicators (Randle and Brady, 1997). Institutions through mission statements now explicitly acknowledge their obligations to meet the expectations of a range of stakeholders, are supported by the Deering Report, which makes numerous references to the importance

of meeting stakeholder interests. However, while it is easy to list stakeholders, and promise to safeguard their various interests at institutional level, significant conflicts can arise in managing their competing claims.

Stakeholder mapping has previously been employed as a means of exploring the relationship between education and stakeholder interests at the institutional level (Thorne and Cuthbert, 1996), the practical responsibility for managing these relationships often occurs at the micro or programme level. Moreover, the challenges in balancing competing demands and expectations tend to be more acute in vocational areas of the education curriculum. Programmes with 'vocational intent' (Brennan, 1985) will inevitably attract the active attention of a wider range of stakeholders. Sponsors expect value for money and service quality.

## **6. THE ROLE OF THE QUALITY ASSURANCE AGENCY (QAA)**

The QAA review and report on the performance of over 180 universities and colleges of higher education. These institutions cover a wide range of activity, have varied backgrounds, and operate in a climate of rapid change. Their student numbers range from 120 to 200,000. Most institutions provide programmes in a number of subject areas, while others, such as art colleges or music schools, specialise in one area. The QAA also review the higher education programmes offered by some 270 further education colleges.

It is the responsibility of each institution to offer a good quality education and to ensure that appropriate standards are achieved. It is QAA's role to provide assurance that quality and standards within higher and further education are being safeguarded and enhanced. This is done through reviews conducted by teams of reviewers, most of whom are academics, but with some members drawn, where appropriate, from industry, commerce, and the professions. QAA reports are published. This information is helpful to prospective students and their advisers, when applications are made to universities and colleges. It may be used also by employers who recruit graduates, and by those professional and regulatory bodies that recognise higher education awards that count towards their qualifications. Currently, in most instances, there are no national standard assessments or curricula; as such it is unsafe to assume that a degree (or other qualification which has a similar methodology for delivery and assessment) in a given class in a given subject is equivalent in all institutions. The QAA has

started to develop benchmark information at subject level to explore the feasibility of establishing reference points for threshold, modal, and other levels of standards.

## **7. VOCATIONAL QUALIFICATIONS**

National Vocational Qualifications (NVQ's) are qualifications that relate to the skills and abilities needed by people working in particular occupations. NVQ assessments ensure that candidates are competent within the workplace. Assessments are carried out to national standards and can include portfolio development and observation. In support of the rejection of allegations that some vocational degrees are "vacuous" courses that do not constitute genuine academic discipline (Floud, 2001), research showed them to be rigorous and challenging programmes in their own right. The robustness of the assessment process both in terms of methodology and content is a key factor in the acceptance of the qualification. The qualification success is based upon acceptance both by employers and employees, and performance indicators need to develop the strategy for acceptance by both sectors. Employers acceptance in terms of the vocational skills and benefits in the workplace, and employees acceptance for qualifications with robust structure, meaningful content and transferable acceptability within employment sectors. Increasingly, with viability as a consideration, award programmes within further and higher education are engaging with employers, organisations, and industry, either within programme development, or review process, effectively ensuring vocational relevance. This breaking down of the barriers between vocational and non-vocational courses to an indicator of vocational relevance of a programme may enable a student to be considered as an independent learner, with a range of generic skills, capable of significant contribution in their chosen field of work.

## **8. INDUSTRY CONCEIVED QUALIFICATIONS**

The post-secondary learning environment has become increasingly competitive in the last decade (DoE, 2000). The pre-eminence of the traditional universities as the major providers of higher education is being challenged by non-traditional organisations, such as corporate and virtual providers. Numbers of pre-print archives, electronic journals and virtual libraries are on the increase. The growth of the information society, and the importance of knowledge based rather than manipulative skills, aligned with the increased availability of communication and information based

technologies has facilitated the development of flexible 'virtual' learning environments.

