FIRST DESTINATION GRADUATE EMPLOYMENT AS KEY PERFORMANCE INDICATOR : OUTCOMES ASSESSMENT PERSPECTIVES

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ABSTRACT

Schooling is publicly provided by every nation and higher education by most. Graduate employment is a subject which brings together the concerns of macro social policy and the interests of the individual student. Higher education policy in South Africa and elsewhere is placing increasing emphasis on institutional accountability with often clear reference to the "employability" of an institution's graduates. These indicators purport to measure the success or otherwise in different academic disciplines in obtaining a satisfactory first destination employment position after their graduation. Little research has thus far been conducted into the job-getting ability of new graduates. This study draws upon an alumni outcomes assessment survey undertaken by a typical sizeable South African higher education institution into its alumni pool to determine the impact of its graduates' education on their job placement, job satisfaction, career advancement, earnings and intellectual development. Its contribution lies in the perspectives given to some specific performance indicators in the output component of the higher institutional effectiveness evaluation model and its value to intelligently inform the strategic management process of the institution.

INTRODUCTION

Schooling is publicly provided by every nation and higher education by most. Graduate employment is a subject which brings together the concerns of macro social policy and the interests of the individual student.

Until very recently, few people ever questioned the value of higher education. However, graduates in many academic disciplines are nowadays finding jobs of lower status and even lower income than those of previous periods. Many graduates find themselves underemployed or even unemployed for extended periods of time. First destination graduate surveys are undertaken routinely in some countries (e.g. United Kingdom) and from time to time in others (Johnes & Taylor, 1989). Such surveys provide a snapshot of what is happening to graduates - unemployed, employed, underemployed or some other special status a short time (usually within a year) after their graduation. Even economists have become convinced that jobs mean more to people than just ways of earning a living. Psychologists and sociologists broadcasted their message that jobs structure time, provide individuals with identity and self-respect and are therefore vital for their acceptance as legitimate members of the community (Roberts et al, 1982).

Since the turn of the decade, employment opportunities for young graduates have been severely reduced. Strange as it may seem, it appears that very few people, until recently at least, ever questioned the value of higher education. Graduates from higher education institutions have had a preferred place in the job market - more interesting and prestigious jobs, higher incomes, and less unemployment than the general population. Employers, except in the most specialist of occupations, took it for granted that higher education both selected and trained for them the best of school leavers. Without favourable work prospects there may be fewer students and without students there may be no higher education institution.

It is the task of higher education institutions to supply the labour market with an adequate number of highly trained graduate personpower on a sustained level (Glytsos, 1990). Introspection into the causes of the graduate unemployment paradigm will find many reasons for it, but it is not the objective of this paper to discuss, only to identify and provide some perspectives on them.

A first destination graduate jobseeker faces a two-pronged employment problem : first, a limited number of primary sector jobs (high salaries, job satisfaction, opportunities for advancement) to which he or she will aspire given their training background. Second, a limited number of entry ports in a firm's job ladder as a result of the policy in most firms to promote internally. First destination graduate jobseekers thus

engage in job search activities to move from an unemployed into a long-term employment situation. In the process, many remain unemployed or underemployed for varying periods of time.

The unemployment rate is usually a good indicator of the state of labour markets (Barker & Döckel, 1985). If one is being pragmatic, it then follows that the most dominant obvious cause for graduate unemployment is a stagnation in economic growth (Sanyal, 1985). Another reason for the increasing graduate unemployment is the increasing labour force participation rate among graduates, mainly the female population, this being the net outcome of the larger graduating classes.

Criticisms of institutions of higher education for failing to satisfy the needs of industry and commerce, or the economy, have intensified. Unemployed graduates represents an investment by society on which no return is being made (Sanyal, 1987). Unemployment is therefore tantamount to some inefficiency. An increasing number of highly qualified graduates find themselves underemployed or even unemployed for extended periods of time. The extent of this extremely damaging phenomenon should become an integral part of the outcomes assessment process of every higher education institution and be recognised for the critical performance indicator which it is.

It is argued that gainful graduate employment is an indicator of the effectiveness of the higher education delivery system and as such should be reported in. This, in short, outlines the significance of this topic and its importance in the strategic planning process which is directly related to the conference theme : Planning Tertiary Education in a Competitive Market".

PERFORMANCE INDICATORS (PIs)

Higher education almost worldwide has been the focus of considerable criticism in the last several years. In response to those clamoring for accountability the single most problematic issue faced by higher education systems, is difficulty in defining quality (Halpern, 1987; Nedwek & Neal, 1994).

Statistics about education have been reported in the United States since the 19th century, but higher education indicators have only become a major issue since the mid-1980s (Blank, 1993). Two trends gave rise to the current interest : first, the movement aimed at raising quality in higher education and second, a renewed emphasis on accountability in higher education. Conceptually, higher education is moving from a type of "public utility" to a "strategic investment".

On an international level, public concerns about higher education have grown in recent years to such an extent that governments are having to find ways of measuring the performance and efficiency of higher education systems, and of informing the public of the results. PIs are among the instruments that can be used. Previous attempts at developing these indicators, at least on an international basis, had demonstrated the weakness of any approach monopolised by specialists in an activity where cultural sensitivities exist (Bottani & Delfau, 1990).

Historical Context

Evaluation has always been a key element of academic life (Cave, Hanney & Henkel, 1995) and is the foundation principle upon which educational quality assessment and public accountability are built. The development of PIs is a direct result of these needs.

During the 1980s, a number of significant changes took place in higher education in the United Kingdom. First was a severe cut in 1981 in funds distributed to British universities and the selective distribution thereof by the University Grants Committee (UCG). Next, the publication in 1985 of the Green Paper on *The Development of Higher Education into the 1990*s, arguing that the higher education sector was not performing its job satisfactorily, was the catalyst for the eventual development of PIs (Taylor, 1987). The main recommendations were as follows :
- ♦ Higher education should be more responsive to the needs of the economy.
- ♦ Higher education depends far too heavily on public sector funds.
- ♦ Greater selectivity is needed in the allocation of research funding so that more resources are concentrated in centres of excellence.
- ♦ The higher education sector should be more cost-conscious and should manage resources more efficiently and effectively – this requires the construction and regular publication of a range of PIs.

In response to these guidelines, the actual use of PIs in British Universities can be traced back to 1985 and the work of the Jarratt Committee (Morrison, Magennis & Carey, 1995) and the eventual publication in 1987 of the first set of 39 PIs by the UGC and the Committee of Vice-Chancellors and Principals (CVCP) (Taylor, 1989). The committee preferred to call them *Performance Indicators and Management Statistics*. Of the 39, only one, viz. "occupations of graduates after six months" had bearing on first-destination graduate employment. In this context, the First Destination Record was introduced almost 40 years ago and each year, the Careers Advisory Service (CAS) at each UK university sends a questionnaire to its most recent crop of graduates in order to ascertain their occupational status six months after their graduation (Johnes & Taylor, 1989). Although its original purpose was to provide information to improve the efficiency of the CAS, the increasing emphasis on the use of PIs indicators led to a quantitative measure which could be used as a suitable job market indicator (Taylor & Johnes, 1989). This was the object of considerable criticism as evidenced in the works of several authors (Phillimore, 1989).

