



THE COMMONWEALTH OF LEARNING

**Costing Distance Education and Open Learning
in Sub-Saharan Africa**

**Working Group on Distance Education and Open Learning
A Survey of Policy and Practice**

FINAL REPORT

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Introduction

Ideological arguments are made for open learning, economic ones for distance education. If it can produce similar results to those of conventional education at a lower cost, then distance education has a powerful appeal.

There are grounds for thinking that distance education may have economic advantages. There are two cornerstones to the argument. The educational cornerstone is the theory of media equivalence: that there are no significant differences in the effectiveness of different educational media ... The economic cornerstone [is that] distance education allows a division of labour, in which a group of teachers and producers manufactures teaching material, an organisational machine distributes it, and another group provides a minimum of individualised tutorial support to the students. Economies of scale become possible, provided there are enough students to justify the manufacturing cost of the first group and student contact is kept down to contain the costs of the second. (Perraton 2000).

The Association for the Development of Education in Africa (ADEA 2002) notes that with increasing demand for access to educational opportunities at all levels, and often decreasing budgets in real terms for educational provision, there has been a growing interest in the open and distance learning in sub-Saharan Africa (SSA) as an increasingly important and credible part of education delivery strategies designed to enable greater access to quality education.

Hülsmann (2000) identifies the following three critical success factors for the efficient and effective provision of distance education and open learning (DEOL):

- A clear policy
- An appropriate institutional culture
- The consideration of costs

The debate in SSA has tended to be centred more upon cost advantages than open access, but both considerations are important. In a companion report (*Distance Education and Open Learning in sub-Saharan Africa: Criteria and Conditions for Quality and Critical Success Factors*), we discuss suggested criteria for quality DEOL provision in SSA and attempt to identify minimum standards or critical success factors. In this report, we are concerned purely with costing issues. It is hoped that when read together, the two reports will be seen as complementary and an aid to informed decision-making.

Sadly – despite many claims to the contrary – sound and rigorous financial planning is a serious omission in several new projects and institutions seeking to harness the potential of distance education methods. The most problematic aspect of this omission is not analysis of the current or short-term running costs of a distance education programme or institution; many (but by no means all) planners have a handle on these dimensions of distance education practice.

Far less common, though, is rigorous planning for the long-term sustainability of a programme or institution. Obviously, this is problematic in any context, but it is of particular concern when financial resources are very constrained, which is usually a feature of distance education programmes in developing countries. At the 34th Annual General Meeting of the Distance Education Association of Southern Africa (DEASA) held on 4–5 October 2003, representatives

of four of the five member countries present noted that absence of programme-based budgeting and financial reporting was a problem or a serious problem.

Some financial problems are beyond the control of financial planners. For example, in many countries, even modest course fees are beyond the reach of many potential learners. Similarly, national communication systems (roads, telecommunications, postal systems) are often not sufficiently reliable or pervasive to meet the requirements of effective distance education provision. Moreover, there are many other problems that arise from ineffective financial planning. The following common features of struggling distance education programmes are symptomatic of weak financial planning:

- Face-to-face tutorial support is seen to be critical to learner success, but too expensive to implement.
- There are few reliable and sustainable strategies for making ongoing investments in course materials design and development.
- Professional development for educational and administrative staff members is sporadic and limited, resulting in insufficient skills amongst personnel to sustain distance education systems.
- Administrative systems either do not exist or are highly underdeveloped.
- Innovation in distance education relies heavily on unsustainable sources of funding, particularly donor funding.

The consequences of this lack of financial information and planning are that it is often extremely difficult to access reliable data to guide decision-making, and where data is available the results are often less encouraging than hoped for.

Having engaged in an extensive exercise exploring the costing of DEOL in developing countries, Perraton (2000) notes the following limitations on researching actual costs:

- Data is limited and what is available emphasises recurrent costs, not capital costs.
- Discussions of costs often omit throughput so it is difficult to compare costs per successful graduate.
- Comparisons across countries are difficult, especially in times of fluctuating exchange rates.
- Distance education and full-time provision usually cater for different types of students, which make cost comparisons more difficult.
- Conventional education has a greater cost weighting towards variable costs: whilst distance education has a weighting towards sometimes quite high fixed costs in start-up but which allow for economies of scale as student numbers increase.

On the basis of the relatively limited data available, Perraton (2000) comes to the following conclusions (see below), concerning DEOL provision of adult basic education and training (ABET); schooling; teacher education and training; and higher education and training.

ABET

Table 1 outlines the costs of some adult basic education projects in SSA (in US dollars (USD), 1998 value)

Table 1: Illustrative costs of providing ABET

Project	Scale and Duration	Cost Per Learner	Cost Comparison
Zambia radio education programme on co-operative movement	<ul style="list-style-type: none"> 4,730 participants Ten weeks of meetings, once weekly 	USD 22 per learner	Cost per learner lower than cost of training at farmers' centre; higher than primary school costs
INADES-formation, courses in agriculture for farmers	<ul style="list-style-type: none"> 573 students in Cameroon (some costs shared with other countries) One-year course with correspondence lessons and three seminars 	<ul style="list-style-type: none"> About USD 982 per student Cost may now have fallen significantly 	Course cost about one-sixth of one year's residential course, but very high in relation to primary school costs

Source: Perraton 2000

The data in Table 1 seem to indicate that DEOL provision of ABET compares favourably with ABET provision by more conventional means, but it would be in the best interests of a country in the long-term to invest in good primary education that would obviate the need for extensive ABET programmes in future.

Schooling

With regard to schooling, Perraton (2000) concludes:

In Malawi and Zambia, for example...the cost per student at correspondence centres was always lower than the cost in regular secondary schools. But...the lower examination pass rate meant that, in 1978, the cost per pass was higher at the correspondence centres. A remarkable improvement, coupled with an increase in student numbers, meant that ten years later the correspondence centres were at an advantage in terms of cost per pass as well as cost per student...We can summarise that open and distance learning methods can offer secondary education at lower unit costs than the conventional but that it is rarer for them to achieve competitive costs per successful student. Where educational technology, whether as simple as radio or as sophisticated as computers, has been used to enhance education rather than to provide an alternative, its costs are additional to those of regular schools. If these technologies are to be used, they need to demonstrate an educational value that justifies the extra cost.

Teacher Education and Training

Perraton advises that in considering DEOL provision of teacher education and training, the following factors must be taken into account:

- The cost of teacher education of all kinds is generally high.
- The degree of support varies and affects costs widely, especially, for example, the degree of in-class support.
- There is the additional opportunity cost of study for the teachers in terms of foregone additional earnings and the sheer volume of work required.

Perraton (2000) notes that “With these qualifications, we can treat the economic case for using open and distance learning in teacher education as fairly robust, with projects achieving costs per student at between a half and two-thirds of those in conventional education.”

Higher Education and Training

There is very little reliable data on higher education and training costing data and where they exist, the data emphasise recurrent, not capital costs, and costs per student rather than costs per successful graduate. However:

The simple conclusion is that, while open and dual-mode universities are achieving lower costs per student than conventional ones, they may not always have favourable costs per graduate. If we regard their function as being to expand the production of graduates, then the economic case for using distance education would be strengthened if they could increase the efficiency of their teaching systems and raise their graduation rate. On the present figures, the economic case for investing in open and distance learning as a means of producing graduates is by no means well established. (Perraton 2000).

In response to the above findings, this report focuses on exploring ways in which to avoid the symptoms of weak financial planning. It outlines key concepts and approaches to financial planning for distance education. It then explores some key mistakes that have been made in financial planning in different contexts.

Having provided this conceptual framework, the report goes on to explore the costing of DEOL in some detail using case studies of actual DEOL programmes in SSA and a financial planning tool developed for precisely this purpose.

The emphasis in this report is on the costing of DEOL provision in SSA, and the case studies used as the basis of this report have all been drawn from institutions and programmes in SSA.

1. Some Key Concepts

While there are numerous approaches to costing distance education, each of which is tailored to specific institutional requirements, many of them have several commonalities. The following is a short explanation of approaches to costing distance education, focusing on a few pertinent concepts.

1.1 Differentiating Between Effectiveness And Efficiency

In considering sound educational investment, it is essential to distinguish between effectiveness and efficiency. Cost effectiveness is used as a term distinct from cost efficiency. For the purposes of this report, the latter is about “cheapness” of educational provision – usually

expressed in terms of per student costs – while the former represents striking the optimal balance between cost, student numbers and educational quality, a balance which will be entirely different for different educational contexts.

In many ways, the concept of cost effectiveness represents the balancing act that constitutes open learning: making courses cheaper to widen access but also having to ensure quality of provision and the learner support that will turn access into success. There is no magical formula that leads to cost-effective education; rather, cost effectiveness needs to be measured on an ongoing basis in relation to changing contextual requirements.

1.2 The Difference Between Actual Costs and Notional Estimates

Many approaches to costing distinguish between actual and notional costs. *Actual costs* are an accurate reflection of what an item or activity costs at a specific time. Such costs can only be accurately calculated retrospectively, as there are various factors (that are in themselves dynamic) that determine actual costs at a specific time. *Notional costs*, on the other hand, reflect an average cost of what an item or activity is likely to cost. Notional costs are considered in estimating expenditure when projecting forward in planning (therefore needing to take into account the likely effects of inflation). The actual cost of buying a Super DX e-180 VHS videocassette in South Africa in November 2000 may have been ZAR 13.99. An appropriate notional cost for financial planning in 2001, which factors in the likely impact of inflation, may therefore have been ZAR 15. By 2003, this cost may reasonably be assumed to have risen to ZAR 17.50. These differences may seem obvious, but the process of extrapolating notional costs from historical data is often ignored in financial planning.

The difference also becomes critically important in planning broader resource usage. To illustrate, consider how much time learners spend on different learning tasks (the *notional hours of learning*). This concept is important, as it has a direct impact on use of all resources (human and otherwise) in any education system. *Actual hours of learning* refers to the amount of time a specific student spends engaged in an educational course. This can seldom be accurately predicted, and thus requires careful measurement for each student.

Despite the impossibility of accurately predicting how long different learning activities will take different learners, it is critical to estimate notional hours of learning during planning because this estimate affects all other resource and financial planning (in particular, personnel costs). In such exercises, educational planners seek to estimate the “average” time that the “average” learner would spend on a particular course. Although such estimates can never be entirely accurate, they are critical to effective planning. Moreover, they can become increasingly accurate over time by measuring actual hours of learning across a range of students and using these measurements to revise future estimates. Likewise, establishing means of comparing actual and notional costs is an important component of improving financial planning processes and ensuring that they are sufficiently detailed and accurate to be useful.

1.3 Fixed and Variable Costs

One of the most common distinctions made in costing approaches is between fixed and variable costs. *Fixed costs* refer to actual or notional costs of an item or activity that remain constant when other variables (such as student numbers) change. *Variable costs* are dependent on other factors. They change as student numbers or the level of activity changes.

The most obvious example of a fixed educational investment in distance education is that of course design and development. This cost remains constant no matter how many students are added to a course. By contrast, the process of producing and disseminating these course materials may be considered to be variable, as it will increase in direct proportion to increases in student enrolments. Some costs will vary according to different parameters. For example, the cost of running tutorial sessions will increase as new groups of students are formed, rather than as individual students enrol.

Some costs may share characteristics of both fixed and variable costs. For example, investments in designing administrative systems for distance education are generally regarded as fixed (although the costs of running the administration are not). However, when a distance education system expands beyond a certain size, additional fixed investments will be required to redesign the administration.¹

1.4 Direct, Indirect and Overhead Costs

The *direct costs* of a distance education course are all those costs associated with a specific course. These include items such as course materials, educator and tutor time, and student administration, as well as costs of course design, co-ordination and learner support. *Indirect costs* are course-related and they are not specific to that course alone. Students may, for example, make use of a telephone help-line or use a venue that is used for other courses and by other students. Although these costs are related to an individual course, they are also distributed across several courses.

Where indirect costs are summed or simply allocated as a percentage of direct costs, they are referred to as *overhead costs*. What is considered to be overhead costs differs in various approaches to costing. Most frequently, overhead costs are used to distribute costs common to all courses within an institution without having to calculate unit costs for each element. These might include costs associated with office and building infrastructure (e.g., repair, maintenance and rental), electricity and water, gardening, cleaning, security and so on. Such costs are necessary to run an educational institution and are distributed accordingly as indirect costs or overheads.

1.5 Unit Costs and Cost Centres

Various *units of analysis* are used to measure costs in distance education depending on what is being considered. For example, an appropriate unit of analysis for course materials may be a book or a page. The unit cost is the cost associated with one unit of analysis. The unit of analysis selected depends on what the financial planner is seeking to cost. For example, if the planner is seeking to compile a broad budget for a new distance education course, he or she might select a unit of analysis that incorporates all costs associated with designing and developing a study guide. For micro-level planning, the planner might break this down into smaller units of analysis such as design of a single graphic, copy editing of a single page or desktop publishing of a single page.

In developing costing approaches and models, a series of unit costs are frequently clustered or grouped around specific areas of activity or items. Costing is calculated according to agreed categories such as costs associated with a course, a department or a student. Costs may also be grouped according to function, such as by teaching and learning strategy, course design, course

¹ For a more comprehensive discussion of fixed, variable and semi-variable costs, consult G. Rumble (1997) *The Costs and Economics of Open and Distance Learning* (London: Kogan Page).

materials production or dissemination. Such groups or categories of costs are referred to as *cost centres*. Different institutions develop different approaches to costing and, therefore, use various cost centres.

1.6 Cost Drivers

According to Rumble (1997), “a *cost driver* is anything that, following a change in its volume, causes the overall costs to change.” It is anything that influences costs, and it can drive costs in either direction: up or down. Depending on which aspect of distance education is being considered, there are different cost drivers. In the example of course materials, one cost driver in relation to the costs of producing course materials (per page or per book) is the number of students. Increases in student numbers will drive up overall costs associated with producing, storing and distributing course materials. However, it may also help to reduce the unit costs of this activity, as certain economies of scale will start to take effect with increased student numbers.

Cost drivers are the “factors” or “variables” that influence costs that were described above under *variable costs*. Identifying appropriate cost drivers or factors that will influence overall costs is essential to making cost-effective financial decisions. It is, therefore, essential to examine cost drivers over different periods and to consider the effects they will have in both the short- and long-term.

1.7 Personnel Costs

Personnel costs are all costs relating to the time spent by people on specific activities (whether those people are employed on a full- or part-time basis or as sub-contractors). These include functions such as course design, course or programme co-ordination, instructional design, tutoring, mentoring, counselling, student assessment, invigilation, moderation, administration, tutor co-ordination, research and a host of other things.

1.8 Capital Costs

Capital costs are used to reflect an initial purchase of equipment, infrastructure or items that have a useful life of more than one year. Capital costs are generally not considered to be recurrent in accounting, but obviously most capital investments have various related costs that are recurrent and therefore should not be considered “once off” investments in this way.

Rigorous financial planning takes into account all costs related to a capital investment such as repair, maintenance, insurance and depreciation that will recur over several years. For example, the capital cost of purchasing a photocopier may be ZAR 20,000. This can be considered a capital expense in its first year, but has several related recurrent costs. Ongoing repair, maintenance and insurance will be necessary, and the capital investment will also be depreciated over, say, five years. Taking these recurrent costs into account in financial planning allows for capital items to be used optimally and to be replaced when necessary.

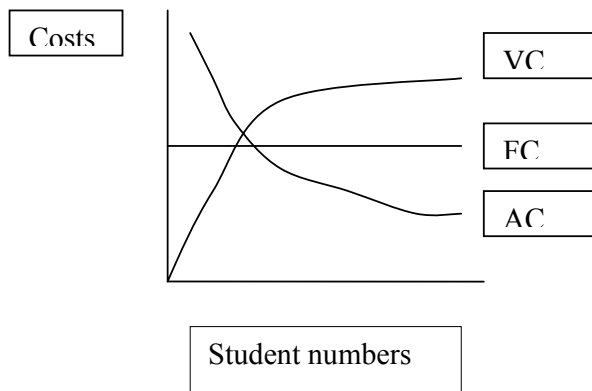
1.9 Economies of Scale

As noted, there are a number of different kinds of costs which need to be taken into account in financial planning. Some of these costs will not change directly with increases in student numbers (e.g., an institution will never have more than one principal’s office). But other costs will vary with student numbers (e.g., cost of materials, despatch, support services, etc.). For some of these costs, larger volumes can result in lower unit costs. For example, printing 50

copies of a study guide is generally more expensive per unit than printing 5,000 copies. This is why some institutions, like UNISA (University of South Africa) for example, work on a three-year cycle in which study materials are printed based on the expected demand over three years, so a larger volume will be printed in the first year for a lower unit cost. (Print-on-demand technology has helped to reduce unit costs with low volumes, but there are still significant unit cost savings when printing large volumes.)