Employer demand is now moving toward flexible education and training, which can be tailored to company needs, allowing re-training of employees to improve competitiveness and recognition of the learning needs of employees in globalised businesses. There is a movement toward the accreditation of internal training by organisations through links with Universities and professional bodies. The aim of some organisations being the ability to award their own degrees. This form of educational award may be considered as an investment with a long pay-off period. Participating organisations argue that the people who enter higher education at the beginning of the period of great expansion take time in reaching positions of influence in industry. Recent trends show an increasing demand for industry-orientated courses, training in industry is at a higher level than ever before, and there are signs of increasing success in the many schemes for bringing about a closer relationship between industry and education. These awards should be comparable with any relevant benchmark information recognised within the UK.

The increasing diversifications of the forms of learning opportunity available (Goodyear, 1995) give rise to the following three influences: economic, social, learning autonomy.

#### **a. Economic**

There are economic incentives to institutions to increase the throughput of students. Academic institutions are under the increasing pressures of staff, student ratios, space, equipment and servicing. Viability of course delivery can be viewed as a function of resources used / student cohort. As the Educational Institution obtains revenue through tuition fees, academic integrity and the robustness of the examination process should be demonstrated as being traceable throughout the pedagogic structure of the process.

#### **b. Social**

There are social incentives to broaden access across the diverse gamut of student backgrounds, to include the consideration of the raising of participation rates of ethnic minorities and groups that are under represented in various sectors of the economy.

#### **c. Learning Autonomy**

Students are increasingly aware of their own role in the learning process. Greater autonomy in the form of self directed learning and CPD, is required by the learners, and is reflected by the employers who wish

to employ personnel with a demonstrable capacity for on-going self directed learning. The response to these pressures has been the promotion of distance learning. It is however recognised that distance learning leads to unacceptably high dropout rates (Goodyear, 1995), and it is for this reason that employers welcome successful students who have shown the commitment and ability to complete a course in this way. The benefit to the student of distance learning is that it absolves students of the requirement for a fixed attendance at an academic institution. It allows the student to progress toward the module completion by a more flexible working approach.

The consideration of the provision of credit for differing forms of knowledge and learning is a matter which the both Universities and organisations will need to address. The development of modular frameworks has already made curricula more flexible, although the size of a module is still an issue. Credit frameworks are central to enable recognition of learning in different contexts, and to the ability to bank and transfer credit gained at different times and in different locations (HEFCE, 2000). The Credit Accumulation and Transfer System (CATS), including its UK derivatives and the European Credit Transfer System are examples of flexibility between jurisdictions, frameworks and periods of learning. The accreditation of learning and achievement is one of the central functions of HE. In exercising this function, any University as a HE provider considers how learning that has taken place in a range of contexts may be assessed and formally recognised through accreditation. Design of new programmes will need to consider this.

## **9. CONCLUSION**

This paper considers the initial work in determining underlying factors inherent in the paradigm intent to develop and apply a model from which a quantifiable indication of overall performance for an academic institution may be derived. This will assist in allowing performance to become a strategic factor in planning the business of academia. The current pressures on institutions, staff, and students clearly show that there is a need to provide a mechanism by which direct comparisons may be made between the operational characteristics of institutions, and programmes and how those programmes impact on the graduate, both in terms of academic and career success. The model itself is capable of providing direct business benefits to institutions that manage their business and concurrently enhance the student. It is clear that at present no single method wholly

reflects both institutional and student performance in a way that allows the assessment of the internal management processes to provide reliable and verifiable information on an ongoing basis

A possible consideration is that weightings are obtained as the result of the appraisal and evaluation of existing management models that give a quantitative output such as EFQM, MBNQA, and OPRA. The use of the principles of the 'balanced scorecard' (Kaplan and Norton, 1992) form the basis for both the quantitative indicator and the qualitative interpretation of that indicator.

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