The development of PIs in the United Kingdom and other European countries were almost exclusively related to questions of political accountability and funding priorities. Multinational interest in PIs has been bolstered by the economic union among European countries and the Organisation of Economic Co-operation and Development (OECD), through its Programme on Institutional Management in Higher Education (IMHE), has examined the development of PIs in Europe over the past 25 years in respect of higher education in 12 OECD countries (Banta & Borden, 1994).

In the United States, higher education institutional comparisons have long been the most common method for the public assessment of quality and this acute interest continues today (Borden & Bottrill, 1994). In addition to annual comparative listings of top colleges and university academic programmes according to a variety of criteria, peer comparisons have been considered a valuable method for assessing specific aspects such as academic staff workload and salary guidelines. Reputational rankings have been influential but only to a degree because of the enormous range of criteria used. The professionalisation of the business side of higher education was strongly promoted by the National Association for College and University Business Officers (NACUBO). In 1991, NACUBO embarked on a project to collect more than 200 comparative measures of institutional operations manifesting the shift from an earlier focus on reputations to an emphasis on efficient use of resources (Borden & Bottrill, 1994). The development of the strategic planning paradigm further fostered professionalisation of higher education management as elucidated in the seminal work of George Keller (1983).

The various PIs which have been developed in the USA, have a dramatic effect on the budgets of institutions and departments. There has also been a recent move to evaluate departments using the value-added approach. The problem with using value-added analyses is that they require the collection of time-consuming, expensive, and controversial data over time (Hattie, 1990).

In the Australian system there has also been a heightened emphasis on assessing institutional quality. According to Lindsay (1993 : 32) performance and quality only started to receive sustained attention from policy makers in the latter part of the 1980s. The 1987 Green Paper attempted to establish a more competitive funding regime for higher education institutions which took account of differential performance in both teaching and research (Linke, 1992). A significant step was the establishment of The Performance Indicators Research Group which was established in 1989 to :

> *Develop and trial a broad range of quantitative indicators suitable for evaluating relative performance in higher education at both system and institutional level to report on their practicability, data requirements and appropriate conditions of use* (Linke, 1991).

Of key importance was the work conducted under the chairmanship of Linke and published as the so-called Linke Report (Linke, 1991). The report recommended 23 indicators falling into three categories. It argued that indicators could provide measures of efficiency and effectiveness but that they were not definitive and by no means the sole source of information on the quality issue (Lindsay, 1993).

Australia's federal Department of Employment, Education and Training (DEET) launched a major three-phase quality assessment program in 1993 under the aegis of the Committee for Quality Assurance in Higher Education (CQAHE) (O' Neil, 1994). More specific examples manifest themselves in the form of graduate destination surveys (GDS) such as undertaken into employment outcomes each year since 1994 by Flinders University, and Curtin University of Technology on behalf of the Graduate Careers Council of Australia (GCCA) (Flinders University Planning Services Unit, 1998).

In South Africa (another member of the Commonwealth), the changes in the higher education system have been even more drastic and recent than in most other countries. In this vein, the new Constitution of the Republic of South Africa (Act 108 of 1996)(Section 29(1)) states clearly that everyone has the right :
- ♦ to a basic education, including adult basic education, and;
- ♦ to further education, which the state, through reasonable measures, must make progressively available and accessible.

Institutional level strategic plans, developed in partnership with the Department of Education, are obligatory since 1998. So are the use of PIs, management information systems, and labour market information. The primary responsibility for quality assurance rests with the higher education institutions and PIs are viewed as a tool in the process. The principles of effectiveness and efficiency are related though distinct. "An effective institution should function in such a way that it leads to desired outcomes or achieves desired objectives. An efficient institution is one which works well, without unnecessary duplication or waste, and within the bounds of affordability and sustainability. It does things correctly in making optimal use of available means" (Department of Education, 1997 : 12). The focus throughout the further discussions in this document, is on the South African context with parallels being drawn with systems in some other countries.

Defining Performance Indicators

Performance indicators (PIs) have been defined in a multiplicity of ways, ranging from that of Dochy, Segers and Wijnen (1990 : 72) stating that they are "empirical data….which describe the functioning of an institution, the way the institution pursues its goals" to Hattie (1990 : 249) going as far as to refer to them as akin to "random (alcohol) breath-testing"! Others have referred to them as "barometers or dials", "signals", or as "tin openers" (Borden & Bottrill, 1994).

PIs have been used, either explicitly or implicitly, as a method of informing the management decisions of institutions. They are a tool for measuring the effectiveness and efficiency of processes in an institution (Spee & Bormans, 1992). It is prudent to contrast PIs to descriptive statistics and management information to alleviate any confusion between them. Descriptive statistics are measures that have no inherent significance such as student headcount. They lack both worth (knowing whether higher values are better or worse than lower values) and context (knowing how the value compares to those of previous times, other groups, or other statistics). Management information includes quantitative or qualitative data, such as market trend reports, that are related to each other. Management information adds the dimension of context, showing differences in values over time, et cetera, but also lacks worth. PIs, on the other hand, are related to both time and context and rooted in a goal-driven process which has the added dimension of worth. A measure or descriptive statistic thus becomes a PI when it is explicitly associated with a goal or objective. With a PI, it should be clear which direction one would like to see the values go, either down, up, or maintaining the status quo (Borden & Bottrill, 1994).

Most indicators developed to date are quantitative (Bormans et al, 1987) giving rise to the criticism that institutions may inadvertently make important what is measurable and perhaps neglect what is important (Morrison et al, 1995). Although indicators come in many forms, all are descriptive data (for example, percentages, frequencies, means, ratings) triggering important decisions relating to resource allocation , staffing and other matters (Schmitz, 1993).

The issues of validity and reliability always surface in terms of the distrust that some have in the use of PIs. Descriptive statistics merely have to meet the standard of reliability while PIs have to be more or less valid expressions of formulated objectives (Spee & Bormans, 1992). Concomitantly, Yorke (1995) states that PIs need to exhibit at least the following characteristics :

- ♦ Validity (in that they truly measure what they purport to measure);
- ♦ Reliability (in that data is stable and replicable);
- ♦ Communicability;
- ♦ Resistance to manipulation;
- ♦ Economy of data collection and processing.

The reliability of some of the well known PIs has been called into question, for example specifically the "first destination" graduate employment indicator (Johnes & Taylor, 1990).