Figure 1 illustrates the impact of these considerations graphically. Within certain parameters, some costs will not change as student numbers grow (e.g., course design costs, the principal's office, etc.). These are fixed costs (FC) for a particular course. Some costs obviously vary directly with student numbers (e.g., marking assignments, postage of materials, etc.). These are variable costs (VC). As student numbers grow, some economies of scale will be realised (e.g., bulk mailing, longer print runs leading to lower unit costs), which is why the variable costs curve tends to flatten out. The logic of distance education provision is that average costs will decline as student numbers grow. Important thresholds in this respect seem to be 500, 1,000 and 10,000 students.

Figure 1: Cost curves for distance education provision



2. Understanding the Logic of Distance Education Costing

The financial logic of introducing distance education has, in many ways, been a response to education systems that are in crisis because they are pushing against the ceiling of capacity of their classroom-based teachers to manage the learning of incoming students.

Kinyanjui (2000) notes that African countries are increasingly under pressure to open up access to learning opportunities. He identifies four main phases in this process:

- The drive towards universal access to primary education

- The drive towards universal access to secondary education
- The drive towards universal access to tertiary education
- The drive towards universal access to lifelong learning

Table 2, extracted from a UNESCO report (UNESCO 2000) indicates that whilst SSA countries have made substantial progress in most areas of education provision, many of the goals identified by Kinyanjui remain elusive.

Table 2: Gross enrolment ratios

Country	Primary		Secondary		Tertiary				Tertiary 1965		Tertiary 1995	
	1965	1995	1965	1995	1965	1975	1985	1995	Male	Female	Male	Female
Angola	41	77	5	12	0		1	1			1	0
Benin	34	72	3	16	0	1	3	3	0	0	4	1
Botswana	65	112	3	64	0	1	2	5	0	0	6	5
Burkina Faso	12	40	1	9		0	1	1			2	1
Burundi	26	51	1	7	0	0	1	1			1	1
Cameroon	94	87	5	26	0	1	2	4	1	0	7	1
Central African Republic	56	59	2	10	0	0	1	1	0	0	2	0
Chad	34	58	1	10	0	0	0	1			1	0
Congo, D. Republic	70	72	5	28	0	1	2	2	0	0	4	1
Congo, Republic	100	114	10	53	1	3	7	8	1	0	13	3
Côte d'Ivoire		69		23			2	5			7	2
Djibouti		39		13				0			0	0
Eritrea		57		19				1			2	0
Ethiopia	11	38	2	12	0	0	1	1			1	0
Gabon	100		11		0	2	5	8			11	5
Gambia	21	77	6	25	0	0	0	2	0	0	2	1
Ghana	69	76	13	32	1	1	2	1	1	0	2	1
Guinea	32	48	5	12	0	3	2	1			2	0
Guinea-Bissau	26	68	2	11	0	0	0		0	0		
Kenya	54	85	4	24	0	1	1	2	1	0	2	1
Lesotho	94	100	4	29	0	1	2	2	1	0	2	3
Liberia	41	33	5	15	1	2	3	3	1	0	5	2
Madagascar	65	73	8	13	1	1	4	2			2	2
Malawi	44	135	2	16	0	1	1	1	0	0	1	0
Mauritius	100	107	26	62	0	1	1	7	0	0	7	7
Mozambique	37	60	3	7	1	2		6	0	0	1	0
Namibia		133		62				8			6	10
Niger	11	29	1	7	0	0	1	1	0	0	1	0
Nigeria	32	88	5	32	0	1	3	4			6	2
Rwanda	53	97	2	14	0	0	0	1	0	0	0	1
Senegal	40	65	7	16	1	2	2	3	2	0	5	2
Seychelles												
Sierra Leone	29	53	5	17	0	1	1	2	1	0	3	1
Somalia	10	9	2	5	0	1	3	2			4	1
South Africa	90	117	15	84	4	6		17	6	2	18	17
Sudan	29	52	4	19	1	2	2	4	1	0	5	3
Swaziland	74	126	8	66	0	3	4	4	0	0	4	4
Tanzania	32	67	2	5	0	0	0	1	0	0	1	0
Togo	55	119	5	27	0	1	2	3	0	0	6	1
Uganda	67	73	4	12	0	1	1	2	1	0	2	1
Zambia	53	89	7	28	0	2	1	3	0	0	4	2
Zimbabwe	100	116	6	47	0	2	3	6	0	0	9	4
SSA	45	74	5	25	1	1	2	3	1	0	5	2

Source: UNESCO 2000

Note: The percentages indicate the number of actual enrolments divided by the number of potential enrolments in the expected age range. Where figures greater than 100 appear, it indicates that there are people studying at this level who fall outside of the expected age range.

The methods of what became known as distance education offered some hope that the productivity of education systems could be substantially raised to meet the kinds of demands outlined in Table 2. Distance educators have also long held that the quality of educational experience for students can be improved by proper use of those methods because they introduce greater flexibility into the system, enabling students to study in ways and places and at times that best suit their personal circumstances.

By such methods, institutions can reach students who would not otherwise be drawn into education systems. Finally, they also support and encourage highly desirable system developments towards internally generated quality assurance and accountability. Evidence of the veracity of this argument is that, increasingly, these lessons are being integrated into traditional education systems.

However, it has become a dangerous piece of conventional wisdom that distance education is less expensive than traditional contact education. There are many ways in which that is not true. At present, many education systems in the developing world are looking to distance education because it seems to offer cost efficiencies. However, the consideration tends to be whether distance education is cheaper than contact, as if distance education is a set of social arrangements as standardised as contact education. As the case studies in this report show, however, what may be considered distance education provision may take a wide variety of forms with similar variety in the implications for costing.

Research on comparative costs has not been undertaken on a consistent or comprehensive basis. Some studies have looked at institutional costs, others at public expenditure costs and still others at total economic costs. Some have examined recurrent costs but neglected capital costs. The accumulated research literature on the cost efficiency/cost effectiveness of distance education (see, for example, Dhanarajan et al. 1994) does suggest two fundamental conclusions:

1. Distance education institutions are usually more cost efficient than conventional institutions, particularly when they enrol large numbers of students on each course in order to reap large economies of scale.
2. Distance education institutions *can* be more cost effective than conventional institutions when they offer high-quality learning materials and tutorial support for students, thereby securing satisfactory retention and graduation rates. Conversely, if they do not achieve satisfactory retention and graduation rates they may well be much more expensive.

In distance education, major expenses are incurred in designing courses – particularly if they involve the use of “expensive” media and technologies. This is potentially a bottomless pit of expense, since it is always possible to add more person-power or seek more expensive media and technologies, but it need not be. Many good courses have been designed with relatively small amounts of person-power. However, the world of distance education contains many times more bad courses than good ones. A broad generalisation that has fairly high reliability for distance education is that the “quality” of the course (i.e., subject matter and pedagogy) is related to the level of investment in its design.

2.1 Taking Time To Design

Perhaps the first danger that politicians and educational planners make is to grossly underestimate the amount of person-power needed to design one hour of student study time.

Bedazzled by the cost-efficiency claims of distance educators, they conceive of distance education as merely another less expensive type of school and proceed to plan its costs in similar ways. Instead, the budget for distance education should be built up from a detailed costing of each of its proposed courses. The first stage involves considering the level of investment to be made in the design of each course.

Whilst this process involves an enormous amount of rule-of-thumb and guesswork, it is necessary for initial decision-making. Some crude generalisations are likely to bring recognition of reality, if not firm agreement, from those involved. Table 3 provides some indication of the kinds of investments required at higher education first-year level (perhaps the most challenging).

Table 3: Course design time estimates

Time taken to design one hour of student study time	
Print	20–100 hours
Audio	20–100 hours
Video	50–200 hours
Computer-based instruction	200–300 hours
Experiments	200–300 hours

Source: Swift 1996

However a particular institution might diverge from these figures, two core agreements would likely emerge. First, at the lower part of each of the ranges shown in Table 3, the quality of teaching (i.e., capacity to bring success to students) will be positively related to investment in design time. Disagreements might enter about the strength of the relationship at the top end, with returns to additional investment drying up beyond a certain point. It might be that an additional 20 hours after the first 50 might bring only a small improvement, raising the possibility that it would have been more profitably invested in some other part of the system. Second, there is a point at the lower end beneath which it is not worth going: the likely failure rate and/or poor quality of exit performance make it unlikely that the investment will be justified in comparison to face-to-face provision. Falling below that lower figure runs the risk of an inadequately prepared course which must be compensated for by excessive amounts of teaching person-power in its presentation, or a high failure rate, or a lowering of exit performance standards, or most likely all three. Unfortunately, large amounts of distance education practice internationally appear to have been pitched below this level.

A further complication in the ultimate design budget follows from real or accidental decisions about the proportion of hours allocated to each medium in the course. Each is likely to make up a very different “weight” of student study time and may not necessarily play a proportionate role in equipping a student for success.

Finally, design time itself is not a stable quantum. It is worth considering that, in each medium, and in the course overall, different combinations of expertise might have different effects on student performance. Table 4 shows a simple example of how two different teams might contribute to the total hours spent on course design. All other elements being equal, it is reasonable to assume that if the two teams put in the same total amount of design time, it is likely that Team B will produce a more successful course.

Table 4: Example of percentage time spent on course development by different teams

Course Team A		Course Team B	
Person involved	Proportion of total course design time spent	Person involved	Proportion of total course design time spent
Academic	95%	Academic	50%
Editor	5%	Instructional designer	20%
		Media specialist	20%
		Editor	5%
		Designer	5%

Costs of design are incurred regardless of the number of students who study the course. Low unit costs then follow only if very large numbers of students study it successfully and the person-power devoted to “presenting” the course is substantially lower than in face-to-face settings.

The costs of teachers in traditional institutions are directly related to student numbers. More importantly, their magnitude is so great as to make all other aspects of variable costs relatively trivial. (For example, the cost of teachers’ salaries in schools in South Africa is around 80 per cent of all costs. In higher education, it is lower but not substantially so.) Distance education, therefore, changes the production function of education by substituting cheaper management of students’ learning for the expensive process of applying teacher time to it. This creates potential for lower costs per student, *provided* large numbers of students can take the expensively designed course and that the resulting unit cost advantage is not eroded by the lower success rate that is likely to ensue.

In successful distance education systems as much attention is given to presentation or teaching of courses as to their preparation. Where they are well resourced and judiciously deployed, high-quality materials and learner support systems can reap substantial benefits in improved completion rates and thus enhanced cost effectiveness. That is how distance education institutions can be more cost effective than conventional institutions.

2.2 Comparative Costs

Lessons from Higher Education

Care needs to be taken in using measures of effectiveness that are appropriate to distance education institutions. Most, particularly those concerned with lifelong learning, aim to ensure that as many students as possible attain their various learning objectives, whatever they may be. In some cases, this is a degree, but in other cases it may be a certificate or diploma, a single course credit or a short updating course successfully completed. Graduation is therefore not the only successful outcome of study.

In addition, several distance education institutions operate an open admissions policy and are committed to offering higher education to those who lack traditional entry qualifications. Success rates for those students are inevitably lower than for qualified students selected for entry to conventional universities. Nevertheless, institutions with such policies may be adding more value in personal and social benefit than the conventional universities.

Regrettably, measures of cost based on units of education achieved other than degrees and on concepts of “added value” are not yet widely used. This leaves only less satisfactory measures such as cost per registered full-time equivalent year of study. Such calculations greatly favour distance education institutions because the much lower course pass rates are not brought into the equation. On the other hand, calculations based only on successful graduations favour conventional institutions because distance education students who are satisfied with partial completion of a programme are ignored and their costs charged to graduations. Nevertheless, even with this limited criterion of success, distance education institutions with high-quality materials and tutorial support score well (although those without score very badly).

Early studies of the UK Open University (OU), for example, indicated that it produced graduates at something over half the cost of other universities. A confidential study undertaken by the Department of Education and Science in 1981 found that a three-year full-time equivalent (FTE) degree at the OU cost GBP 4,890 compared to an average of GBP 8,550 in other universities. A four-year FTE degree cost GBP 7,984 at the OU and GBP 11,842 elsewhere. The differences were even greater when calculated in terms of public fund costs (GBP 4,356 compared to GBP 10,801 for a three-year FTE degree) and total economic costs (GBP 7,116 compared to GBP 17,843) (Dept. of Education 1981). The differentials have narrowed somewhat since 1981 because the proportion of under-qualified students entering the OU has increased and unit costs in other universities have fallen, but a more recent calculation put the cost of an OU graduate at less than two-thirds that of a full-time graduate in other universities (Horlock 1984).

A further confidential study, undertaken by the Department for Education and Science in 1991, compared the cost of OU degrees with part-time degrees offered by three conventional institutions. It found that a three-year FTE degree at the OU costs less than 60 per cent of the average of the other universities. These are impressive statistics, but they are not unique. Other distance universities with similar teaching systems achieve similar rates. For example, the Allama Iqbal Open University in Pakistan, which is modelled on the OU, achieves costs per graduate that are 45 to 70 per cent of the cost of conventional universities (Perraton 1994). Further, the Open Learning Institute of Hong Kong made heavy use of existing distance teaching materials from the OU and elsewhere and married these with highly resourced student support arrangements when it started up. As a break-even institution, it was required to charge students the full cost of their courses. Its graduates paid about one-third of what a similar degree of the University of Hong Kong cost at the time (Swift and Dhanarajan 1992). (The current available literature offers very little insight into the costs of DEOL provision in SSA, and hence the motivation for this report.)

There is another variation on the question of returns to investment in distance education. Few specialists in Australia would accept an argument that distance education is cheaper than residential, because in Australia it is not. This is because, in general, the methods are used for other purposes than cheapness and, inevitably, on small numbers. The most precise study of costs in which outcomes were identical was conducted at the University of Southern Queensland (USQ) in comparing the cost of its distance education and residential output. The conclusion was that they were broadly comparable. But the advantages of adding distance education to conventional provision were *political*, in the sense that a wider clientele of students was being served; *institutional*, in that a small institution was able to increase its size giving both generalised cost-efficiency benefits and greater weight on the higher education institutional battlefield; and *educational*, in that use of distance education methods across all fields

encouraged pedagogical quality. Some income and staff development benefit was also derived from “off-shore” registrations in Asian countries.

The studies of the OU and the USQ elucidate only some of the benefits of the range of distance education methods because neither institution uses all of them. Each also dealt with a specific range of possibilities amongst the clientele (Taylor and White 1991). USQ had small numbers of students on a large number of courses: two important causes of high costs. The OU has an open entry policy, very expensive course-design strategies, a short (32-week) studying year, a slow registration procedure and severe restrictions in the numbers it was permitted to enrol. In these ways, the cost efficiency of its degree structures, particularly in science and technology, has been retarded.

The course production methods of the two institutions are almost at the two extremes of expensiveness with the OU spending up to GBP 4 million to prepare a course equivalent to one-eighth of a four-year honours degree, while USQ spends a small fraction of that amount. In summary, the OU, despite limitations on its numbers set by government policy and challenges to its teaching system of open entry, was nevertheless big enough (in course registrations) with a small enough number of courses, to produce a particular level of cost advantage (up to 40 per cent cheaper) over its competitors. USQ had no chance of achieving similar numbers and therefore the expensive course was not an option; nor was it likely to obtain a cost advantage over conventional delivery.

Studies also reveal, however, that distance education institutions that do not invest in high-quality materials and student support systems achieve much lower completion rates and, therefore, lower cost-effectiveness rates than the OU or conventional universities. In the early 1990s, for example, the International Correspondence School in the US was providing materials but no student support and taking no action to monitor student progress. Completion rates were less than 15 per cent.