The Input-Process-Output Framework

Many discussions of PIs in the European literature refer to some version of an input-process-output model to explain the role and scope of PIs (Borden & Bottrill, 1994). PIs identify factors which can express the achievement of objectives by a system. Despite criticisms of oversimplification, the production model approach (input-process-output continuum) is useful in illustrating the classification of PIs (Cave et al, 1991) and the starting point for any development of PIs in higher education (Cullen, 1987). The higher education process is basically one of transforming inputs into outputs having higher value. PIs must be able to record information about all points of this process (Borden & Bottrill, 1994. Figure 1 represents an IPO-model framework developed (Frackmann, 1987) containing ten inter-related elements which make up the performance process in higher education :

FIGURE 1:   IPO-FRAMEWORK FOR EVALUATING PERFORMANCE IN HIGHER EDUCATION INSTITUTION
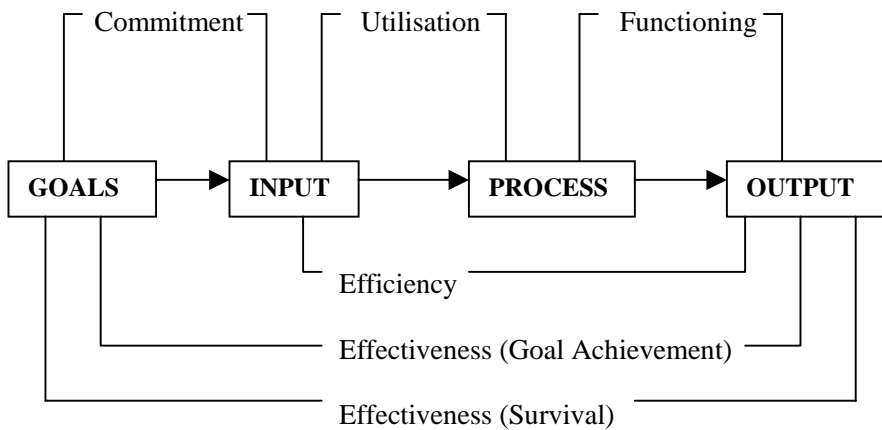
Where :

> Inputs   : relate to the human and financial resources which are used;
> Process : relate to the nature of what is taught and researched and how inputs are converted to
>   outcomes;

Outcomes : relate to the final products (graduates, research, etc.) of the tasks performed.
The model is static in that it does not indicate the nature of the relationships between and the weighting of the various indicators (Hattie, 1990). Valid comments about the performance of an institution will generally be based on a combination of these three subsystems.

Methods of Assessing Institutional Performance

There is no best method for encouraging an institution or department to consider its purpose, goals, processes, and outcomes. However, any system of PIs must be primarily aimed at the improvement of performance (Rutherford, 1987). Methods generally used, are resource allocation, total quality management, and outcomes assessment (Borden & Bottrill, 1994).

The resource allocation perspective resides at the input side of the model. Outputs and outcomes are to be maximised per unit of input. Economy is most important, followed by efficiency and effectiveness. PIs associated with resource allocation methods most typically involve ratios such as FTE student per FTE faculty member or expenditure per FTE student. These indicators serve more often as descriptive statistics or management information and less often as true PIs (Borden & Bottrill, 1994).

Total Quality Management/Continual Process Improvement (TQM/CPI) is a process-oriented approach. Both efficiency and effectiveness are important as goals and objectives are stated up front. TQM/CPI methods are in many ways PIs in the truest sense as they relate to the success or failure in performing a process in the most efficient and effective way to achieve the desired outcome.

Student Outcomes Assessment focus more on the end results of the educational transformation process, namely the outputs and outcomes. Outcomes assessment has been most closely linked with those wishing to account for the end results of the educational process. Practitioners often use survey research methods to collect outcome information from students who should be deriving benefits from the educational processes (Pettit, 1991). The first employment destination of new graduates is a classic example of a PI used in the systems of several countries and the premise upon which many of the findings of this study are based.

FIRST DESTINATION GRADUATE EMPLOYMENT AS PERFORMANCE INDICATOR

First destinations surveys are undertaken routinely in some countries such as the United Kingdom and Australia, and from time to time in others (Brennan et al, 1994). In the UK, the First Destination Record (FDR) has a long history and is intended to provide a picture of the first destinations of each university's graduates at 31 December of each year (usually six months after their graduation). The data are then collated to form the FDR at the Universities Statistical Record. Graduates are classified into one of the following six main categories :

- ♦ Permanent employment (PEMP)
- ♦ Short-term employment (not expected to exceed six months)
- ♦ Unemployed
- ♦ Further education and training (FET)
- ♦ Unknown first destination
- ♦ Other (including unavailable for employment) (Taylor & Johnes, 1989 : 203)

Although the FDR's original purpose was to provide information to improve the efficiency of the Careers Advisory Services (CAS) it is used as an important indicator of the success of graduates in the job market (Johnes & Taylor, 1989). The premise of this job market indicator is that it is economically wasteful to continue pouring scarce national resources into subject areas in which graduates cannot find a satisfactory job when there is a shortage in other subject areas (Taylor & Johnes, 1989).

Two indicators are constructed from the FDR which measure the success (or otherwise) of each institution's graduates in obtaining a satisfactory first destination (Johnes & Taylor, 1989) :

$$PEMP = \frac{\text{Graduates entering permanent employment}}{} \times 100$$

$$
\text{FET} = \frac{
\begin{array}{c}
\text{Graduates proceeding to further education or training}
\end{array}
}{
\begin{array}{cccc}
\text{Graduates} & \text{Graduates} & \text{Graduates} & \text{Graduates} \\
\text{entering} + & \text{obtaining} + & \text{proceeding} + & \text{believed} \\
\text{permanent} & \text{a short-} & \text{to FET} & \text{to be} \\
\text{employment} & \text{term job} & & \text{unemployed}
\end{array}
} \times 100
$$

Graduates entering permanent employment + Graduates obtaining a short-term job + Graduates proceeding to FET + Graduates believed to be unemployed

The results of the FDRs are used mainly for inter-university comparison purposes, which is unfortunate, as it has been criticised as a valid indicator (Cuenin, 1987; Cullen, 1987; Taylor, 1987; Taylor & Johnes, 1989). There is general consensus though that the success of each institution's graduates in obtaining permanent employment is a valuable indicator of the extent to which each institution produces *employable* graduates.

Based upon this premise, the research study undertaken, demonstrates the research techniques that an institution can use to study the career outcomes of its graduate delivery system : both first destination and further employment. The information gained, provides a basis for pragmatic review and planning which could be incorporated into its higher education landscape. It also makes a contribution towards the development of certain institutional PIs and outcomes assessment tools. It does not purport to make international comparisons possible (although it does follow the general guidelines of the FDR), nor to test the validity and reliability of any of the findings, only to provide unidimensional institutional perspectives.

There is evidence that surveying the longer term career experiences of graduates allow the collection of more detailed information about their employment experiences and also the views of the graduates themselves about these experiences. Surveys such as the FDR conducted less than a year after graduating, is almost certainly too early (Brennan et al, 1994). The real value of this research study is therefore in its design which accounts for *both* first destination employment and later career experiences/successes of graduates.

RESEARCH METHODOLOGY

The research study was conducted during the latter part of October to early November 1997. The primary aim was to obtain career outcomes information from a carefully selected sample of the Cape Technikon's alumni pool. The Cape Technikon is a medium-sized higher education institution situated in Cape Town, South Africa with a student headcount enrollment of more than 10 000 in 1998. A detailed-structured questionnaire was developed and together with a self-addressed postage-paid envelope mailed to a total sample of 3 208 alumni. The sample frame used was the institution's alumni data base which covers the 1984 to 1997 period (last updated mid 1997) and containing in excess of 12 000 units. The data base was created and is being maintained by the Alumni Officer in the institution's Department of Public Relations. About 250 mailings were returned, address unknown.

A stratified systematic sampling technique with a random start was adopted to ensure representativeness across divisions (technikon schools) and subdivisions (qualifications) and to yield valid and reliable research results. Mailed questionnaires are most economical in national surveys such as this one. Nonetheless, the degree of nonresponse that could occur is always a concern and a relatively large sample was consequently drawn. Based on the size of the population (sample frame) of over 12 800 units, it was established that a minimum of 362 returns were required to obtain a 95% confidence level with a 5% confidence interval. To ensure that this criterion was achieved it, was presupposed that a response rate of at least 12.5% would be obtained, hence the reason for selecting a total initial sample size of more or less 3 000 units.