The consequences of low completion rates can be catastrophic to cost effectiveness if the most challenging criterion of graduation rates is used as the sole measure of educational value added. A study of data supplied by the 10 largest distance education universities illustrates the point. It was found that these “mega universities” taught their students at between 10 and 50 per cent of the average cost of the other universities in their countries (Daniel 1995). However, they were less likely to bring their students to the point of graduation. Where graduation rates are an important aspect of the higher education system, the cost advantage is diminished by the ratio of the difference between the two forms.

2.3 Considering Other Education Sectors

The same financial challenges exist when transporting the logic of distance education into sectors other than higher education. Internationally, there has been growing interest in introducing open schools.²

While there are varying motivations for the introduction of such schools (discussed below), a common one when such projects are aimed at younger learners as an alternative to mainstream schooling is to reduce the cost of providing education. Evidence from around the world suggests that open schools tend to succeed in this regard (see Table 5).

² As used here, an open school refers to an educational institution operating in the spheres of primary and/or secondary education, providing courses and programmes predominantly through use of distance education methods.

Table 5: Costs of some school equivalency projects

Country, Project, Date	GNP Per Capita at Date of Study		Student Numbers	Cost per Learner (USD)	Comparative Cost
	Current (USD)	1998 (USD)			
Brazil, Bahia State, Madureza, 1976	\$1,410	\$3,793	8,000	\$418 per student following three courses	Higher cost per student than alternative
Brazil, Minerva, 1977	\$1,410	\$3,793	118,118	\$49 per student following group of courses for one year	Costs 65% of private sector alternative; no evidence on cost per successful student
India, National Open School, 1990	\$360	\$449	40,885	\$44 per student per annum.	Cost 63% of cost of government school
South Korea Air Correspondence High School, 1976	\$980	\$2,636	20,000	\$171 per student per annum.	Cost per student 24% of alternative; cost per successful student 29%
Malawi Correspondence Study Centres, 1978	\$150	\$404	2,884	\$399 per student; \$2,794 per examination pass	Cost per student 62% cost at day school; cost per pass 81% higher
– 1988	\$160	\$220	17,000	\$107 per student; \$378 per pass	Cost per pass reduced to 34% of day school rates
Mexico Telesecundaria, 1975	\$1,160	\$3,514	33,840	\$589 per student	Cost per student 76% of alternative
– 1981	\$3,170	\$5,684	170,000	\$927 per student	Cost per student 9.5% higher than alternative
– 1988	\$1,860	\$2,563	>400,000	\$441 per student	Cost per student 32% of alternative
– 1997	\$3,680	\$739	767,700	\$562 per student	
Zambia Correspondence Study Centres, 1981	\$600	\$1,076	11,800	Cost per student in range \$102–291	Cost per student 7–21% of day school

Source: Perraton 2000.

Again, however, these comparative costs should be read in combination with several of the other points made in this report. They do not, by themselves, create an argument in favour of introducing distance education methods, as the educational implications need to be weighed against any likely financial efficiencies.

2.3 Considering Relative Financial Benefits

There is ample evidence that the methods of distance education can be used greatly to increase the productivity of education systems. At first glance, the evidence and the logic of analysis seem indisputable. However, two kinds of envioning arguments introduce doubt. The first is educational and the second is macro-economic. The educational rebuttal asserts that any dilution of the intense personal interaction between educator and learner will weaken the quality of the learner's experience. Even if many more students are taught, even if they achieve the exit performance levels of the old system, something will be lost. Few would disagree with this if two extremes of education provision were compared – and Oxford personal tutorial relationship on the one hand with a correspondence course on the other – but one is not possible and the other is not proposed. In between, we are left with the educator's responsibility for managing the highest quality learning experiences for as many people as possible at the lowest cost.

Experience elsewhere demonstrates that the quality of distance education can be as good as the best conventional teaching. In the UK, where the quality of higher education provision is assessed by peer review according to a set of common criteria, OU provision has been judged “excellent” (the top rating) in almost half of all subjects so far assessed, putting it in the top 12 of 120 higher education institutions (Swift 1996).

The second rebuttal has to do with the minutiae of economic costing. Well-established, large-scale, distance education institutions are easily capable of producing equivalent educational outputs to those of traditional institutions whether expressed in certificates obtained or, even less difficult, per full-time equivalent year of study. However, they often do so partly by taking advantage of the historic investment in people and facilities of the wider system. To the extent that any educational gain brings cost benefits that are distributed in favour of the distance education institution, calculations that do not take this into account will be biased. For example, do the charges made by traditional institutions for use of their classrooms, laboratories, accommodation and ancillary staff represent true cost or marginal cost? If the latter, they could be said to be subsidising distance education. This kind of question, however, only has relevance in inter-institutional comparison. All would agree that the system benefits because output is increased from the same quantity of historical investment in expertise and capital equipment.

Equally difficult to quantify are the returns to lifetime earnings of degrees by distance education. To the extent that distance education students have a much wider age range, they could be said, as a group, to have a lower working life expectancy. If many of them are already employed, it may also be difficult to ascribe future earnings to graduation. Traditional analysis of returns to investment tends to assume a fully causal link. On the other hand, because most distance education students are studying part-time while in employment, they continue to contribute to the gross national product, paying taxes and (probably) paying a higher proportion of the costs of their education in fees.

These enviroing arguments can be ignored for present purposes, however. They either work in favour of the cost-benefit advantage of distance education against residential education or they bring system benefits. As lifelong learning gains hold around the world, the economic advantage of distance education over so-called full-time residential education will begin to be demonstrated.

2.4 The Issue of National Need

One implication of the foregoing analysis is that distance education offers a much wider and more detailed range of alternatives to the educational policy-maker or planner than does traditional education. This wide range, unfortunately, includes not only unconscionable amounts of failure, but also excessive and unproductive expenditure. Measurement of cost efficiency and effectiveness is therefore a key to assessing an institution’s performance.

There is a further implication, which is well illustrated at the higher education level. The most crucial policy difference between distance education institutions of economically developed countries and those in the developing world is that the latter must be important elements in providing the traditional university entrance cohorts. In developed countries their functions are usually seen to be that of extending “second chance” opportunities and enhancing the lifelong learning capacities of the system. Consequently, their responsibilities can be expected to be very

different. Table 6 outlines some expected differences between distance education universities in developed and developing countries:

Table 6: Comparison of distance education universities in developed and developing countries

Needs	Developed Countries	Developing Countries
Curriculum	<ul style="list-style-type: none"> • May be vocational, interest directed, flexible, non-traditional, experimental • May range broadly 	<ul style="list-style-type: none"> • Must be thought to be necessary for school leavers • Should concentrate on subjects of national need
Graduation rates and speeds	Less important than other, more general educational objectives	Of primary importance
Student support	May assume maturity of students and infrastructural support for independent learning	Will be crucial in early years of study in all aspects
Student counselling	May concentrate on use of the learning system.	May play an important part in directing student careers
Cost per unit of educational output	May not be important	Must be important since other forms of education are under-funded

While international institutions may offer a wide range of techniques, strategies, systems and philosophy, it is essential to consider separately the nation’s policy in funding a given institution or programme. For example, a relatively rich country may fund a distance education university for “second chance” and personal enrichment purposes. In this case, the institution performs functions marginal to those of mainstream education. Graduation rates and the subjects within which graduations occur may not be of particular importance. The general contributions to adult education, flexibility of the system and satisfaction of the electorate are looked upon as proper returns to use of tax revenue. At the same time, because students are adult, possibly already qualified and pursuing personal or economic interests, it is also possible to countenance high failure to graduation rates depending on the cost of the various units of output. It would be difficult to imagine a developing country substantially funding distance education with any of these functions or results as primary objectives or even acceptable consequences.

Similar differences can be found in exploring the development of open schools. Many countries around the world, when faced with problems of learner access to conventional schooling systems, have implemented some form of open school. However, the reasons for establishing such systems are many and varied, depending on the context in which they are implemented. The Correspondence School in New Zealand, for example, was established in 1922, while the Open School in India is over 20 years old. Reasons for establishing such schools have tended to revolve around accessibility to traditional schooling. In the two examples mentioned above, part of the motivation to establish the schools was to provide access to students in remote farming communities (New Zealand) and access to large numbers of students whom the mainstream schooling system could not absorb (India).

The financial analysis above illustrates the potential such approaches have for reducing costs per learner (even per successful learner), but this of course needs to take into account the various dangers of introducing distance education simply because it reduces cost. The next section focuses on some common problems and mistakes that often accompany implementation of distance education in the developing world.

3. Common Problems and Mistakes

Keeping in mind the discussion of the previous section, the summary of some of the financial logic underpinning choices to create distance education programmes, it is useful to reflect briefly on some common problems facing education planners.

3.1 Building A Financial Planning Culture

The most obvious problem that tends to arise is that some educational planners continue to believe that because education is theoretically an endeavour in the public interest, some amorphous entity (often vaguely referred to as “government”) should cover the bill regardless of what it may be. As a result, financial analysis is frequently absent, often resulting in the spread of widespread systemic inefficiencies across both distance and contact education provision. More importantly, though, it often means that decisions to introduce distance education courses and programmes are not based on any sound financial argument, but rather on a vague notion that distance education is “cheaper.”

Where financial planning is done, it tends to focus narrowly on the direct costs of a course or programme, rather than on understanding the full direct and indirect costs necessary to sustain both the educational intervention and the educational provider itself. At its worst, such financial planning is integrated with the laissez-faire attitude described above, with educators in many systems routinely omitting their own costs as part of their financial plans. At a systemic level, it is often reflected in absence of systematic financial planning templates that factor in a wide range of indirect costs and institutional and administrative overheads.

Usually, these errors of omission are symptomatic of a culture of financial dependence, in which institutions that have regularly received funding from a guaranteed source (usually the government purse) have not been required to engage seriously with strategies to ensure their own financial sustainability.

A related problem is that many educational planners have faced not knowing whether the courses and programmes they are designing or implementing are generating more income than expenditure. Careful analysis of all associated costs of a course or programme is the only meaningful way to find out. Our experience shows that to achieve such an analysis a thorough map of what students will be expected to do must be developed.

All education provision involves a set of teaching and learning strategies, which can be grouped strategies into three related categories:

- **Contact strategies**, which refer to all time spent in synchronous or asynchronous communication between educators (be they facilitators, tutors, lecturers or mentors) and learners. Contact strategies include face-to-face sessions, as well as other communication strategies such as telephonic support, e-mail and Internet chat, and video conferencing. The key cost driver of contact strategies is the ratio of learners to educators.
- **Assessment strategies**, which refer to activities designed to enable educators to evaluate student learning or progress. Educator time on assessment strategies will be affected by the number of assessment tasks, the complexity of those tasks (as increasing complexity usually requires additional time spent on assessment) and the number of students working together (assessment tasks completed by groups of students reduce the overall

number of tasks requiring assessment, but may increase the time that has to be spent assessing each submission).

- **Independent study strategies**, which refer to all student time spent in course-related activities that do not directly involve educators (other than in design of the activities).

These distinctions are essentially arbitrary, but are designed to estimate student notional hours of learning (how many hours each student is expected to put in to successfully complete the course) and the resulting staff workload. Off this base, it becomes relatively simple to calculate a full range of associated costs, including specialised costs of course design and development. It also becomes possible to compare accumulated costs with projected income, and thus to determine whether or not proposed curriculum strategies are financially viable.

Distance education planning, however, introduces the need to project costs over time and student numbers. This is because distance education is predicated on the logic that upfront investments in design and development of courses and administrative systems will be amortised over time and large student numbers.

It is, therefore, not reasonable to expect a distance education programme to generate more (or at least as much) income as expense in a single year. However, such financial sustainability needs to be achieved over a cycle of a number of years. Without undertaking such calculations, it becomes impossible to establish when, if ever, new courses and programmes will break even financially, hence making it harder to make effective financial decisions on whether or not to make initial design and development investments (see Figures 2 and 3 below).

Figure 2: Breakeven point for distance education provision

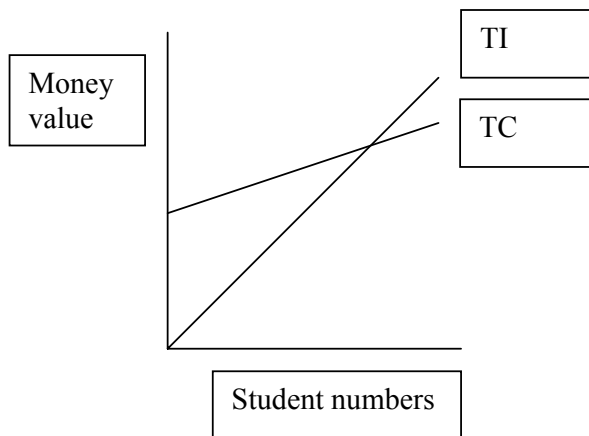


Figure 2 shows that it is important for programme managers to be able to work out the breakeven point for a course or programme: at what level of enrolment does total income (TI) meet total cost (TC)? Beyond this level of enrolment, the course can begin to generate a profit.

Figure 3: Scenario planning for distance education provision

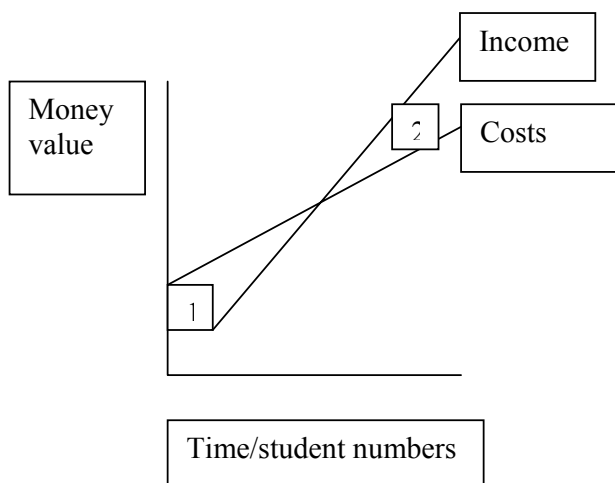


Figure 3 shows it is important for course/programme managers to be able to plan for a period of time. Typically, a DEOL programme incurs costs (e.g., course design) long before it generates income (e.g., from student fees), so when student numbers are low (which is quite possible at the start of a course), the course might be running at a loss (region 1). But as student numbers grow, the course may begin to show a profit (region 2). It is important not to lose sight of the development costs of the course in the overall financial planning which might typically cover a three-to-five year period.

It is important to note that such planning does not assume a need for all income to be generated from students. There are several other potential sources of income, including governments, donor agencies and businesses. The important point, though, is that the educational viability of any distance education programme will definitely be undermined if income does not at least match full expenditure.

3.2 Avoiding the Income Trap

When financial analysis is undertaken, it often focuses narrowly on unit costs (that is, the cost per individual student). Such analysis depends for its persuasiveness on demonstrating declining student costs as economies of scale are achieved. This often ignores macro-economic analysis to assess whether or not the total sums of money that such activity will require exist in the educational economies for which new distance education programmes are being planned. This problem is most serious when it creeps into national policy planning, and it has undermined the viability of many distance education programmes around the world.

Developing countries share at least one common problem; there are more urgent social problems to solve than there are resources or time to solve them. It therefore becomes very difficult – some would argue almost impossible – to establish priorities. Focusing on one course of action over another often involves taking decisions that may be construed as ignoring fundamental human rights or even, at its most extreme, leading to loss of life (through poverty, disease, unemployment and other core social problems). It is tempting to want to try to solve all problems together, as prioritisation simply forces decisions that are too difficult to take.

Often, distance education planning succumbs to the pressure of this problem. Persuasive arguments about reduced unit costs prompt investments in large-scale new programmes aimed at providing almost immediate solutions to major problems. The following fictitious example illustrates this financial logic:

Graduating a single student at a traditional contact institution is, say, costing \$5,000. If we invest in a large-scale distance education programme – using earmarked government funding or money from a donor agency – we can reduce this unit cost to, say, \$2,000 (and still provide a quality experience, as this will incorporate extensive learner support).