In total, 482 completed usable questionnaire returns were received from the sampled alumni pool, resulting in a higher than expected 15.1% total response rate (1995 survey = 14.6%) which is quite acceptable for a study of this nature and well within the above confidence parameters. This gave a 95% confidence level with a 4.3% error level. All data was captured on computer using the Survey Systems statistical software package. Table 1 gives an exposition of the study's population (sample frame) and sample characteristics.

TABLE 1 POPULATION AND SAMPLE CHARACTERISTICS CAPE TECHNIKON ALUMNI SURVEY 1997				
	POPULATION*		RESPONDENTS#	
ACADEMIC SCHOOL	N	%	n	%
Management	2 377	18.5	90	18.7
Business Informatics	2 356	18.4	107	22.2
Life Sciences	1 971	15.4	66	13.7
Mechanical & Process Engineering	1 853	14.4	75	15.6
Civil Engineering	1 105	8.6	47	9.8
Electrical Engineering	1 026	8.0	33	6.8
Design	793	6.2	19	3.9
Architecture & Building	608	4.7	18	3.7
Teacher Education	392	3.1	18	3.7
Hotel & Catering Studies	348	2.7	9	1.9
TOTALS	12 829	100.0	482	100.0

* Population and sample frame of all known alumni 1984-1997
 # Final sample characteristics depicting weightings from which data was obtained

From table 1 it is clear that the Management and Business Informatics schools (business and management sciences) together comprise 37% of the Cape Technikon's alumni whereas the three schools of Engineering, taken together, account for a further 31%.

LIMITATIONS OF THE RESEARCH STUDY

Before venturing into the presentation and discussion of the research results, the limitations of the study are outlined :

* The single institution dimensionality, viz. using the Cape Technikon's alumni pool as the only data source. However, albeit that the findings are not generalisable to the full higher education spectrum, they are typical of the graduate employment aspect of alumni assessment surveys and are as such useful for comparison purposes and in terms of setting a foundation and establishing a research methodology for similar studies at other institutions.

* The characteristics of the institution's academic programme offerings contain some elements of uniqueness which have an influence on the employability of its graduates and hence on the effectiveness of its graduate delivery function. However, most higher education institutions are likely to exhibit at least some degree of congruence.

* The geographic regionality aspect of the sample, it consisting predominantly of respondents residing and working in the Western Cape Province. This is obviated by the fact that labour markets, also for graduates, are regional in nature and institutions such as is the case for the Cape Technikon, typically draw the largest proportion of their graduates from within the region in which they are situated (Cape Technikon, 1997 = 89.5%).

Concomitantly, table 2 gives an exposition of the demographic composition of the respondents from the Cape Technikon's alumni pool.

TABLE 2 DEMOGRAPHIC COMPOSITION OF INSTITUTION'S GRADUATE STUDENT "POOL"		
FACTOR	n = 482	%
Male	294	61.0
Female	188	39.0
White population group	426	88.5
Other groups	56	11.5
English first language	256	53.1
Afrikaans first language	213	44.1
Other languages	13	2.8
Mean age	27.9 years	-

The alumni pool is a relatively young-aged one, male dominated with the White race group very dominant. The distribution between English and Afrikaans as first language is almost equal between graduates. Whereas this is an institution-unique profile, no 'typical' alumni pool profile exists anyway as each one is the function of the multi-dimensionality of any institution's different environments.

RESEARCH RESULTS AND DISCUSSION

The findings of the survey are exposited in tables 3 to 19 and henceforth further discussed. Where pertinent, comparisons are made with the findings of the institution's 1995 survey (Bruwer, 1995).

Current Graduate Employment Status

Based on the framework of the First Destination Record in the UK, table 3 details the current employment status of the institution's graduates.

TABLE 3 CURRENT EMPLOYMENT STATUS OF GRADUATES			
		1997	1995
EMPLOYMENT STATUS	n	%	%
Permanent employment (PEMP)1#	417	86.5	86.9
Short-term employment*	23	4.7	4.2
Unemployed	28	5.9	4.3
Further education & training (FET)	12	2.5	3.8
Other (unavailable for employment)	2	0.4	0.6
Unknown	-	-	0.2
Further education & training (PET)#	(78)	(16.2)	(15.6)
TOTAL	482	100.0	100.0

  # PET = part-time further education & training while working
  1# Includes PET component for those in permanent employment
  * Not expected to >6 months (casual work, etc.)

The institution's PEMP factor (86.5%) remained almost constant over the past two years. Whereas inter-institutional comparisons, least of all internationally, border upon being ludicrous, it is "interesting" to note the congruence with results from surveys in Germany and the UK reported by Brennan et al (1994). The authors stress that the snapshot first destination surveys conducted routinely less than a year after graduating in countries like Australia and the UK, are almost certainly too early. After a period of two years, 80% were in full-time employment and after five years this figure had risen to 93% in the UK study. The figures for the German study are 86% and 91% respectively (Brennan et al, 1994). As the mean working period for the graduates in the Cape Technikon study is 3.5 years (refer to Appendix A), the results contained in table 3 "fit" the time framework of the two European studies relatively well too.

However, is the figure of 86% of the graduates in permanent full-time employment comparatively good or bad? Comparative figures for South African universities and technikons are not collected, and if collected on an individual institutional basis, not available. The institution therefore has no option but to set its own goals and benchmark this indicator over a specified time period.

As far as the problem of highly-educated unemployment is concerned, an important distinction must be made between two different aspects thereof : incidence and duration (Sanyal, 1985). If it takes a graduate several months to find "suitable" work, the rate of graduate unemployment is almost bound to be even higher than that of the region's unemployment in general (Blaug, 1987).

The damaging effect of graduate unemployment is manifested in the increase in the Cape Technikon's graduate unemployment from 4.3% to 5.9% between 1995 and 1997, although this masks the full extent of this damaging phenomenon. Table 4 consequently outlines the incidence of the graduates having been available for work, actively seeking work, but unemployed for any period exceeding three months during their working careers.

TABLE 4 UNEMPLOYMENT* INCIDENCE DURING GRADUATES' WORKING CAREER		
FACTOR	n = 482	%
Never unemployed during career	354	73.4
Unemployed at some stage in career	98	20.3
Unemployed currently (available for work)	28	5.9
Unemployed currently (unavailable for work)	2	0.4
-Duration of unemployment in past (mean)	6.1 months	
-Duration of current unemployment (mean)	7.2 months	

 * Longer than 3 months unemployed

The evidence provided, strongly supports Sanyal's (1985) contention that graduate unemployment reduces drastically over time as the graduates have more time to search for appropriate positions and/or gain more experience. Over an average period of 3.5 years since graduation, the institution's graduate unemployment rate has dropped from 20.3% to 5.9%. Yet again, is this encouraging or discouraging from the institution's perspective? Thought provoking are Australian comparative figures which were 6.3% (Flinders University) and 6.7% (Curtin University) during more or less the same period. The duration of the period of graduate unemployment varies between 6.1 and 7.2 months. Graduate unemployment therefore appears to be a universal problem in higher education systems.

For the institution to be able to correct or at least improve the situation it must investigate the factors influencing graduate past or current unemployment. These are reflected in table 5.

TABLE 5 FACTORS INFLUENCING GRADUATES' CURRENT OR PAST UNEMPLOYMENT		
FACTOR	n=128#	%
Lack of work experience	54	42.4
Affirmative action	37	28.8
Retrenched	28	22.0
Overqualified	24	18.6
Employment not desired at this time	24	18.6
University graduate preferred	17	13.6
Underemployed	17	13.6
Health or personal reasons	15	11.9
Racial discrimination	13	10.2
Underqualified	11	8.5
Sexual discrimination	8	5.1
Fired from job	2	1.7

* Longer than 3 months unemployed
# More than one response is possible

It is evident that the relatively young age (27.9 years) and consequent lack of applicable work experience (42.4%) are the most important factors causing graduate unemployment, other than mechanisms such as the country and region's general state of the economy and labour market structures. Refer to appendix B for a full exposition of the personal qualities of graduates which prospective employers find most desirable. It is the task of Technikons in South Africa to supply vocational training or career-oriented education hence partnerships between an institution and industry are of critical importance in this regard. Consequently, compulsory internships of between three to six months are part and parcel of most of the institutions' undergraduate programmes affording students the opportunity to gain at least some relevant work experience before formally entering the job market.

Other than these, the most obvious factor affecting the unemployment of graduates, is the subject mix of the higher education institutions (Johnes, Taylor & Ferguson, 1987). This aspect was however not tested in the study under discussion. Higher education institutions which have a high proportion of their graduates in 'high unemployment' subjects can be expected to have a higher than average graduate unemployment rate.

In a developing country like South Africa, the economic structure 'calls out' for more people who are self-employed, create employment for others, and grow the economy. In this context, an entrepreneurial orientation is of tantamount importance, hence the Cape Technikon built entrepreneurship concepts into many of the curricula of its academic offerings. The results are exposited in table 6.

TABLE 6		
INCIDENCE OF SELF-EMPLOYMENT, CO-OWNERSHIP OR INVOLVEMENT IN A PARTNERSHIP DURING GRADUATES' WORKING CAREER		
INCIDENCE	n = 482	%
Yes	93	19.3
No	389	80.7
Time Period (mean)	0.5 years	-

Although no comparisons are possible, the figure of 19.3% must be regarded as extremely high in almost all circumstances. Unfortunately, the graduates do not appear to practice entrepreneurship on a sustained basis as most positions were of a temporary nature and the average period in which they remained self-employed, amounted to only 6 months. It is nevertheless strongly recommended that the degree to which an institution's graduates are self-employed at any time, becomes a public fund-rewarded PI in the South African system.

First Destination and Current Career Positions

A graduate's first destination permanent employment position gives an indication of the matching process that has taken place between employer and employment seeker, his or her general employability, and the state of the labour market.

TABLE 7	
CAREER HISTORY OF GRADUATES	
FACTOR	STATISTIC
FIRST-DESTINATION POSITION :	
Number of years in position	1.9 years
PRESENT POSITION* :	
Number of years in position	2.6 years
Number of full-time employees	314 employees
Average span of control of incumbent	5.6 people

* 86.5% of all graduates are gainfully employed full-time

From table 7 it is evident that newly qualified young graduates spent an average of 1.9 years in their first destination position and 2.6 years in the current one. In accordance with human capital theory, there is a higher than normal likelihood for graduates to move around between jobs and even geographical regions at the beginning of their working careers. Organisations for which they work are quite large averaging a staff complement of 314 full-time employees.

All graduates do not begin seeking employment immediately after graduation, they start when they are motivated enough to do so, on average 1.1 months after graduation (see table 8). Their active search period is on average 1.8 months which appears to be relatively short but is difficult to assess realistically. Activities in which they engage while actively searching, range from temporary work to military service. As the institution has no control whatsoever over this aspect, it can hardly be used as indicator of performance, although the findings in table 9 puts a somewhat different perspective thereon.

TABLE 8
SEARCH PERIOD AND SEARCH ACTIVITIES OF GRADUATES'
FIRST-DESTINATION FULL-TIME EMPLOYMENT POSITION

FACTOR	STATISTIC	
Search Period :		
Graduation ceremony to active search	1.1 months	
Active search period	1.8 months	
Total time period	2.9 months	
Activities* :		
Temporary work	254	56.9%
Holiday	89	20.0%
Just relaxing for a while	55	12.3%
Studying further	48	10.8%
Military service	34	7.7%

 * More than one response is possible

TABLE 9
SOURCES OF INFORMATION ABOUT FIRST-DESTINATION EMPLOYMENT
POSITION OF GRADUATES

INFORMATION SOURCE	n=447	%
Newspaper recruitment advertisement	95	21.3
Knew the employer	89	19.9
Family	72	16.1
Friends	69	15.4
Co-operative education placement office	67	15.0
Lecturers at the institution	55	12.4
Employment agency/service	34	7.5
Other students	18	4.1
Ex students (alumni)	2	0.4

Accordingly, the institution was directly instrumental in terms of 27.4% of the sources of information in the graduate finding the first destination position (lecturers + co-operative education factors). Such factors should be "rewarded" in a system of PIs measuring institutional effectiveness and efficiency.

Employment Stability, Occupational Level and Career Status
As outlined earlier, graduates will be inclined to move around in the early stages of their careers. Concerning their employment stability, graduates had 1.4 jobs over an average 3.5-year long working career. More significant, 85% had fewer than three jobs during the period (table 10).

TABLE 10
NUMBER OF FULL-TIME JOBS HELD BY GRADUATES SINCE GRADUATION WITH DEGREE/DIPLOMA

NO. OF JOBS	n = 447	%
One job	245	54.7
Two jobs	135	30.3
Three jobs	47	10.6
Four jobs	8	1.7
Five jobs	12	2.7
MEAN	1.4 jobs	-

Graduates usually aspire to be employed in primary sector positions, in other words, those with the best remuneration, job conditions, and prospects for advancement (see table 11).

TABLE 11
OCCUPATIONAL STATUS OF GRADUATES IN FIRST-DESTINATION VERSUS CURRENT FULL-TIME EMPLOYMENT POSITION

OCCUPATIONAL CATEGORY*	F-D# %	CURRENT %
Professional, Semi-Professional	28.7	29.6
Managerial, Executive, Administrative	25.5	27.4
Technical, Technological	22.8	20.9
Clerical and Sales	9.3	8.7
Business Owner or Proprietor	1.6	3.6
Food and Entertainment	1.9	2.7
Agricultural, Fishing & Related	2.8	2.4
Service Workers	2.5	2.2
Production-related or Mining	1.5	1.3
Craftsman, Skilled Trades, etc.	0.9	0.8
Transport and Communication	2.5	0.4
TIME PERIOD IN POSITION (MEAN)	1.9 yrs	2.6 yrs

* Specific occupations classified under standard occupational categories
\# First destination

Table 11 shows accordingly that most graduates are or have been employed in professional or semi-professional, managerial or technical/technological positions. Refer to appendix C for a full exposition of the various job titles held by the graduates. The Cape Technikon being a higher education institution of technology, has a high incidence of graduates being in technical or technological positions. Noteworthy are the gains, albeit small, made in the top two categories by the transition of graduates from their first destination to their current employment positions.