Regretfully, such logic is usually seriously flawed by inadequate analysis of real income streams. It requires an additional element of analysis, which might run as follows:

Our analysis is based on a current reality in which 100 students are enrolled for the contact programme, thus leading to a total cost of \$500,000. To achieve the economies of scale we have planned, we need to enrol at least 1,000 students. Thus, although our unit costs have declined, we need to expect total expenditure to increase to \$2,000,000, a fourfold increase.

In other words, although as the first example indicates unit costs have been reduced from \$5,000 to \$2,000 in moving to distance education provision, the larger student numbers have resulted in the total budget increasing (from $100 \times \$5,000 = \$500,000$ to $1,000 \times \$2,000 = \$2,000,000$).

In many instances, income analysis will reveal that there is simply no way to accommodate this increase in total expenditure. There are several examples of omissions of this type of planning leading to diversions of income away from small, but sustainable, interventions into large, unsustainable interventions. As income streams dry up, the large-scale intervention is forced to cut back on certain critical investments, most notably ongoing course design and provision of adequate learner support. At the same time, the smaller intervention has also been rendered unsustainable. The net consequence is an increase in the kinds of social problems outlined above as education delivery becomes undermined.

A key source of this problem is that planners often seek to understand institutions and systems considered to be successful in other contexts. This is a sensible approach to further develop the understanding of different models as well as necessary conditions for success for such models. However, it runs the risk of assuming that successful models in one context will also succeed in the local context. Regretfully, experience demonstrates that such expectations are rarely fulfilled. Again, the only meaningful strategy for overcoming this problem is to undertake rigorous financial planning on a case-by-case basis.

3.3 Perpetuating Current Patterns of Expenditure

The flip side of the income trap is perpetuating financial inefficiencies. In many cases, establishing distance education institutions and programmes perpetuates existing patterns of educational expenditure rather than challenging them. Very often, their establishment has been motivated by intrinsic weaknesses in the mainstream, contact system, which policy-makers have seen require years of structural change before large-scale improvements become noticeable. Thus, distance education provides a handy, reasonably quick institutional solution to problems

of educational delivery, which can operate largely outside of mainstream systems and hence not be slowed down by the pace of these structural changes.

On the face of it, these appear to be structures of particular interest and relevance to developing contexts. There is, however, a very real danger, namely that such expediency further retards the pace of change in mainstream systems. Better financial planning – particularly at national level – can go some way towards avoiding these problems.

4. From Costing Theory to Practice in SSA

Perhaps the best generalisation that can be made about the methods of distance education in relation to cost effectiveness is that they provide tools for designing and building high-quality systems for facilitating learning that are sensitive to the specific needs of students. Their cost efficiency and effectiveness depend primarily on the number of students who can be recruited to each course and the quality of the teaching materials and student support systems. Other factors have a bearing (e.g., whether fees are set at levels that discourage recruitment and retention, and whether courses are designed from scratch or bought “off the shelf”), but these are the fundamental conditions for success. Distance education institutions that have been able to satisfactorily fulfil these conditions have demonstrated higher levels of cost efficiency and cost effectiveness than comparable conventional institutions.

The following section focuses on what is actually happening in DEOL provision in SSA with a view to offering practical illustrations of the kinds of costing concerns outlined in the foregoing discussion.

4.1 The Costing Model

For the purposes of this exercise, we developed a costing model that works on a Microsoft Access database platform and which requires no prior budgeting experience or complex calculations. A questionnaire was also been developed to guide the collection of data (see Appendix A). The data from the questionnaire is entered into the costing database model and a report generated which offers an overview of costs under the headings as shown in Figure 4.

Figure 4: Costing model report outline

Organisation: Programme: Course: Year:
Average Course Cost Summary Personnel: Other: Overhead:
Total
Cost per registered student: Cost per successful student:
Total course income: Total course cost:
Profit/loss

This summary report is then supported by sub-reports on the following cost centres:

- Educational strategies
- Assessment types
- Other personnel costs
- Other costs (e.g., course design, administration, course materials, technology, etc.)
- Course income

Having captured the key data, it is then possible to do some scenario planning by investigating the cost advantages of different mixes of educational and assessment strategies as well as different numbers of student enrolments.

The costing database assumes that we were interested in exploring distance education provision from within an existing institution. So, although we collected data on the costs of curriculum and materials design and materials production, much of which usually happens before a course is first offered to students, we did not consider the costs of establishing a new dedicated distance education institution.

4.2 The Selection of Costing Case Studies

In selecting providers, we needed to consider variations involving:

- Formal higher education
- Informal education
- Open schooling
- Rural education and/or ABET
- Teacher education and/or other vocational/professional development

The following institutions were approached to participate in the costing exercise, and data from them form the basis of the costing examples detailed below:

- Botswana College of Open Learning (BOCODOL – data outstanding)
- Namibia College of Open Learning
- Potchefstroom University, South Africa
- Stellenbosch University, South Africa
- Technikon Southern Africa, South Africa (two courses)
- University of Fort Hare, South Africa
- University of Nairobi, Kenya
- University of Natal, South Africa
- University of South Africa (two courses)
- University of the Free State, South Africa
- Wits Technikon, South Africa

Given the potential sensitivity of the data provided, particularly in South Africa where government funding subsidies are currently under review, we have chosen not to identify particular course data with particular institutions. Instead, we have identified the institutions with which we have worked in alphabetical order, and we discuss each of the case studies numerically on the basis of the degree of learner support and the level of curriculum design involved.

The case studies are discussed approximately on a continuum from largely print-based, correspondence provision through to courses that have invested heavily in curriculum and materials design and provide extensive learner support using multiple media.

Collecting the data involved a process of gathering preliminary information, often requiring making initial assumptions in the absence of the necessary verifiable data, and using the costing model to generate an initial report. Having generated a first report, it was usually then necessary to revisit some of the initial assumptions and/or gather more information to refine the data. We then used the model where possible to ascertain the impact of the following:

- Student numbers halve in a period where fixed costs (e.g., full-time staff) cannot be adjusted
- Student numbers increase within the tolerance of existing fixed resources

4.3 Core Assumptions

Unless the data provided indicated otherwise, we made the following assumptions:

- Academic staff at higher education institutions devoted 20 per cent of their time to pure research. (Although the argument is often made that in a DEOL environment academics find their research time used up by teaching and course writing, we contend that it is both possible and necessary to budget to do both things.)
- An academic year comprises 170 attributable days of eight hours each, or 1,360 hours. (365 days – 104 weekend days – 6 days on which the whole institution is closed for year-end – 10 days of public holidays – 30 days leave – 45 days of research leave = 170 days = 1,360 hours.) If a course requires more academic staff time for one or more activities, this is an indication that more than one staff member will be needed.
- For every one hour of academic staff time, we assumed one hour of administrative time, unless the empirical data tell us otherwise.
- Overhead costs can be estimated at 30 per cent unless the empirical data tell us otherwise.

Overhead costs are assumed to cover plant and maintenance, senior management and support services such as finance, human resources and library. We attempted to gather information on specific course level costs (e.g., renting offices specifically to run a course or travelling to assure contact sessions) at the level of “other course costs.”

For the purposes of comparison, we used the following exchange rates, which were current as this report was being finalised in October 2003:

- USD 1 = ZAR 7
- NAD 1 = ZAR 1
- BWP 1 = ZAR 1.47
- KES 1 = ZAR 0.095

(Key: USD = United States dollar; ZAR = South African rand; NAD = Namibian dollar; BWP = Botswanan pula; KES = Kenyan shilling.)

5. Findings

5.1 General Findings

Gathering the necessary data for this costing exercise proved quite difficult. Many of the course and programme co-ordinators with whom we engaged lacked basic information regarding the costing of their courses. Only one case study was completed satisfactorily without direct face-to-face interaction, and in every case more than one exchange of information was required with many reports requiring three versions before being finalised.

In some institutions, academic staff is not required to submit a budget with a new curriculum proposal. The finance department handles all budgeting and costing separately. Where staff is required to submit budgets, they must often do so with very little guidance and support. Very few course or programme co-ordinators were able to supply us with historical cost reporting for their particular courses. This means much planning and budgeting has to take place in a vacuum, and where budgets are submitted they are often simply accepted and no follow-up reporting is provided.

Different institutions use different terms to describe similar job functions, and very often salaries are regarded as confidential information. In such cases we were usually able to identify the salary range at a particular level and then take an average of this range. Some of the staff with whom we engaged never considered their own time in terms of the cost to the course, assuming that as full-time employees they are simply part of the overheads of the institution. In addition, most of the staff with whom we engaged work on multiple courses and do not keep timesheets: this meant that having estimated how much time it would take to complete a particular task, they were often not able to see whether the resulting calculation (e.g., time spent on course design) was realistic or not.

Throughput figures were often not readily available and where they were, there was often an enormous difference between course and programme throughput. In one instance we encountered a course where throughput at the course level averaged between 50 to 60 per cent, but throughput at the associated programme or qualification level it was less than 1 per cent within the minimum time and as low as 5.4 per cent within three times the minimum time.

In many instances, programme and course co-ordinators had not thought about how enrolment might be expected to grow or decrease in subsequent years.

Most of the courses that formed part of this research offered some form of contact support strategy. The most common strategies were:

- Individual consultations in person or by telephone (and to a much lesser extent by e-mail)
- Face-to-face contact sessions/workshops
- Satellite television broadcasts or teleconferences

Costing was difficult because it was not always clear how many students had access to and took advantage of the support that was offered. Several of the courses that were considered offer contact workshops, for example, but these workshops were sometimes not offered in multiple decentralised venues. As a consequence, only a small percentage of students had access to and made use of the support offered. In costing this form of provision, therefore, we wished to

explore the possible implications of opening access and offering support to all the students on the course in contrast to what seemed to be the actual present case.

A similar problem existed with individual consultations. Course personnel were often extremely vague about how much time they spent in individual consultation with students, whether in person, or more indirectly by telephone and e-mail. Very often a course was managed from a centralised venue, requiring students to travel to that venue or make a long distance telephone call to seek advice. (In general, e-mail was not commonly used by the students engaged on the courses that we investigated.) The costs involved in accessing support then become a barrier to such access and the take-up was low. However, course personnel would often estimate that they spent a certain amount of time with each student, even though when extrapolated to all the students on the course, the amount of time spent on individual consultation was clearly unrealistic. In this instance, we tried to have course personnel reflect on the total amount of time they spent each week on individual consultation and then divide this by the number of students on the programme. Creating this ratio then allowed us to extrapolate the effects of increased or decreased student enrolments in terms of personnel time and costs.

Where decentralised contact support was offered, courses often employed external tutors. In most cases tutors were paid only for the time actually spent in contact sessions or for the actual number of scripts marked, not for their preparation time. The costs associated with assessment were broken down into marking, moderation and invigilation. Again, for the purposes of scenario planning we attempted to ascertain the assessment time (and cost) per student.

For contact support, assessment and independent study, we tried also to capture data on the estimated student time spent on these activities, which builds cumulatively to the total notional learning hours of the course. There was often initially a large discrepancy between the notional credits attached to a course and the actual learning time generated from a consideration of the various learning activities with which the students engaged. Apart from being interested in whether the workload for students seemed reasonable, determining the notional learning hours for a particular course is useful in providing insight into the actual course design time per student hour. In many of the courses we looked at, the course design time was less than one hour of design for one hour of student study, which is considerably below international benchmarks. In one or two cases, where course personnel were not sure about the time that had been spent on the course design process, using a notional ratio of 10 hours per notional learning hour generated results that were clearly out of line with the actual costs incurred by the programme, even when extrapolated over a three- to five-year design cycle.

Printed materials played an important role in all the programmes we considered, and in the absence of actual costs from most programmes, we have assumed a print cost of ZAR 0.26 per page, unless the data presented said otherwise.

Although many, but not all, programme or course co-ordinators were able to tell us what the student fee was for the course for which they were responsible, none was able to give us the actual government subsidy. In the absence of useful feedback, many programme and course co-ordinators seemed to operate on the basis that because their programmes have not been closed down, they must be operating in a financially sound way!

As noted earlier, many of the programme and course co-ordinators with whom we engaged were operating largely in a vacuum with regard to the actual income and expenditure for the courses for which they were responsible. In most cases, at the course level, co-ordinators felt that they

were having to operate within the income generated by student fees and any additional funding they could generate themselves while government subsidies did not find themselves down to the course level but were “lost” somewhere in central financial administration. Co-ordinators were generally content with an assumption of a 30 per cent contribution to overheads, but were often unable to give details of the kind of fixed and variable “other” costs associated with a particular course (i.e., costs that the institution would not incur if that particular course were not offered).

Generally our sense was that many programme and course co-ordinators still need to be empowered with planning and budgeting tools and expertise. There also needs to be a concerted effort by institutions towards activity and course-based costing. Regular reporting on the financial health of a course or programme is currently not a common phenomenon and academic staff need to keep better records of how they utilise their time.

In general, programme and course personnel with whom we engaged did not enjoy the exercise. However, many subsequently observed that difficult as it was, engaging with the kinds of questions that emerged gave them new insights into what they were doing.

5.2 Specific Findings

Summaries of the 12 case studies can be found in Appendix B. In each case study we offer a broad description of the course together with a summary of the key costing information. In two cases, where student access to support seemed more to do with course design decisions to limit the number of contact venues rather than student decisions not to take up decentralised learner support, we briefly explored the impact of redesigning to aim for maximum uptake and contrasted this with the current reality.

Case study 12 from Appendix B provides an example. This case study relates to a course which forms part of a two-year programme leading to a certificate with a weighting of approximately 427 notional learning hours. It is currently offered to 40 students who include adult educators, community development workers, extension agents, etc. The programme was initially introduced in conjunction with another institution in another country, but now a country-specific course is offered. The course is offered once per year in two centres and lasts for 36 weeks.

Educational strategies include the following:

- Independent study of about five hours per week
- Individual consultation amounting to a few minutes per student per week
- Three contact sessions in two centres, comprising a total of 72 hours of contact time

Summative assessment includes assignments (60 per cent) and an exam (40 per cent). Materials comprise 453 pages of specially designed print materials. Course design time has been estimated at five hours per notional learning hour on a five-year design cycle. The average throughput rate for the course is 65 per cent.

Table 7 indicates that this course offers a relatively high level of contact support at 16.5 per cent of notional learning time. The current enrolment is too low for the course to benefit from economies of scale. As a consequence, the course runs at a deficit with respect to income from student fees.

Table 7: Costing case study 12 (16.5% student contact time)

Cost Type	Cost (assuming maximum uptake of learner support) (ZAR)
Lecturing staff (workshops and individual consultations)	10,800
Assessment (lecturers/moderator/invigilators)	6,460
Course design	32,025
Administration	9,296
Materials, telephone, travel, postage	2,187
Overheads @ 30%	18 230
Total cost	78 998
Cost per student	1 975
Cost per successful student @ 65%	3 308
Fee income per student	750
If student numbers halve:	
Cost per student	3 567
If student numbers double:	
Cost per student	1 452

5.3 Costing Summary

Table 8 provides a summary of the 12 case studies of the costs of offering distance education or mixed-mode courses in various higher education institutions in sub-Saharan Africa.

There has been and remains considerable discussion about the exact nature of distance education in the context of rapid development of information and communication technologies, and the literature increasingly talks about a blurring of the boundaries between distance education and more traditional classroom-based provision. The trend seems to be that institutions formerly offering correspondence forms of distance education have come under pressure to provide more learner support, particularly in the form of direct contact whether in a discussion class, a teleconference, by e-mail, etc. On the other hand, more traditional providers have found themselves under pressure to open access to more learners both for philosophical and financial reasons and they have increasingly begun to make use of resource-based strategies for the provision of learning opportunities.

The case studies that formed part of the ADEA study seemed both to confirm the blurring of boundaries and affirm that there are still extremes of practice. In organising the summary of case studies in Table 8, we have chosen to emphasise this trend and to explore the consequences for costing. Thus at the left of the table we have clustered those courses which offer a print-based correspondence experience for most students (but not all). At the opposite end we have clustered courses for which traditional face-to-face interaction forms a key and integral aspect of the course for all learners registered. The courses in the middle of the table represent examples of mixed-mode delivery with an increasing emphasis on the importance of direct face-to-face engagement as we move from left to right.

For each case study we have summarised the following information:

- Row 1: Level of course (whether an undergraduate (U/G) or postgraduate (P/G) programme).