Qualifications' Relevance and Degree of Utilisation

Most (51.2%) of the graduates perceived their current job position to be highly related to their field of study and a total of 79.6% view it as between moderately and highly related (table 12).

TABLE 12 DEGREE OF RELATEDNESS BETWEEN CURRENT JOB POSITION AND GRADUATES' HIGHEST CAPE TECHNIKON QUALIFICATION		
DEGREE OF RELATEDNESS	n	%
Highly related	247	51.2
Moderately related	137	28.4
Slightly related	52	10.9
Not at all related	46	9.5
TOTALS	482	100.0

In these times when higher education institutions are often blamed that they do not efficiently prepare graduates for the world of work, the results reflected in table 13 are encouraging.

TABLE 13 DEGREE TO WHICH STUDIES AT CAPE TECHNIKON PREPARED GRADUATES FOR CURRENT JOB POSITION		
DEGREE OF PREPARATION	n	%
Exceptionally well	103	21.3
More than adequately	144	29.9
Adequately	179	37.2
Less than adequately	29	6.1
Very poorly	3	0.6
Not at all	24	4.9
TOTALS	482	100.0

A total of 88.4% of the graduates indicated that the institution was effective in providing them with the knowledge and skills required for their current job position, with 51.2% emphasizing that the preparation they received was exceptionally high or more than adequate. Brennan et al's (1990) survey in Germany yielded a total figure of only 62%. This could be regarded as a very positive reflection on the quality and standard of the institution's academic programme offerings and vocational training.

It is problematic to set reliable PIs for the factors exposed in tables 12 and 13, but as a guideline the Department of Education could reward institutional performances of higher than, say 80%, with earmarked public funding allocations.

TABLE 14 DECISION WHETHER GRADUATE WILL GRADUATE IN THE SAME MAJOR		
DECISION	N	%
Definitely yes	175	36.3
Probably yes	152	31.4
Uncertain	49	10.2
Probably not	70	14.6
Definitely not	36	7.5
TOTAL	482	100.0

The vast majority (67.7%) reckon that if given the choice, they will again graduate in the same major subject field than previous. Only 22.1% feel that they have made the wrong choice (see table 14). Once again, similar incentives such as earmarked public funding can be used for performances above the national (or regional norm).

Graduate underemployment, due to the extent thereof, can be a more devastating phenomenon than unemployment. Underemployment has been fittingly defined by Rumberger (1981) as ....."the discrepancy between the educational attainments of workers and the educational requirements of their jobs". This definition is based on the notion that every job requires particular levels of skill and knowledge to perform the job functions adequately. Graduates possessing more skills and knowledge than are necessary to perform their jobs are thus 'over educated' and classified as 'underemployed'.

According to Glytsos (1990), graduate unemployment shows only the tip of the iceberg, because it does not include the amount of educated underemployment, or "occupational mismatch" which exists. Failing to find jobs for which they are suited by training, graduates disappear into the statistical never-never land of underemployment where rewards are meager but available. University graduates selling flowers on street corners, or waitressing in restaurants illustrate underemployment of young highly educateds in its extreme forms (Eaton & Neher, 1975). In most developing countries, underemployment of graduates is an even more serious problem than their open unemployment (Sanyal, 1987). Therefore, O'Toole (1975) rather fittingly, refers to them as "the reserve army of the underemployed." A distinction must also be made between visible and invisible underemployment. Visible underemployment involves shorter than normal periods of work while invisible underemployment is characteristic of persons whose earnings are abnormally low, whose jobs do not permit full use of their capacities or skills, or who are employed in establishments or economic units where productivity is abnormally low (Sanyal, 1985). It is therefore always difficult to determine the degree of graduate underemployment.

Job satisfaction can be viewed as a measure of current or future underemployment problems for graduates. Underemployment is a subjective as well as objective phenomenon. Persons who are employed in jobs that do not require their skills can be expected to perceive deprivation and express negative job evaluation.

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The terms 'unemployment' and 'underemployment' are not mutually exclusive because underemployed people could also be unemployed at a particular time. Table 15 depicts the incidence of underemployment of the institution's graduates.

TABLE 15		
UNDEREMPLOYMENT INCIDENCE DURING GRADUATES' WORKING CAREER		
FACTOR	n = 447	%
Never underemployed during career	267	59.8
Underemployed at some stage in career	180	40.2
*Duration of underemployment (mean)	8.4 months	

Underemployment has risen from 37.6% (1995 survey) to 40.2%. Only about 60% of the institution's graduates have never been underemployed in their careers. Fortunately, the average period of underemployment is relatively short, viz. (only) 8.4 months. In similar studies conducted in the Netherlands (Hartog & Oosterbeek, 1988) and the USA (Solmon, 1981) underemployment figures of respectively 46% and 39% were obtained.

TABLE 16		
UNDEREMPLOYMENT CATEGORY OF GRADUATES DURING WORKING CAREER		
FACTOR	n = 180*	%
Overqualified	129	71.8
Lower than normal pay	89	49.7
No future career prospects	77	42.9
Part-time in absence of full-time work	30	16.4
Reduced work hours	12	6.8

 * More than one response is possible

From table 16 it can be seen that a significant 71.8% of the graduates are 'overqualified' for the positions they are occupying or have occupied in the past. Many accept lower pay than normal (49.7%), occupy a position with no future career prospects (42.9%), or are forced to do part-time work (16.4%), either as a result of being overqualified, the state of the labour market, or both.

To depict the graduate 'underemployment' issue as a PI, is almost impossible. Rather, it should be assessed in tandem with unemployment and some composite measurement developed.

Income of Graduates

No discussion on outcomes assessment of a higher education institution's graduates would be complete without (some) indication of their earnings ability - a vital indicator of efficiency or effectiveness. Table 17 gives an exposition of the average monthly salary earned in their first-destination and current employment positions respectively.

The average income of respondents in their first-destination full-time job was R3 196 per month, while the average monthly income earned in his/her current job rose steeply to R6 114, amounting to a 91% total increase. Even if inflation adjusted (at 7.5% per annum straightline), the increase amounts to 58% (average = 22.5% p.a. over an average period of 2.6 years of employment). This again confirms the human capital theory's premise that it pays an individual handsomely to invest in a higher education qualification for him/herself. No direct comparison was made with other published research studies on this aspect. It is, however, evident that the graduates' earnings ability drastically increases with the passage of a relatively short time period. Of concern though, is the fact that 25.5%, even in their current occupations, earn less than R3 750 per month – once more a clear indicator of likely graduate underemployment.

TABLE 17 GROSS MONTHLY INCOME OF GRADUATES IN FIRST DESTINATION AND CURRENT JOB POSITION		
INCOME CATEGORY	F-D# %	CURRENT %
Less than R840 per month	2.7	0.2
R840 - R2 500 per month	40.2	8.5
R2 501 - R3 750 per month	18.3	16.8
R3 751 - R5 800 per month	12.2	30.2
R5 801 - R7 500 per month	4.4	13.1
R7 501 - R10 000 per month	2.9	10.4
R10 001 - R12 500 per month	0.6	3.3
R12 501 - R16 700 per month	0.6	3.9
R16 701 - R20 000 per month	0.4	0.6
R20 000 plus per month	-	0.6
Confidential	17.7	12.4
Monthly Income (mean)	R3 196*	R6 114
Annual Income (mean)	R38 352	R73 368
Inflation Adjusted Income (mean)~	R46 315	R73 368

 * R3.55 = $AU1.00   ~ 7.5% p.a. 1995-1997 period
 # First destination

The earnings ability of graduates can, however, not be used as an objective higher education PI, only as a benchmark for itself and/or the region in which it is situated.

Regional Job Mobility

There has been much debate in academic and public policy maker circles whether a high incidence of its graduates having to migrate away from the region in which the higher education institution is situated to

secure permanent employment, is tantamount to some inefficiency. There is a case to be made for both sides of the argument. Institutions with a good reputation are more likely to attract graduates from far away regions, even from other countries, and have used this ability openly and successfully in their student recruitment campaigns. All things equal, this ability should result in the institution attracting students of higher ability with higher consequent success rates, etc. The South African Department of Education holds the opposite view, and "quietly" discourages institutions to "fish in each other's ponds". However, with the race between institutions for students now increasing in intensity, due to funding cutbacks, economic downturn and lower student participation rates, this view may have to change. Table 18 reflects the survey findings.

TABLE 18 REGIONAL JOB MOBILITY FACTOR : FIRST-DESTINATION EMPLOYMENT POSITION OF GRADUATES		
FACTOR	n	%
Position inside Western Cape Province*	355	79.4
Position outside Western Cape Province	92	20.6
TOTAL	447	100.0

* 89% of graduates during their study period were originally from the
   Western Cape Province.

From table 18 it can be seen that 79.4% of the graduates were able to find a first destination permanent employment position within the Western Cape Province - the region within which their alma mater is located. There was thus a net 'loss' of about 10% for the province as these graduates had to out-migrate to find suitable employment. Although graduates will always migrate to where the best career prospects are, in particular early in their careers, the author believes that this graduate loss is some kind of institutional inefficiency and wishes to suggest that this be recognised as a PI.

SYSTEMIC USE OF IDENTIFIED PERFORMANCE INDICATORS

Even the definition of PIs is largely dependent on the perspective taken : that of government, region, higher education institution, or heads of departments. In this study, the institutional perspective was adopted, and it was found that a carefully constructed set of PIs can best be used to focus and strengthen its organisational efforts as PIs convey institutional priorities and set standards for its own performance. As very few standardised alumni surveys are conducted, inter-institutional comparisons will always be problematic (Pettit, 1991).

However, as this study was institution-specific, exploratory in nature, an attempt at creating a conceptual framework is be made to structuring a set of PIs from the findings, for systemic use in the South African higher education arena. Table 19 depicts this attempt. Three categories of indicators are identified :
   ♦ *objective* indicators, i.e. PEMP, FET, income;
   ♦ *subjective* indicators, i.e. graduate views of "suitability" of current jobs, career aspirations;
   ♦ *both objective and subjective* indicator aspects, i.e. the "match" between work tasks and content of higher education.

Furthermore, the higher education system is subdivided into three areas or arenas of relevance or applicability, viz. that of national level, regional level, and individual institution.

TABLE 19
PROPOSED SET OF GRADUATE CAREER OUTCOMES INDICATORS FOR SYSTEMIC USE IN HIGHER EDUCATION ARENA

INDICATOR	RELEVANT			NOT RELEVANT
	INSTITUTION	REGIONAL	NATIONAL	
OBJECTIVE				
PEMP	x			
FET	x			
Unemployment		x		
Underemployment	x	x		
Self-employment	x	x	x	
Search Period :-				
* F-D position	x	x		
Occupational status				x
Income	x	x		
Regional mobility	x	x		
SUBJECTIVE				
Institution involvement	x	x		
Relatedness of degree	x	x		
Preparedness for career	x	x		
OBJECTIVE & SUBJECTIVE				
Employment period :-				
* F-D position				x
* Current position				x
Graduate in same major	x	x		

Most indicators are institution-specific and in the objective category. Few indicators were found to be completely non-relevant. The system works best within an institution which sets institutional goals and wishes to monitor its progress in terms of the achievement of effectiveness and efficiency.

SUMMARY AND CONCLUSIONS

Higher education policy in South Africa and elsewhere is placing increasing emphasis on institutional accountability with often clear reference to the employability of an institution's graduates. Evaluation machineries and institutional mission statements are but two factors which are directing higher education institutions towards a growing interest in the employment experiences of their graduates.

Although first destination graduate employment surveys are routinely conducted in the United Kingdom, Australia, USA, and some OECD countries, usually within a year after graduation, this is too early for comprehensive outcomes assessment purposes. First destination surveys as an only source of PIs derived from career outcomes assessment surveys, must be seriously questioned. It is essential that institutions augment these studies by surveys carried out several years after graduation. In this study, an example was exposited of how the Cape Technikon in South Africa, conducts biannual comprehensive alumni surveys thus encapsulating *both* the first destination and later career aspects of its graduates.

The performance of higher education institutions must be made more visible. Indicators need not be quantitative but of such a nature that the parties communicating with one another speak the same "language" and attach the same meaning to the more abstract concepts. The deductive process leading toward measurable indicators is a heavily value-laden activity. To be effective, PIs need to be owned by an institution.

Any system of PIs must be primarily aimed at the improvement of performance. A carefully constructed system of PIs should drive the strategic planning process. A well-designed system of PIs is one which does not impose too great an extra workload on heads of department and other staff. Such a robust system was developed by means of this study. It was concluded that three broad categories of PIs for the purpose of graduate career outcomes assessment can be identified :

- ♦ *objective* indicators, i.e. PEMP, FET, income;
- ♦ *subjective* indicators, i.e. graduate views of "suitability" of current jobs, career aspirations;
- ♦ *both objective and subjective* indicator aspects, i.e. the "match" between work tasks and content of higher education.

For such a set to be workable, the higher education system must be subdivided into three areas of application, viz. national level, regional level, and individual institution. Meaningful evaluation of institutional effectiveness and efficiency using graduate career outcomes assessment surveys and developing PIs therefrom, depends upon an understanding of the relationship between :
- ♦ the regional economy;
- ♦ institutional background;
- ♦ field of study;
- ♦ socioeconomic background of individuals.

The research study undertaken proved that the unemployment, and much more so, the underemployment of graduates, are devastating phenomena in the lives of graduates and a high incidence of either, are definite indicators of institutional ineffectiveness and inefficiency. It was found that 5.9% of the institution's graduates were in a unemployed occupational situation. However, the incidence of underemployment among the graduates was a high 40.2%. Educated unemployment or underemployment is due to a mismatch between the aspirations of graduates and employment opportunities available to them. This represents a wasteful investment of scarce resources. Large sums of money have consequently been invested in educating unemployed or underemployed graduates which could otherwise have been invested in job-creating productive programmes.

It was furthermore found that two factors are important regarding graduate unemployment or underemployment, namely incidence and duration. The duration of graduate unemployment in particular, appears to be a sharply declining function of age. It is principally a youth problem, most graduates finding a job after some time (average 2.9 months), the length of which varies with the fields of specialisation.