- Row 2: The notional learning hours (NLH) associated with the course – that is, how much time the average student is expected to spend in various forms of engagement with the course including participation in educational strategies such as contact classes, teleconferences and e-mail discussions, time spent in independent study of course materials, time spent in individual consultation with course staff members (usually by telephone) and time spent preparing for and completing assessment requirements. As a guideline, the National Qualifications Framework in South Africa assumes a full-year programme to comprise 120 credits or 1,200 notional learning hours. Increasingly, therefore we see courses modularised at 12 credits/120 NLH per module. We have included in brackets an estimate of what we or the programme managers expected the NLH to amount to. In many cases, we need to go back to institutions to re-examine assumptions about student learning time, a useful educational by-product of the costing exercise.
- Row 3: The current enrolment on the course in terms of actual student numbers (not FTEs).
- Row 4: The nature of the contact support offered by the programme as this appears to be a distinguishing characteristic in the blurring of boundaries between distance and more traditional forms of education provision.
- Row 5: The nature of the assessment used by the programme.
- Row 6: The ratio of course design time per student study hour.
- Row 7: The nature of the core materials, which remains largely print-based in the 12 case study institutions with ICTs usually being used as support mechanisms rather than for core learning experiences.
- Row 8: Current course fee, although in some cases we still do not have this data and we estimated. (Very often fees are for a whole programme rather than an individual course.)
- Row 9: The cost per student. (For case studies 2 and 3 we included two scenarios based on providing the contact-based support offered in the programme to all learners in a decentralised way or the current reality in which only about 10 per cent of learners had access to the contact-based support; in case study 6, we again had two scenarios based on an initial estimate of 10 hours design time per student learning hour and the reality based on actual salaries paid which suggests a much lower ratio.)
- Row 10: The difference between the fees paid by students and the actual costs of offering the course. This illustrates the extent to which it was necessary to subsidise the course, whether internally from another programme or externally through a funding grant from government or another source. In South Africa in 2003, for example, the subsidy for distance education courses offered at universities varies between ZAR 6,000 and ZAR 8,200 averaging ZAR 7,100 per full-time equivalent student at a university and ZAR 5,700 per full-time equivalent student at a Technikon. This means that for a typical 120 credit module offered by a higher education institution, which represents 0.1 of an FTE student, the corresponding government subsidies will amount to ZAR 710 and ZAR 570 respectively. The Confederation of Open Learning Institutions of South Africa (COLISA) undertook their own internal investigation of course costing during the time in which the research for this report was being undertaken. They concluded that if courses and course materials were designed using team approaches and including expertise from multiple areas, and if learner support services received more investment of resources to encourage greater direct interaction between lecturers and students to at least 10 per cent of notional learning time (the UNISA NPDE programme was cited as an example), then the probable average subsidy ratio that would be required would be 75 per cent of the subsidy offered to traditional contact-based institutions. In a parallel process, it seems likely from preliminary discussions on the issue that the South African

University Vice-Chancellors Association (SAUVCA) will formally recommend that due to the collapsing boundaries between distance and contact-based provision, subsidy funding in South Africa should move towards parity over a phase-in period of perhaps 10 years. The South African Ministry of Education will consider these various inputs and will probably announce new subsidy funding guidelines early in 2004.

- Row 11: The throughput rates for the past three years where possible, to obtain an estimate of the cost per successful student.
- Rows 12 and 13: Scenario planning to explore the ways in which changes in student enrolment can impact on costs.

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Table 8: Summary of case study information

Key: U/G = undergraduate; P/G = postgraduate; NLH = notional learning hours; Cost/success = cost per successful student.

Key: U/G = undergraduate; P/G = postgraduate; NLH = notional learning hours; Cost/success = cost per successful student

Item	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12	Key
1. Level	U/G	U/G	U/G	P/G	U/G	P/G	U/G	U/G	U/G	U/G	U/G	U/G	U/G = under graduate P/G = postgraduate NLH = notional learning hours Cost/success = cost per successful student
2. NLH	120	172 (120)	255	98	497	240	250	110	857	485 (600)	n/a	427	
3. Enrolment	16,139	1,110	1,400	2,407	54	50	60	17	607	135	n/a	40	
4. Contact support	Minimal - reaches <10% of students	Minimal - reaches <10% of students	Minimal - reaches <10% of students	TV Broadcasts reaching 20-40% of students	Telephone and workshops ± 100%?	Satellite lectures x 8h telephone ± 100%?	Monthly lectures; (optional teleconferences) 60 h/course ± 100%?	Weekly contact (2h) ; field support ± 100%?	Fortnightly work shops and work place support ± 100%?	Fortnightly work shops and work place support ± 100%?	Workshops and work place support 100%	72 hours' contact for all students	
5. Assessment design	Exam-driven	Assignment; exam	Assignment; exam	Assignment; exam	Assignment; project; exam	Assignment; exam (entry to dissertation)	Tests; Assignments exams	Exams; case studies projects	Assignment; exams	Cumulative portfolios	Assignment; exam	Assignment; exam	
6. Course design time: hrs/std hr	?	<1:1	40:1?	3	<1:1	1.93:1	1:1	1:1	2:1	4:1	n/a	5:1	
7. Materials	Print	Print	Print	Print	Print	Print; limited video	Print	Print; video	Print; audio; video	Print	Print; audio	Print	
8. Fees	540	540	890	607	6,529	3,200	3,694	1,000?*	4,300	4,000?*	3,799	750	
9. Cost/student	181.37	1,769/658	827/719	781	6,529	13,932/5,033	2,600	9,350	4,300	4,599	3,799	1,975	
10. Status	Surplus	Deficit	Surplus	Deficit	Deficit	Deficit	Surplus	Deficit	Breakeven	Deficit	Breakeven	Deficit	
11. Cost/success			1,234	976		15,480/5,592	3,250				n/a	3,308	
12. Enrolment halves	n/a	3,041	1,006	794	12,162	25,592	3,313	16,575	4,991	7,420	n/a	3,567	
13. Enrolment doubles		1,740	810	778	6,280	8,140	2,295	8,576	3,653	3,882	n/a	1,452	

5.4 Observations

Reading Table 8 from left to right, it is clear that in courses with limited individualised learner support, costs per student are not very sensitive to small changes in student numbers once about the level 1,000 learners is reached, because by this time economies of scale have already been reached with the print materials. However, programmes with very large numbers (10 000+), do enjoy considerably increased economies of scale. In the middle of the table are courses with relatively low student numbers. Here even when student numbers are doubled, enrolment is still too low to achieve significant economies in terms of course and materials design processes.

The extreme right of the table shows the way in which increased student support of a face-to-face contact nature, which is variable with student numbers, limits the impact of economies of scale from course and materials design processes. However, it would seem possible that with enrolment at around 500 to 600 learners, even courses, which offer significant contact-based learner support would begin to see costs per student declining to the level where they might reasonably be expected to be covered by student fees. In practice, institutions will likely offer a range of such courses with the more profitable cross-subsidising the less profitable. This raises questions about the extent to which such cross-subsidisation should be governed by policy frameworks and the extent to which a proportion of “profit” from a particular course should be reinvested in curriculum revision and learner support for that particular course.

More specifically, the data collected and the research process followed suggest the following:

- Distance education is not necessarily a cheap alternative to more traditional contact-based provision: seven of the 12 courses run at a deficit on student fees.
- Correspondence-type courses with limited learner support and limited recurring investment in course and materials design (case studies 1, 2, 3 and 4) should be able to cover operational costs from student fees alone. Case study 1, with a very large enrolment indicates a surplus of ZAR 5,787,929 on student fees alone. With a probable subsidy of ZAR 710 per student, the total surplus for this course amounts to some ZAR 17 million. This raises interesting questions about the ongoing investment in the course (i.e., how much of the surplus is directed back into improving the course), and the extent to which a surplus should be used to cross-subsidise other courses or be passed on to the student in the form of reduced student fees. It is interesting to note that the very high enrolment for case study 1 was an exception; most courses had an enrolment considerably lower and they therefore benefited to a much lesser extent from economies of scale.
- Postgraduate courses (case study 5) are probably rightly funded on a parity basis with traditional institutions. However, it is possible to offer postgraduate courses that are cost efficient (case study 4).
- Distance education courses with fewer than 100 learners (case studies 5, 6, 7, 8) are too small to benefit from economies of scale even if their student numbers doubled.
- Some nominally traditional contact-based courses (case study 7) may not offer substantially more direct face-to-face support (as a percentage of notional learning time) than nominally distance education courses (such as case studies 9, 10 and 12).
- Distance education courses offering regular face-to-face contact can be operationally sustainable on reasonable fees when enrolments reach about 500 learners and local tutors

are engaged to provide the contact support (compare case studies 9 and 10, which have similar models of delivery).

- Those courses with 1,000+ learners do not enjoy significantly greater economies of scale with small enrolment increases, but are sensitive to declines in enrolment to below 1,000 (case studies 2 and 3). However, considerable economies of scale are achieved with very large numbers (case study 1).
- Managers at the level of courses and programmes generally need more support in the financial management of their courses from the time of planning and budgeting through to reporting over the projected life span of the course/programme.

5.5 Scenario Planning

Here we take the data captured above and attempt to apply the kinds of costs types and values to a scenario planning exercise. For the purposes of this exercise, we have chosen to look at a possible in-service teacher development programme for unqualified/under-qualified lower phase primary school teachers, since this seems to be one of the areas of greatest need in South and Southern Africa:

The programme will cover 1,200 notional learning hours over two years, thus teacher-learners will be expected to engage with the programme for 600 notional hours in each year whilst involved in classroom teaching on a full-time basis. Taking into account the target audience, the programme will make use of print materials and will offer limited face-to-face contact as its main support strategy.

The programme will be built around six courses: three in professional studies (lifelong learning, planning and practice, children and learning) and three in learning area studies (literacy, numeracy and life skills). In addition, the institution will provide 10 mother tongue readers for three grades and 10 sets of printed classroom resources for three grades.

The programme will be offered in semesters of 20 weeks each and the following teaching and learning strategies will be employed:

- Independent study of the materials for two hours per week
- Contact sessions
- Workplace support provided by seconded local tutors or departmental officials

For the purposes of this planning exercise, we have assumed that we require a full year prior to the start of the programme to engage in planning and materials development. For this purpose, we will need two full-time staff and a number of contracted writers. The two full-time staff will have the following functions:

- **Programme Co-ordinator:** Will take overall responsibility for establishing the programme, ensuring that the programme meets all of its statutory requirements as well as fitting in with institutional planning, budgeting, resource allocation and reporting.
- **Course Co-ordinator:** Will be responsible for developing the curriculum outline and engaging with external writers and others in the materials development process.

It is intended that by the end of the first year, say 2003, 1,000 complete sets of materials will have been produced so that from 2004 the first 1,000 teacher-learners can be registered in the programme. During 2004, a second course co-ordinator will be appointed to drive the materials development process for the second year of the programme. Thereafter, course design and materials development will proceed on five-year and annual cycles respectively.

On the following pages are planning reports derived from the costing database and based on the kinds of unit costs that have emerged from our engagement with actual providers in 2002–2003:

- Report 1: Budget for 2003 materials development for Year One
- Report 2: Costing for implementation of the first year of the programme in 2004.
- Report 3: Forecasting of the costs of implementing the first-year programme in subsequent years based on a five-year cycle for course design.
- Report 4: Average course cost summary for the second year of the programme in 2005 and implications for funding.

As can be seen from Report 1, we estimate that it will require an initial investment of ZAR 2,943,460 to develop and print materials for the first 1,000 students. Thereafter, course and materials design and materials development are built into operational budgets.

The materials cost per learner for the first 1,000 learners is projected at ZAR 2,943 and the operational delivery cost at ZAR 11,537, giving a total cost per learner for the first year for the first cohort of 1,000 learners of ZAR 14,480. This is comparable to the cost of traditional contact-based teacher development programmes. Assuming that the programme continues beyond this first cohort of students, the initial course and materials design costs can be amortised over a period of time. Hence in the operational budget for 2004, course and materials design time assumes a five-year cycle so that these costs are amortised over a five-year period.

At the time of writing, current practice within South Africa suggests that fees for such a programme could not be set at more than about ZAR 3,000 to ZAR 3,500 per year. In other words, student fees would probably cover the costs of the materials but not the delivery of the programme itself. This then raises questions about how such a programme could otherwise be funded.

The third report then extrapolates the cost of providing the first-year programme in subsequent years. This is a useful indicator of probable costs if we wish to delay the start of the programme. It assumes an annual inflation rate of about 8 per cent. The cumulative columns then indicate the overall implications for maintaining the programme over a number of years.

The final report explores the overall expected cost of providing the programme in 2005 to both a new first year intake as well as taking successful first year teacher-learners through into the second-year programme.

Report 1: Budget for 2003 materials development for Year 1

Programme: Primary Educator Development Programme

Course: Phase 1: materials development (preparation for Phase 2 and registration of the first cohort)

Year: 2003

Executive summary

Notional hours of learning	600
Total students planned for	1, 000
Course offerings per year	1.00

Average course cost summary

Personnel	ZAR 1,303,200
Other	ZAR 961,000
Overhead @ 30%	ZAR 679,260

Total	ZAR 2,943,460
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Cost per registered student	ZAR 2 943
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Total course income	ZAR 0
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Total course cost	ZAR 2,943,460
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Profit/loss	ZAR 2,943,460
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Other personnel costs

Course design total	Assessment time	Educational strategy time	Design hours per student hour	Total design time %	Year design %	Annual time			
(1)	0	600	10	6,000	100.00%	6,000			
Course design personnel				Design% (2)	Additional hours	Annual time (3)	Rate (ZAR) (4)	Annual cost (ZAR)	Average course cost (ZAR)
Programme co-ordinator				20%	0	1,200	184.00	220,800	220,800
Course co-ordinator				20	0	1,200	125.00	150,000	150,000
Materials developers				60	0	3,600	250.00	900,000	900,000
Total				100	0	6,000		(5) 1,270,000	1,270,000
Personnel dependencies						Annual time	Rate (ZAR)	Annual cost (ZAR)	Average course cost (ZAR)
Administrator (6)						1,200	27.00	32,400	32,400
Total						1,200		32,400	32,400

Other costs

Other costs	Reinvest-ment % (this year)	Annual units	Unit costs (ZAR)	Capital (ZAR)	Main-tenance (ZAR)	Insur-ance (ZAR)	Prof. dev. (ZAR)	Annual cost (ZAR)	Average course cost (ZAR)
Course materials: printing (7) Readers 3 grades x 10 readers x 50 pp	100%	1,500,000	0.26	390,000	0	0	0	390,000	390,000
Course materials: printing (7) Classroom resources 3 x 10 x 50 pp	100%	1,500,000	0.26	390,000	0	0	0	390,000	390,000
Course materials: printing (8) Year 1 Semester 1:6 courses of 50 pp	100%	300,000	0.26	78,000	0	0	0	78,000	78,000
Course materials: printing (8) Year 1: Semester 2:6 courses of 50 pp	100%	300,000	0.26	78,000	0	0	0	78,000	78,000
Materials design: Module template (9)	100%	50	250.00	12,500	0	0	0	12,500	12,500
Materials design: Reader template (9)	100%	50	250.00	12,500	0	0	0	12,500	12,500
Total								961,000	961,000

Notes:

1. The report assumes a course design time of 10 hours per notional learning hour. This is about half the design time offered as an international benchmark in Table 3 but still represents a significantly greater investment than is often the case in practice in provision of DEOL in SSA as evidenced by Table 19.
2. The report assumes that the design and development team will primarily involve the programme co-ordinator offering general design input, a course co-ordinator with specialist knowledge of primary education and materials developers who will assume the key responsibility for developing the study and learner support materials.
3. The time commitment suggests that at least five FTE staff will be required.
4. Hourly rates are averaged from the data collected in the research process.
5. The direct cost of personnel for the course and materials development process is estimated at ZAR 1,270,000.
6. It has been assumed that some administrative support will be required and has been costed at one hour of administrative support per one hour of the programme co-ordinator's time.
7. It is intended that educators who take the programme will be supplied with sample learner support materials for use in the classroom.
8. It is intended that educators who take the programme will receive one 50-page module for each of the six courses offered in each semester.
9. It is assumed that the institution will employ the services of experienced desktop publishing personnel for the design of templates for the study material.