The jobs taken in the first year after graduation are important in determining future occupational directions. The study's results showed an inflation-adjusted increase of 58% in the income of graduates over a relatively short period. Any effort that can therefore be made to assist the student or new graduate in finding a first-destination job that is appropriate to interests and skills is thus likely to have a positive effect on long-term vocational outcome.

Labour market forces alone cannot be depended upon to correct educational imbalances. An intermediate adjustment mechanism must be developed to relate the development of higher education to the development of the graduate employment market, and the expectations and attitudes of students. Although a higher education institution is not a concertina which can be routinely expanded and compressed to match the changing environment, it would be naive and even irresponsible to contend that it can do nothing whatsoever to this end. Applying labour market demand-based student enrollment management in this complex paradigmatic environment is, for example, a certain way in which an institution can contribute to its own well-being. Should higher educational institutions not become alert to the forces determining their ultimate future, they will suffer the negative consequences, and may even eventually perish in the process.

It is furthermore the responsibility of these institutions to include the employment success of their graduates in their outcomes assessment surveys, and more important, to report regularly about this to their stakeholders.

While the use of PIs as a developing practice is widespread, this does not imply that their development is necessarily at the same stage or, indeed, that they are used for the same purpose. It is clear that there is as yet no one approach to the use of first destination and graduate employment as key performance indicators in particular.

If indicators are used with appropriate recognition of their limitations they can provide a useful starting point for further investigation. PIs on graduate employment should not be used for inter-institutional comparison purposes. The most important determinant in the first destination employment of an institution's graduates is its subject mix or degree programme offerings. The unemployment rate in the region in which the institution is located is another important factor.

When designing a set of PIs, a higher education institution must carefully observe the following guidelines :

♦ Decisions must be made which outcomes are more important than others and the essential indicators be developed, not the desirable, easily quantifiable, readily available ones;
♦ A strong conceptual framework, building upon the exploratory one defined in this study, must be developed that traces outcomes back to the learning environment;
♦ The standards or performance benchmarks must be carefully built.

PIs require the explicit statement of goals and objectives throughout the higher education institution. One will get a fairly robust composite picture when PIs are set as each indicator gives some idea as to where to attempt to influence change. If there isn't general agreement about what works best, there is at least some agreement where to focus the improvement efforts. If developed in an organised way and placed in a conceptual framework, such as outlined in this study, they can yield significant improvements in institutional effectiveness and efficiency.

> "Oh, why don't you work
> Like other men do?
> How the hell can I work
> When there's no work to do?"
> [Anonymous, 1994]

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APPENDIX A
YEAR OF GRADUATION WITH LAST CAPE TECHNIKON QUALIFICATION

YEAR	n	%
1985	1	0.2
1986	-	0.0
1987	1	0.2
1988	5	1.0
1989	31	6.3
1990	38	7.9
1991	40	8.4
1992	47	9.8
1993	42	8.8
1994	61	12.7
1995	106	21.9
1996	98	20.3
1997	12	2.5
TOTALS	**482**	**100.0**
YEARS MEAN	3.5 years	-

APPENDIX B
PERSONAL QUALITIES PERCEIVED BY EMPLOYERS AS THE MOST IMPORTANT WHEN RECRUITING NEWLY QUALIFIED STUDENTS

PERSONAL QUALITY	MEAN* SCORE	RANK# POSITION	%
Effective intelligence	2.52	1	23.2
Vocational training	2.53	2	21.3
Conscientiousness	2.66	3	31.6
Understanding of the industry	2.73	4	19.7
Drive or motivation	2.75	5	51.1**
Self-confidence	2.90	6	22.4
Ability to take on responsibility	2.94	7	60.0**
Creativity	2.94	8	10.3
Powers of logical thought	3.03	9	32.4
Integrity	3.03	10	21.8
Initiative	3.05	11	36.8**
Clarity of expression	3.06	12	5.3
Leadership potential	3.11	13	24.2
Ability to learn	3.18	14	32.1
Ability to get on with people	3.26	15	39.2**
Self-discipline	3.39	16	26.6
Stability of personality	3.50	17	7.1
Outgoing personality	3.55	18	3.2
Good personal appearance	3.92	19	6.6
Adaptability	3.97	20	19.5
Wide range of interests	4.17	21	1.6

* Scale used : 1 = very satisfied to 5 = very dissatisfied
\# Highest rank position = lowest mean rank score value
** Incidence significantly high vs. ranking

CURRENT JOB TITLE/POSITION* OF GRADUATES

OCCUPATIONAL CATEGORY# (ALPHABETICAL)	n = 447	%
Accountant or actuary	33	7.4
Architect or urban planner	11	2.5
Airline hostess	1	0.2
Au pair	1	0.2
Business (administrative function)	62	13.9
Business manager or CEO	10	2.2
Business owner or proprietor	17	3.8
Business salesperson or buyer	27	6.0
Beauty therapist	1	0.2
Chef/food catering	5	1.1
Cartographer	4	0.9
Computer programmer	31	6.9
Conservationist or forester	6	1.3
Engineer (civil)	26	5.8
Engineer (electrical)	23	5.1
Engineer (mechanical or process)	31	6.9
Environmental health officer	9	2.0
Farmer	5	1.1
Fashion designer	1	0.2
Fire fighter	3	0.7
Food service manager	3	0.7
Food technologist	7	1.6
Graphic designer	10	2.2
Horticulturist	9	2.0
Hotel/resort manager	3	0.7
Industrial psychologist	1	0.2
Interior decorator	1	0.2
Insurance agent	1	0.2
Jewellery designer	1	0.2
Laboratory technician or hygienist	5	1.1
Labour relations officer	1	0.2
Landscape designer	1	0.2
Librarian	4	0.9
Medical technologist	13	2.9
Military service career	1	0.2
Nurse	5	1.1
Oceanographer	1	0.2
Optometrist	5	1.1
Public relations officer (PRO)	8	1.8
Production manager	1	0.2
Quantity surveyor	10	2.2
School teacher (secondary)	3	0.7
Scientific researcher	3	0.7
Secretary/receptionist	11	2.5
Skilled trades (plumber, etc.)	1	0.2
Social, welfare or recreation worker	1	0.2
Statistician	1	0.2
Supervisor/production line superintendent	4	0.9
Textile designer	1	0.2
Three-dimensional designer	1	0.2
Tourist guide	2	0.4
Training officer/manager	8	1.8
Travel agent	1	0.2
University/technikon lecturer/professor	11	2.5
Writer or journalist	1	0.2

* Full-time and part-time positions
# Some specific occupations classified under standard occupational categories

BIOGRAPHY OF PRESENTER : PROFESSOR JOHAN de W. BRUWER

Prof. Johan Bruwer is Director of the Institutional Research and Strategic Planning division of the Cape Technikon, a polytechnic situated in the centre of Cape Town, South Africa. The institution has a current student enrollment in excess of 10 000 and is actively developing performance indicators for application in its strategic planning process.

He graduated with an MBA degree from the University of Stellenbosch and later completed his PhD in the field of student enrollment management at the same university, specialising in demand-based student enrollment management models. Recently he has been active in student assessment outcomes research and its relation to performance indicators and the strategic planning process.

He is member of AIR (USA) and SAAIR (South Africa) and have presented papers at these and several other international conferences. Several of his papers on various topics have also been published in journals, local and international. His main interest is to further hone his skills as a research methodologist, specifically in the institutional research field.