Report 2: Costing for implementation of the first year of the programme – 2004

Programme: Primary Educator Development Programme

Course: Phase 2: pilot year 1

Year: 2004

Detailed course report: 1 of 6

Executive summary

Notional hours of learning	600
Total students enrolled	1,000
Course offerings per year	1.00

Average course cost summary

Personnel	ZAR 6,638,708
Other	ZAR 2,235,600
Overhead @ 30%	ZAR 2,662,292

Total	ZAR 11,536,600
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Cost per registered student	ZAR 11,537
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Total course income	ZAR 0
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Total course cost	ZAR 11,53,600
--------------------------	----------------------

Profit/loss	ZAR 11,536,600
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Programme: Primary Educator Development Programme

Course: Phase 2: pilot year 1

Year: 2004

Detailed course report: 2 of 6

Educational strategies

Educational strategy	Student time (1)	Personnel time (2)					
<i>School support</i> Student Educator and School Support Officers	16	5,344					
<i>Independent reading of materials excluding assessment preparation</i> Student	80						
<i>Individual consultations</i> Student Course co-ordinators	2	2,000					
<i>Contact sessions</i> Student Tutoring (contract)	224	8,960					
Educational strategy personnel			Time per course	Annual time	Rate (ZAR)	Annual cost (ZAR)	Average course cost (ZAR)
Educator and School Support Officers			5,344	5,344	95.04	507,894	507,894
Tutoring (contract)			8,960	8,960	196.56	1,761,178	1,761,178
Course co-ordinators			2,000	2,000	135.00	270,000	270,000
Total			16,304	16,304		2,539,071	2,593,071

Programme: Primary Educator Development Programme

Course: Phase 2: pilot year 1

Year: 2004

Detailed course report: 3 of 6

Assessment types

Assessment types	Number of units	Total completion time	Total preparation time	Total student time (3)	Assessment time	Moderation time	Invigilation time	Total personnel time (4)	
<i>Written assignments for prof. studies</i>	12	60	0	60					
Student					6,000	0	0	6,000	
Tutoring (contract)					0	300	0	300	
Course co-ordinator									
<i>Portfolios for learning area studies</i>	2	0	20	20					
Student					200	0	0	200	
Tutoring (contract)									
<i>Examinations for prof. Studies</i>	6	18	120	138					
Student					3,000	0	0	3,000	
Tutoring (contract)					0	150	0	150	
Moderator					0	0	720	720	
Invigilator					0	150	0	150	
Course co-ordinator									
<i>Written assignments for learning areas</i>	12	60	0	60					
Student					6,000	0	0	6,000	
Tutoring (contract)					0	300	0	300	
Course co-ordinator									
Assessment personnel		Assess. time	Moderation time	Invigilation time	Time per course	Annual time	Rate (ZAR)	Annual cost (ZAR)	Avg. course cost (ZAR)
Tutoring (contract)		15,200	0	0	15,200	15,200	196.56	2,987,712	2,987,712
Moderator		0	150	0	150	150	270.00	40,500	40,500
Invigilator		0	0	720	720	720	108.00	77,760	77,760
Course co-ordinator		0	750	0	750	750	135.00	101,250	101,250
Total					16,820	16,820		3,207,222	3,207,222

Programme: Primary Educator Development Programme

Course: Phase 2: pilot year 1

Year: 2004

Detailed course report: 4 of 6

Other personnel costs

Course design	Assessment time	Educational strategy time	Design hours per student hour	Total design time	Year design %	Annual time			
Total (5)	278	322	10	6,000	20.00%	1,200			
Course design personnel				Design %	Additional hours	Annual time	Rate	Annual cost	Average course cost
Programme co-ordinator				20.00%	0	240	R 198.72	R 47,693	R 47,693
Course co-ordinators				80.00%	960	960	R 135.00	R 129,600	R 129,600
Total				100.0 %	0	1,200		R 177,293	R 177,293
Personnel dependencies (6)						Annual time	Rate	Annual cost	Average course cost
Regional co-ordinators						4,426	R 108.00	R 478,008	R 478,008
Learner support co-ordinator						1,208	R 108.00	R 130,464	R 130,464
Administrators						1,975	R 54.00	R 106,650	R 106,650
Total						7,609		R 715,122	R 715,122

Programme: Primary Educator Development Programme

Course: Phase 2: pilot year 1

Year: 2004

Detailed course report: 5 of 6

Other costs

Other costs	Reinvest- ment % (this year)	Annual units	Unit cost (ZAR)	Capital (ZAR)	Mainte- nance (ZAR)	Insuranc e (ZAR)	Profess. develop. (ZAR)	Annual cost (ZAR)	Average course cost (ZAR)
Sundry: tutor training (7)	100.00%	1,000.00	1,026	0	0	0	1,026,000	1,026,000	1,026,000
Technology: hardware (8)	100.00%	1.00	108,000	108,000	5,400	1,080	2,160	116,640	116,640
Technology: maintenance (9)	100.00%	1.00	5,400	5,400	0	0	0	5,400	5,400
Technology: software (10)	100.00%	1.00	16,200	16,200	810	162	324	17,496	17,496
Travel: travel costs to monitor, etc. (11)	100.00%	2,000.00	540	1,080,000	0	0	0	1,080,000	1,080,000
Total								2,235,600	2,235,600

Programme: Primary Educator Development Programme

Course: Phase 2: pilot year 1

Year: 2004

Detailed course report: 6 of 6

Course income

Income per registered student **(12)** ZAR 0 This could be made up of student fees, government subsidies and donations.

Notes:

1. The costing database is designed to allow the user to keep track of anticipated student study time. Whilst based on estimates, it is a useful tool for keeping track of the time commitment expected of the average student on the programme and whether or not the expectation is realistic. In South Africa, the National Qualifications Framework assumes that each academic credit is equivalent to an average of 10 hours of study at the appropriate level.
2. For each educational strategy, it is necessary to estimate the amount of personnel time required. Thus, for example, with contact sessions, the following assumptions were made: group size of one tutor per 25 students (40 tutors for 1,000 students) for 224 contact hours = 8,960 tutor hours in total. Tutors will be paid per hour of contact time and the cost is assumed to cover both actual contact time as well as preparation time and travel time.
3. Student time spent on assessment includes both preparation as well as completion time. Taken with the time commitment for educational strategies, the total time commitment of students can be calculated, as summarised on page 1 of the costing report.
4. Personnel time includes assessment time (e.g., 20 minutes to mark an assignment), moderation time (based on time per script and percentage of scripts moderated) and invigilation time (based on number of students per invigilator).
5. During the first year of implementation (but the second year of the programme), it will be necessary both to continuously review the impact of the course in implementation and to suggest possible improvements in the course design as well as prepare for the second-year programme.
6. The report assumes that it will be necessary to employ an overall co-ordinator for learner support as well as regional co-ordinators to support decentralised tutors.
7. The report assumes that it is necessary to train tutors and educator and school support officers (ESSOs) to perform their tasks. For the purpose of this programme, it is assumed that tutors and ESSOs will be contracted and therefore will need to be paid for their time, travel, possibly food and accommodation and supplied with appropriate printed support materials. Such costs can easily mount up. For example: training 9 days (9 days for semester 1; 4 days for semester 2) x 8 h x 60 (40 tutors; 20

ESSOs/co-ordinators) x ZAR 175/hour = ZAR 840,000; accommodation and food 9 days x 60 x ZAR 400 = ZAR 216,000; travel 60 x 2 x ZAR 250 = ZAR 3,000; materials 60 x ZAR 400 = ZAR 24,000; Total: ZAR 1,026,000.

8. The report assumes that by the time programme needs to be implemented it will be necessary to invest in some PCs and printers.
9. The report assumes that it will be necessary to provide for some maintenance of the hardware purchased.
10. The report assumes that it will be necessary to invest in software for the PCs, including licences and that provision should be made for some staff development in the optimal use thereof.
11. The report assumes that each student will be visited at his or her school at least once during the course of the programme.
12. The cost per student for the implementation of the programme in the first year amounts to ZAR 11,537. It is unlikely that in 2004 the target audience of underqualified classroom-based educators in South Africa would be able to afford more than about ZAR 3,500 in fees payable over 10 months at ZAR 360/month. External funding would therefore be required and the cash flow planning would also need to take account of the need for students to be able to spread their payments across the year.

Report 3: Forecasting costs of first-year programme in subsequent years

Programme: Primary Educator Development Programme

Course: Phase 2: pilot year 1

Year: 2004

Course forecast report

Forecast of operational costs

Year	Personnel costs (ZAR)	Other costs (ZAR)	Overheads (ZAR)	Total cost (ZAR)	Total income (ZAR)	Profit/loss (ZAR)	Cumulative profit/loss (ZAR)
2004	6,638,708	2,235,600	2,662,292	11,536,600	0	11,536,600	11,536,600
2005	7,169,673	2,414,448	2,875,236	12,459,357	0	12,459,357	23,995,957
2006	7,743,168	2,607,616	3,105,235	13,456,019	0	13,456,019	37,451,976
2007	8,362,641	2,816,229	3,353,661	14,532,531	0	14,532,531	51,984,507
2008	9,031,666	3,041,530	3,621,959	15,695,155	0	15,695,155	67,679,662
2009	9,754,077	3,284,845	3,911,676	16,950,598	0	16,950,598	84,630,260
2010	10,534,280	3,547,639	4,224,577	18,306,500	0	18,306,500	102,936,760
2011	11,376,970	3,831,442	4,562,525	19,770,941	0	19,770,941	122,707,701
2012	12,287,200	4,137,961	4,927,548	21,352,708	0	21,352,708	144,061,409

We have explored the possible initial development costs for 2003 and the implementation of the first year of the programme in 2004. By experimenting with various growth and attrition rates, we can explore a variety of scenarios for 2005 and beyond when the programme will be offered to both first- and second-year learners.

The following table (Report 4) summarises the projected overall costing for the programme in 2005 assuming that enrolment in the programme grows by 10 per cent between 2004 and 2005 to 1,100 first years, and assuming that 86 per cent of 2004 learners successfully complete the first-year programme and enter the second-year programme, which is structured in the same way. Feedback from South Africa's national NPDE programme suggests that a throughput rate of 80 to 90 per cent is not unachievable given the investment in course design and learner support envisaged. This summary also works from the premise of an average student fee of ZAR 3,500 in 2003 increasing by 8 per cent per year to ZAR 4,082 by 2005.

Report 4: Average course cost summary

Programme: Primary Educator Development Programme

Course: Phase 2: pilot year 2

Year: 2005

Detailed course report summary

Executive summary

Notional hours of learning	600
Total students enrolled	1, 960
Course offerings per year	1.00

Average course cost summary

Personnel	ZAR 13,865,450
Other	ZAR 4,597,949
Overhead @ 30%	ZAR 5,539,018

Total	ZAR 24,002,018
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Cost per registered student	ZAR 12,246
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Total course income	ZAR 8,001,505
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Total course cost	ZAR 24,002,018
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Profit/loss	ZAR 16,000,907
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Potential funding required is on a ratio of about 2:1 to estimated student fee.

As can be seen from the examples, the costing database can be used to generate multiple costing scenarios without recourse to complex calculations.

Inherent to the design of the database is an approach to costing that requires programme and course co-ordinators to reflect on their curriculum and materials design and development as well as their educational and assessment strategies.

Having developed a scenario such as this, it is possible to explore alternative forms of delivery such as the use of interactive satellite television instead of face-to-face contact sessions. Such scenario planning in turn forces questions about these alternative strategies in terms of issues such as learner access and the degree of interaction and flexibility that can be built into the programme.

Finally, the case studies and examples suggest that while it is true that distance education methods, if they involve the minimum of course and materials design and very limited learner support, can be cheap or even potentially profitable, in most cases where investment is made in quality materials and where at least 10 per cent of notional learning time is directly supported by the institution (whether in face-to-face sessions or the use of interactive ICTs), costs for small numbers of learners will equal and possibly even exceed the cost of traditional face-to-face provision.

The investment in quality materials and the infrastructure for effective learner support systems needs to be amortised over large numbers of learners. Ongoing learner support will, however, generally vary proportionally to student numbers. Adequate financial planning and support are needed to ensure an appropriate balance between cost efficiency and cost effectiveness.

Appendix A – Course Costing Questionnaire

SAIDE Financial Planning - Course Questionnaire

List all the staff types or functions related to this course (for example, educators, tutor coordinators, invigilators, moderators, lecturers, etc):

Personnel Function	Hourly rate or annual package

What are the approximate hourly rates (calculated from annual packages if necessary)?

Check the following assumptions and adjust them with reasons if necessary:

- For each hour or educator (moderator, invigilator, tutor) time there is one hour of administration time.
- Each full-time equivalent of academic time has 20% of time allocated to pure research.
- There is a 10% FTE for tutor coordination.

The remainder of this questionnaire has three main sections:	Questions
➤ Teaching and Learning Strategies which include questions on <ul style="list-style-type: none"> • Contact strategies (including planned face-to-face sessions and individual consultation time) • Assessment activities; and • Independent study 	Q1-13 Q3-8 Q9-14 Q15
➤ Course Design where we distinguish <ul style="list-style-type: none"> • General course design time from • Specialist design and production time for course materials (including printed, audio, video and computer-based materials) 	Q16-18 Q18-21
➤ Other direct costs (like travel, technology or course graphic design)	Q22-24

We have included detailed explanations, as well as sample responses to these sets of questions. This questionnaire is designed to be completed digitally, as then adequate space can be created for all responses. If it is to be used as a hard copy, we suggest that additional photocopies of these pages be made in advance:

- Page 4 - Contact Strategy questions 3 to 6;
- Page 11 - Assessment activity questions 7 to 12;
- Page 20 - Course material questions 17 to 21.

If it is used in digital form, the contents of these pages should be ‘copied and pasted’ into the document where appropriate.

Teaching and Learning Strategies

To gather this information, we categorise the teaching and learning strategies of the course into three sections:

- **Contact** refers to all time spent in face-to-face sessions with a facilitator tutor or lecturer;
- **Assessment** refers to the activities designed to evaluate student learning or progress that demand facilitator and student involvement; and
- **Independent Study** refers to all student time spent in course related activities that do not involve tutors facilitators or lecturers and are not assessment related.

These distinctions are essentially arbitrary, but are designed to estimate student notional hours of learning (how many hours each student is expected to put in to successfully complete the course) and the resulting staff workload.

General Questions

1. Over how many weeks does the course run? (enter N/A if it is open-ended)

2. How many students are enrolled in the course?

Contact Strategies

List all the different contact strategies for the course. For example, distinguish between workshops, lectures, tutorials or laboratory or practical session

Contact Strategy Types
A.
B.
C.
D.
E.

List as many contact strategies as you think have unique characteristics. If you have more than five types of contact strategy, simply increase the list. It is better to split similar contact strategies and describe them as distinct types than to try to describe exceptions or different variations within one type. For example, you may describe one of your contact strategies as workshops and then realize that some workshops are intensive and held over a weekend, while others are short and held on one afternoon. In this case it would be better to create two contact types:

- long intensive (weekend) workshops
- short (afternoon) workshops.

as each one has different implications for staffing and student time.

Having listed each distinct contact strategy, answer questions 3-7 in the space provided:

SAMPLE CONTACT STRATEGY RESPONSE

Contact Strategy Type: *Tutorials*

3. How many hours a week or contact time does this involve?

Students attend two forty-five minute tutorials each week.

4. How many groups are there of how many students?

The students are broken into two groups of thirty and one of twenty

5. How many facilitators, tutors, lecturer or demonstrators are there at a time for each group?

Each big group is conducted by one tutor and one lecturer, and the small group is run by the lecturer

6. In addition to the time spent in the session, on average how much time do facilitators, tutors, lecturers or demonstrators spend preparing for each of these sessions?

The tutor spends, on average an additional hour and a half preparing for each tutorial.

7. Is this the optimal number of students per group for this contact strategy? If not, what would the ideal number of students be per group?

The ideal would be to have twenty students in each group and one lecturer facilitating it.

Contact Strategy Type A:

3. How many hours a week or contact time does this involve? Or if this contact strategy is not offered weekly, what are the total number of hours of this type of contact in the course?

4. How many groups are there of how many students?

5. How many facilitators, tutors, lecturer or demonstrators are there at a time for each group?

6. In addition to the time spent in the session, on average how much time do facilitators, tutors, lecturers or demonstrators spend preparing for each of these sessions?

7. Is this the optimal number of students per group for this contact strategy? If not, what would the ideal number of students be per group?

Contact Strategy Type B:

3. How many hours a week or contact time does this involve? Or if this contact strategy is not offered weekly, what are the total number of hours of this type of contact in the course?

4. How many groups are there of how many students?

5. How many facilitators, tutors, lecturer or demonstrators are there at a time for each group?

6. In addition to the time spent in the session, on average how much time do facilitators, tutors, lecturers or demonstrators spend preparing for each of these sessions?

7. Is this the optimal number of students per group for this contact strategy? If not, what would the ideal number of students be per group?

Contact Strategy Type C:

3. How many hours a week or contact time does this involve? Or if this contact strategy is not offered weekly, what are the total number of hours of this type of contact in the course?

4. How many groups are there of how many students?

5. How many facilitators, tutors, lecturer or demonstrators are there at a time for each group?

6. In addition to the time spent in the session, on average how much time do facilitators, tutors, lecturers or demonstrators spend preparing for each of these sessions?

7. Is this the optimal number of students per group for this contact strategy? If not, what would the ideal number of students be per group?

Contact Strategy Type D:

3. How many hours a week or contact time does this involve? Or if this contact strategy is not offered weekly, what are the total number of hours of this type of contact in the course?

4. How many groups are there of how many students?

5. How many facilitators, tutors, lecturer or demonstrators are there at a time for each group?

6. In addition to the time spent in the session, on average how much time do facilitators, tutors, lecturers or demonstrators spend preparing for each of these sessions?

7. Is this the optimal number of students per group for this contact strategy? If not, what would the ideal number of students be per group?

Individual Contact or Consultation

8. In addition to all the above contact, on average how much time do staff spend per week in offering individual consultation to students?

This can be expressed as an estimate of time spent per week or per day if necessary, but does need to be reduced to an average time per student eventually. For example,

Lecturers spend about half an hour each day in individual consultation with 20 students on this course and each tutors spends about one hour a week per group of 10 students.

So:

- lecturers spend 5 hours per week per 20 students which is 0.25 hours per week per student;*
- tutors spend 0.1 hours per week per student.*

Assessment Activities

The following questions are important. They may be annoying at first, as they involve the rather nebulous concept of the ‘average student’ and estimates of the amount of time such a student is expected to devote to assessment tasks. They are important as once again the responses start to reveal approximations for notional hours of learning and student workload and by extension the resulting staffing or human resource implications to administer these processes

Again, we first list each type of assessment strategy distinguishing between examinations, tests, essays assignments, portfolios, tutorial or problem set submission etcetera. It may help to include the mark weighting for each of these (as a percentage or as the total number of marks).

Assessment Activities List	Mark Weighting
A.	
B.	
C.	
D.	
E.	

Again, as for the contact strategies you can extend this list if necessary. In this case we distinguish between assessment activities that are time bound and those that are not:

- *Time-bound assessment activities* take the same amount of time for each student. In this case we then distinguish how long it takes to prepare for the time-bound activity and how long it takes to do the activity. For example an examination takes 3 hours to do for all students, and the average student spends an extra ten hours preparing for this. A presentation takes fifteen minutes for each group of three to present, and each student spends three hours preparing for this.
- *Other assessment activities* are not time-bound and we then only reflect student preparation time. For example, an essay is simply submitted (it is not time-bound) and the average student may be expected to spend about 12 hours preparing for this essay.

In the first case, the student time also involves educator (or assessor or invigilator) time as at least one of these players has to present while the assessment activity is *being done*. In the second, the student spends all their assessment time independently without involving education staff.

For each assessment strategy, you now answer questions 9 to 13 in the space provided.

SAMPLE ASSESSMENT ACTIVITY RESPONSE

Assessment Activity Type: *June Examination*

9. How many of this type of activity are students expected to complete during the course?

There is only one June examination for the course.

10. Is this assessment activity time bound?

Yes - the examination is time bound

If so, answer questions 10a and 10b and then continue with question 11. If not skip to question 12.

11a. How long does it take a student to do the activity? (If it takes place during 'class' or contact time do not indicate this as this time will already be captured under contact strategies)

The examination is 1.5 hours and is written outside of normal 'class' or contact time.

11b. Is doing the assessment activity invigilated or supervised? If so, how many groups of students are there for each invigilated session and how many invigilators does this involve?

All students write together in one venue (one group) and there are 4 invigilators present.

12. How long does an average student take to prepare for this assessment activity task? If a student were to ask you how must time they should schedule for this task what you answer?

If the student has attended all the contact sessions, done the independent study and completed the other assessment activities they should spend about an extra 15 hours preparing for the examination.

13. Do students do the assessment activity individually or in groups? If in groups, how many students are in each group or how many groups are there?

They do the examination on their own (individually)

14. Who marks this assessment activity and how long does it take this person to mark it? This can be given as a number of hours for the entire set or as a per student estimate.

Tutors mark the examination scripts and a set of 10 papers takes about 3 hours to mark.

15. Is there any moderation for this assignment (either external, internal or both)? If so, how many of the total number of this type of assessment activity are moderated? Who is involved and how long do they take on each assessment activity?

The lecturer checks the tutor marking (internal moderation). About half the scripts are checked and a set of 10 papers takes about half an hour to moderate.

An external moderator checks 10% of the scripts (external moderation). In total, the external moderator spends about 6 hours on this.

Assessment Activity Type A:

9. How many of this type of activity are students expected to complete during this course?

10. Is this assessment activity timebound?

YES

NO

If YES, answer questions 10a and 10b and then continue with question 11. If NO, skip to question 12.

10a. How long does it take a student to do this activity? (If it takes place during 'class' or contact time do not indicate this as this time will already be captured under contact strategies)

10b. Is doing the assessment activity invigilated or supervised? If so, how many groups of students are there for each invigilated session and how many invigilators does this involve?

11. How long does it take an average student to prepare for the assessment activity? If a student were to ask you how much time they should schedule to prepare for assessment activity what would you answer?

12. Do students do the assignment individually or in groups? If in groups, how many students are in each group or how many groups are there?

13. Who marks this assessment activity and how long does it take this person to mark it? This can be given as a number of hours for the entire set or as a per student estimate.

14. Is there any moderation for this assignment (either external, internal or both)? If so, how many of the total number of this type of assessment activity are moderated? Who is involved and how long do they take on each assessment activity?

Assessment Activity Type B:

9. How many of this type of activity are students expected to complete during this course?

10. Is this assessment activity timebound?

YES

NO

If YES, answer questions 10a and 10b and then continue with question 11. If NO, skip to question 12.

10a. How long does it take a student to do this activity? (If it takes place during 'class' or contact time do not indicate this as this time will already be captured under contact strategies)

10b. Is doing the assessment activity invigilated or supervised? If so, how many groups of students are there for each invigilated session and how many invigilators does this involve?

11. How long does it take an average student to prepare for the assessment activity? If a student were to ask you how much time they should schedule to prepare for assessment activity what would you answer?

12. Do students do the assignment individually or in groups? If in groups, how many students are in each group or how many groups are there?

13. Who marks this assessment activity and how long does it take this person to mark it? This can be given as a number of hours for the entire set or as a per student estimate.

14. Is there any moderation for this assignment (either external, internal or both)? If so, how many of the total number of this type of assessment activity are moderated? Who is involved and how long do they take on each assessment activity?

Assessment Activity Type C:

9. How many of this type of activity are students expected to complete during this course?

10. Is this assessment activity timebound?

YES

NO

If YES, answer questions 10a and 10b and then continue with question 10. If NO, skip to question 11.

10a. How long does it take a student to do this activity? (If it takes place during 'class' or contact time do not indicate this as this time will already be captured under contact strategies)

10b. Is doing the assessment activity invigilated or supervised? If so, how many groups of students are there for each invigilated session and how many invigilators does this involve?

11. How long does it take an average student to prepare for the assessment activity? If a student were to ask you how must time they should schedule to prepare for assessment activity what would you answer?

12. Do students do the assignment individually or in groups? If in groups, how many students are in each group or how many groups are there?

13. Who marks this assessment activity and how long does it take this person to mark it? This can be given as a number of hours for the entire set or as a per student estimate.

14. Is there any moderation for this assignment (either external, internal or both)? If so, how many of the total number of this type of assessment activity are moderated? Who is involved and how long do they take on each assessment activity?

NOTE: Either 'copy and paste' extra versions of questions 9 to 14 or make extra photocopies of this page if your course has more than five contact strategy types.

Assessment Activity Type D:

9. How many of this type of activity are students expected to complete during this course?

10. Is this assessment activity timebound?

YES

NO

If YES, answer questions 10a and 10b and then continue with question 11. If NO, skip to question 12.

10a. How long does it take a student to do this activity? (If it takes place during 'class' or contact time do not indicate this as this time will already be captured under contact strategies)

10b. Is doing the assessment activity invigilated or supervised? If so, how many groups of students are there for each invigilated session and how many invigilators does this involve?

11. How long does it take an average student to prepare for the assessment activity? If a student were to ask you how much time they should schedule to prepare for assessment activity what would you answer?

12. Do students do the assignment individually or in groups? If in groups, how many students are in each group or how many groups are there?

13. Who marks this assessment activity and how long does it take this person to mark it? This can be given as a number of hours for the entire set or as a per student estimate.

14. Is there any moderation for this assignment (either external, internal or both)? If so, how many of the total number of this type of assessment activity are moderated? Who is involved and how long do they take on each assessment activity?

Independent Study

15. What additional time are students expected to spend on course related-activities? This excludes preparation for assessment strategies but may include self assessment tasks.

For example,

- Learners are expected to read 10 chapters of the prescribed textbook. This is estimated to take 4 hours for each chapter; or
 - Learners are expected to read all of the course materials and do all of the self-assessment activities. There are 15 modules each of which have about 20pages and 5 self assessment tasks. Students should spend about 10 hours on each module.

Course Design

Remember that course design includes the following:

- Articulation of values and principles underpinning course.
- Articulating outcomes/objectives of course.
- Integrating an understanding of how learning works into all elements of the course.
- Design and development of:
 - Assessment strategies;
 - Contact sessions (structure, sequencing, and weighting);
 - Peer group sessions;
 - Materials (of all kinds); and
 - Content.
- Understanding the learners and their strengths.
- Understanding and reviewing the dynamics of the course team.
- Ongoing evaluation.
- Integrating all of the above to form a coherent course.

This does not include specialist materials production time like graphic design, editing and layout for printed materials, or production of a videocassette as this is covered in the next section. It does include the time spent conceptualising, planning and developing these materials.

16. What is the course design cycle? How often is this course totally redesigned? (Note this is usually expressed in years, often 3 or 5)

17. Is the course design time spread evenly over each year or the course design cycle, if not, estimate what percentage of time is spent over the design cycle?

Year 1:
Year 2:
Year 3:
Year 4:
Year 5:

18. Estimate how much time is spent on course design. This can be estimates as the amount of course design time for each hour of student learning (for each notional hour) or as a total amount of course design time spent within the design cycle

--

For example,

<p>16. We totally redesign the course every three years.</p> <p>17. There is more work in the first year but we always have to make changes in the second and third years. We estimate that: Year 1: 40% Year 2: 20% Year 3: 20% of our time is spent on course design.</p> <p>18. On average, the three course team members each spend about three weeks planning the course before it starts and then for every hour of student learning time, we probably spend about two hours on course design between us. So this is: 8 hours per day times 5 days per week times 3 weeks times 3 course team members and would be calculated as follows: (3 weeks) times (5 working days per week) times (eight hours per day) = 120 hours Total time = (120 hours times three course team members) plus (student notional hours times two)</p>

Course Materials

19. List all the course materials given to, or bought by, students in this table. Include printed, audio, video materials and multimedia or computer-based materials

List of Course Material
Printed materials
Audio materials
Video materials
Multimedia/computer-based materials

Now for each type of material, answer questions 17 to 21 below. We provide sample responses for printed and a video material, before presenting four sets of questions

SAMPLE MATERIAL RESPONSE

Material Type: *Course Information and Tutorial Guide Booklet*

20. Is this material printed, audio, video or computer-based?

Printed

21. In what units is it measured? (per minute, page, file, article,

18. For printed materials estimate the number of pages

Forty pages

19. How many of these pages have been brought in from somewhere else or where not designed by the course team (if any)?

The font and back covers use the standard programme design. A four page article has been reproduced from a published book.

20. Were there any copyright or licensing costs related to this material? If so, what is the:

- **total copyright cost and for how long is this valid? or**
- **total copyright cost per course offering? or**
- **copyright cost per student?**

We got copyright permission to reproduce four diagrams. We were charged 20c per reproduction for each diagram (this is a copyright cost per student).

For reproducing the article we paid an annual copyright fee of R1000 for unlimited educational reproduction of this article (this is the total copyright cost and it is valid for one year).

21. Answer either 21a, b or c depending on the type of material

21a. *not applicable*

21b. *not applicable*

21c. If this type of printed material is bought or produced for each student taking the course, are they charged for it? If so, what are they charged?

Each student is given one of these - they are not charged for it.

SAMPLE AUDIO OR VIDEO MATERIAL RESPONSE

Material Type: *Video series on Mechanics in Motion*

17. Is this material printed, audio, video or computer-based?

Video

18. For video materials estimate the number of minutes of viewing time.

There are four videos in the series - each one is 25 minutes long. (Four videos times twenty-five minutes each = 100 minutes)

19. How many of minutes of footage have been brought in from somewhere else or where not designed by the course team (if any)?

All of the video footage has been brought in from elsewhere - we did not make or edit the video

20. Were there any copyright costs related to this material? If so, what is the:

- **total copyright cost and for how long is this valid? or**
- **total copyright cost per course offering? or**
- **copyright cost per student?**

No copyright costs. We have not duplicated the videos as we bought two sets. If student number go up by a whole new group we may have to buy another set of the video or apply for copyright permission.

21. Answer either 21a, b or c depending on the type of material

21a. If this type of printed material is bought or produced once and then used for a number of years, then:

- **How many of these printed materials are bought in this initial purchase?**
- **After how many years, does this investment have to be made again?**

We bought this video series and use it to introduce five of the tutorial sessions. We bought two sets of the videos and may have to repurchase or buy updated versions in five years time.

21b. *not applicable*

21c. *not applicable*

Material Type A:

17. Is this material printed, audio, video or computer-based?

18. For

- printed materials, estimate the number of pages;
- audio or video materials estimate the number of minutes of listening or viewing time; and for
- computer-based materials estimate the number of hours of student time using the materials

19. How many of these pages (minutes or hours) of the material have been brought in from somewhere else or where not designed by the course team (if any)?

20. Were there any copyright costs related to this material? If so, what is the:

- total copyright cost and for how long is this valid? or
- total copyright cost per course offering? or
- copyright cost per student?

21. Answer either 21a, b or c depending on the type of material

21a. *If this type of material is bought or produced once* and then used for a number of years, then:

- How many of these materials are bought in this initial purchase?
- After how many years, does this investment have to be made again?

21b. *If this type of material is bought or produced for each course offering*, then on average how many are bought or produced each time the course is run?

21c. *If this type of material is bought or produced for each student taking the course*, are they charged for it? If so, what are they charged?

Material Type B:

17. Is this material printed, audio, video or computer-based?

18. For

- printed materials, estimate the number of pages;
- audio or video materials estimate the number of minutes of listening or viewing time; and for
- computer-based materials estimate the number of hours of student time using the materials

19. How many of these pages (minutes or hours) of the material have been brought in from somewhere else or where not designed by the course team (if any)?

20. Were there any copyright costs related to this material? If so, what is the:

- total copyright cost and for how long is this valid? or
- total copyright cost per course offering? or
- copyright cost per student?

21. Answer either 21a, b or c depending on the type of material

21a. *If this type of material is bought or produced once* and then used for a number of years, then:

- How many of these materials are bought in this initial purchase?
- After how many years, does this investment have to be made again?

21b. *If this type of material is bought or produced for each course offering*, then on average how many are bought or produced each time the course is run?

21c. *If this type of material is bought or produced for each student taking the course*, are they charged for it? If so, what are they charged?

Material Type C:

17. Is this material printed, audio, video or computer-based?

18. For

- printed materials, estimate the number of pages;
- audio or video materials estimate the number of minutes of listening or viewing time; and for
- computer-based materials estimate the number of hours of student time using the materials

19. How many of these pages (minutes or hours) of the material have been brought in from somewhere else or where not designed by the course team (if any)?

20. Were there any copyright costs related to this material? If so, what is the:

- total copyright cost and for how long is this valid? or
- total copyright cost per course offering? or
- copyright cost per student?

21. Answer either 21a, b or c depending on the type of material

21a. *If this type of material is bought or produced once* and then used for a number of years, then:

- How many of these materials are bought in this initial purchase?
- After how many years, does this investment have to be made again?

21b. *If this type of material is bought or produced for each course offering*, then on average how many are bought or produced each time the course is run?

21c. *If this type of material is bought or produced for each student taking the course*, are they charged for it? If so, what are they charged?

NOTE: Either 'copy and paste' extra versions of questions 17 to 21 or make extra photocopies of this page if your course has more than four types of course materials.

Material Type D:

17. Is this material printed, audio, video or computer-based?

18. For

- printed materials, estimate the number of pages;
- audio or video materials estimate the number of minutes of listening or viewing time; and for
- computer-based materials estimate the number of hours of student time using the materials

19. How many of these pages (minutes or hours) of the material have been brought in from somewhere else or where not designed by the course team (if any)?

20. Were there any copyright costs related to this material? If so, what is the:

- total copyright cost and for how long is this valid? or
- total copyright cost per course offering? or
- copyright cost per student?

21. Answer either 21a, b or c depending on the type of material

21a. *If this type of material is bought or produced once* and then used for a number of years, then:

- How many of these materials are bought in this initial purchase?
- After how many years, does this investment have to be made again?

21b. *If this type of material is bought or produced for each course offering*, then on average how many are bought or produced each time the course is run?

21c. *If this type of material is bought or produced for each student taking the course*, are they charged for it? If so, what are they charged?

Other Direct Costs

22. What percentage of the course teams time should ideally be devoted to pure research?

23. Are there any other costs that relate to this course? Please write down what these are, including:

- in what units this is measured;
- what each unit costs (on average); and
- how many such units are used per course offering (or per student or specify over what time period).

If you present this as a lump-sum or total, then please specify after how many years reinvestment would be necessary.

Either type in this table, using as much space as you require, or attach another blank page to this questionnaire.

For example,

Travel:

Lecturers have to travel to run weekend workshops in several provinces.

The cost of a local air flight = R2,000

Accommodation and/ or subsistence allowance per night = R400

There are two weekend workshops in each of four provinces.

Therefore the total

- travel costs = R2,000 times 2 workshops times 4 provinces = R16,000
- accommodation costs = R400 times 2 workshops times 2 nights times 4 provinces = R4,600

Technology:

We use laboratory equipment for our practical sessions.

We spend R1,000 for each week that we run practical laboratory sessions on chemicals and replacing laboratory equipment stock. As mentioned under 'contact strategies', this is for running the five laboratory sessions per week (which consist of 5 groups of 16 students each). The costs would go up if we had to have more student groups as each student works in a pair and needs the chemicals and equipment.

NOTE: The laboratory and its fixed infrastructure is planned separately as it is used for several courses. The time spent designing laboratory sessions and the laboratory manual should be considered under 'course materials'. The related supervision during laboratory sessions should be considered under 'contact strategies'.

24. How many notional hours of learning (in SAQA (NQF terms)) have been allocated for this course

25. List any sources of course income (including government subsidy, student fees, student payment and funding grants) that you are aware of

25. Do you have any comments you would like to make about how you found using this questionnaire? If you found specific questions difficult to answer or any questions unclear - please specify which questions these were. How would you improve this instrument?

Appendix B – Case Studies

Case Study 1

This case study relates to an undergraduate course of approximately 120 notional learning hours, which currently caters for 16,139 learners. Educational strategies include:

- Independent study
- Individual consultation
- Tutorial contact sessions of six to 12 hours, attended by about 12 per cent of learners in 17 centres (Some students have registered with other institutions offering contact support for students taking distance courses and so get additional contact support but at the expense of additional fees for this second institution's support)
- Video conferencing

Assessment involves self-assessed multiple-choice assignments and is primarily exam driven. From 2004, the programme will reintroduce compulsory assignments with a sub-minimum of 30 per cent to ensure that students are better prepared for the exams. Materials are primarily print-based and comprise a prescribed textbook, a study guide and tutorial letters.

As noted above, only about 12 per cent of students access the contact-based form of support and it is not clear how many students access the video conferences. In 2002, the six full-time staff (who also have other duties) and two academic assistants attached to the programme processed 3,000 telephone enquiries, spoke to 330 students who visited in person and responded to 200 e-mails or letters. For the majority of students, however, the learning experience must be characterised as a correspondence model of delivery.

The throughput rate for the course averaged 42 per cent over the past three years. Table 9 summarises the core costing data for this course.

Table 9: Costing case study 1

Cost type	Cost (ZAR)
Learning and teaching costs:	
Tutoring (contact)	48,396.24
Video conferencing	136,384.94
Counselling	86,287.55
Student support administration	345,503.24
Assessment (examination systems)	368,599.03
Assessment (marking)	154,175.89
Course design	113,913.02
Printing of materials	235,593.02
Other costs:	
Marketing at course level	5,886.05
Postage	88,132.69
Overheads:	
Undergraduate student affairs	395,204.82
Collaboration unit	14,302.92
Corporate communication and marketing	229,566.50
Despatch	205,051.33
Finance	237,436.71
Library services	84,960.49
Principal's office	177,763.34
Total cost	2,927,157.78
Cost per student	181,37
Cost per successful student @ 42%	431,83
Fee income per student	540
If student numbers halve:	The data was supplied in a format

Cost per student	which does not make scenario planning possible.
If student numbers double:	
Cost per student	

With the current design model, in which only a small number of students take up the decentralised support on offer, and with the current high enrolment, the course makes a large surplus on student fees alone. It is argued by the provider that it is necessary to have such courses in order to cross-subsidise other smaller but equally important courses.

Case Study 2

This case study relates to an undergraduate course of approximately 120 notional learning hours which currently caters for 1,110 learners. Educational strategies include:

- Independent study of about six hours per week
- Individual consultation amounting to about one hour per student per course
- Tutorial contact sessions for up to 30 learners per group
- A lecturer-led workshop of eight hours for 120 to 140 learners at a time, working in smaller groups of six to eight learners

Assessment comprises computer-marked multiple choice assignments (to meet exam entry requirements), a computer-marked examination paper (accounting for 100 per cent of summative assessment) and a self-assessed client interview.

Materials are primarily print-based and comprise a prescribed textbook and approximately 103 pages of printed materials, some of which involves copyright material for which a fee has to be paid. An audiocassette may be used in the course and a specially developed video is used during workshops. Course design time has been estimated at one hour per notional learning hour, but is probably less.

The learner support on offer in the programme is centralised, with the result that only about 10 per cent of students access it. This means that in costing the programme, we need to consider both an ideal in which all students have access to and use the learner support, which would require more decentralised provision, and the reality of only about 10 per cent uptake. Of course, it may well be the case that students do not seek advice or support because they are managing adequately without it. Reality probably, therefore, exists somewhere between these two extremes.

The throughput rate for the course averaged 76 per cent over the past three years. Table 10 summarises the core costing data for this course.

Table 10: Costing case study 2

Cost Type	Cost (assuming maximum uptake of learner support) (ZAR)	Cost (assuming 10% uptake of learner support) (ZAR)
Tutoring (contact)	125,800	12,580
Lecturing staff (workshops and individual consultations)	735,777	73,578
Assessment (checking results)	5,720	5,720
Course design	22,532	22,532
Administration	178,765	17,876
Materials	441,888	441,888
Overheads @ 30%	453,145	172,252
Total cost	1,963,628	730,326
Cost per student	1,769	657.95
Cost per successful student @ 76%	2,328	
Fee income per student	540	540
If student numbers halve:		
Cost per student	3,041	
If student numbers double:		
Cost per student	1,740	

Table 10 illustrates that if the institution attempted to ensure access for all students to the learner support designed into the course, with centralised lecturers travelling to offer contact workshops, it would need to be subsidised on a ratio of 2.3:1 with regard to student fees.

With the current design model, in which only 10 per cent of students take up the support on offer, the course still runs at a deficit.

Case Study 3

This case study relates to an undergraduate course of approximately 255 notional learning hours which currently caters for 1,400 learners. Educational strategies include:

- Independent study of about four hours per week
- Individual consultation amounting to about 20 minutes per student per course
- Tutorial contact sessions of two hours per year, typically involving nine sessions with 30 students in each session (i.e., involving about 20 per cent of enrolled students)
- Two lecturer-led workshops of one hour each for approximately 100 learners at a time (i.e., involving about 7 per cent of enrolled students)

Assessment comprises essays and portfolio assignments (20 per cent of summative assessment) and a one-and-a-half hour exam paper (80 per cent of summative assessment).

Materials are primarily print-based and comprise a specially prepared module of approximately 300 pages, some of which involves copyright material for which a fee has to be paid. Course design time has been estimated at 40 hours per notional learning hour, with about 10 per cent of course design time budgeted for the current year.

Some of the learner support on offer in the programme is centralised for engagement with the lecturer(s), with the result that only about 10 per cent of students access it. However, some decentralised tutorial support is offered, but as noted above it currently reaches only about 20 per cent of enrolled students. This means that in costing the programme, we need to consider both an ideal in which all students have access to and use the learner support, which would require more decentralised provision, and the reality of only about 10 per cent uptake. Of course,

it may well be the case that students do not seek advice or support because they are managing adequately without it. Reality probably exists somewhere between these two extremes.

The average throughput rate for the course over the past three years is 67 per cent. Table 11 summarises the core costing data for this course.

Table 11: Costing case study 3

Cost type	Cost (assuming maximum uptake of learner support) (ZAR)	Cost (assuming 10% uptake of learner support) (ZAR)
Lecturing staff (workshops and individual consultations)	128,975	12,897
Assessment (lecturers/moderator/invigilators)	381,908	381,908
Course design	178,500	178,500
Administration	136,332	99,612
Materials, telephone, travel	280,058	280,058
Overheads @ 30%	331,732	232,342
Total cost	1,437,506	1,006,817
Cost per student	1,027	719
Cost per successful student @ 67%	1,533	
Fee income per student	1,246	
If student numbers halve:		
Cost per student	1,405	
If student numbers double:		
Cost per student	910	

Table 11 illustrates that if the institution attempted to ensure access for all students to the learner support designed into the course, it would still make a profit on student fees alone.

Case Study 4

This case study relates to a postgraduate (honours) course of approximately 98 notional learning hours which currently caters for 2,407 learners. The course is offered through a partnership between a public higher education institution and a private provider. Educational strategies include:

- Independent study of about 1.5 hours per week
- Individual consultation which amounts on average to less than a few minutes per student per course
- Four hours of lectures per course delivered to 18 decentralised centres by satellite TV

Since the course is offered twice per year, some students take up the option of deferring their active participation to the following semester. It is estimated that between 20 and 40 per cent of students participate in the broadcast lecture sessions.

Assessment comprises two essay assignments (50 per cent of summative assessment), and a two-hour exam paper (50 per cent of summative assessment).

Materials are primarily print-based and comprise textbooks and wraparound study material. Course design time has been estimated at three hours per notional learning hour, with about 34 per cent of course design time budgeted for the current year.

The average throughput rate for the course over the past three years has been 80 per cent. Table 12 summarises the core costing data for this course.

Table 12: Costing case study 4

Cost type	Cost (assuming maximum uptake of learner support) (ZAR)
Lecturing staff (workshops and individual consultations)	11,302
Assessment (lecturers/moderator/invigilators)	586,37
Course design costs	7,350
Administration	150,238
Materials, telephone, marketing, etc.	690,690
Overheads @ 30%	433,895
Total cost	1,880,212
Cost per student	781
Cost per successful student @ 80%	976
Fee income per student	607
If student numbers halve:	
Cost per student	794
If student numbers double:	
Cost per student	778

Table 12 indicates that overall the course needs runs at a small deficit in relation to student fees. However, the exact breakdown of costs and income between the two institutions was hard to ascertain. It would seem that the private provider retained 95 per cent of fee income, while the public Higher Education Institute received 5 per cent of the fee income but the full amount of the government subsidy.

Case Study 5

This case study relates to an undergraduate course of approximately 497 notional learning hours which currently caters for 54 learners. Educational strategies include:

- Independent study of about 11 hours per week
- Individual consultation amounting to about 30 minutes per student per week of the course (In other words the lecturers say they spend 27 hours of each week engaging directly with students.)
- Lecturer-led contact sessions are arranged on request in Johannesburg and Durban, typically resulting in six classes per year of three hours each

Assessment comprises assignments (accounting for 10 per cent of summative assessment), a practical project (45 per cent of summative assessment) and a three-hour exam paper (45 per cent of summative assessment).

Materials are primarily print-based (although they can also be accessed from the institution's Web site) and comprise a specially prepared module and tutorial letters of approximately 720 pages, some of which involves copyright material for which a fee has to be paid. Course design time has been estimated at less than one hour per notional learning hour, with about 20 per cent of course design time budgeted for the current year.

The average throughput rate for the course over the past three years was 61 per cent. Table 13 summarises the core costing data for this course.

Table 13: Costing case study 5

Cost type	Cost (assuming maximum uptake of learner support) (ZAR)
Lecturing staff (workshops and individual consultations)	184,155
Assessment (lecturers/moderator/invigilators)	16,775
Course design costs	17,325
Administration	42,840
Materials, telephone, travel	10,109
Overheads @ 30%	81,361
Total cost	352,565
Cost per student	6,529
Cost per successful student @ 61%	10,703
Fee income per student	890
If student numbers halve:	
Cost per student	12,162
If student numbers double:	
Cost per student	6,280

Table 13 indicates that with enrolment as low as 54 students, at the current course fee the course runs at a considerable deficit which needs to be made up from other sources of income such as government subsidies, external sponsorship and/or institutional cross-subsidisation.

Case Study 6

This case study relates to a postgraduate course of approximately 240 notional learning hours which currently caters for 50 learners. Educational strategies include:

- Independent study of about 10 hours per week
- Individual consultation amounting to about 2.4 minutes per student per week

- Eight hours of lectures during the 13-week course cycle delivered by satellite to 12 centres simultaneously (Five students outside of South Africa receive a video of these lectures.)

Assessment comprises one assignment (accounting for 40 per cent of summative assessment for the course) and a four-hour exam paper (accounting for 60 per cent of summative assessment for the course). This course comprises one-fifth of the total notional learning hours for the programme.

Materials are primarily print-based and comprise specially prepared readers and tutorial letters of approximately 2,847 pages of printed materials, some of which involves copyright material for which a fee has to be paid. Course design time was initially estimated at 10 hours per notional learning hour, with about 50 per cent of course design time budgeted for the current year. However, this estimate was reviewed since the implied design time would not have been manageable. For this reason, we have costed the programme with both the implied as well as a more realistic design time estimate (see Table 14).

The average throughput rate for the course over the past two years is 90 per cent.

Table 14: Costing case study 6

Cost type	Cost (assuming maximum design time) (ZAR)	Cost (with re-estimated design time) (ZAR)
Lecturing staff (workshops and individual consultations)	12,006	12,006
Assessment (lecturers/moderator/invigilators)	13,050	13,050
Course design time	310,590	60,000 (extrapolated from salary)
Administration	132,548	132,548
Materials, telephone, travel, tech	67,748	67,748
Overheads @ 30%	160,756	85,606
Total cost	696,608	251,658
Cost per student	13,932	5,033
Cost per successful student @ 90%	15,480	5,592
Fee income per student	3,200	3,200
(16,000 for 2 years = 5 modules)		
If student numbers halve:		
Cost per student	25,952	
If student numbers double:		
Cost per student	8,140	

Table 14 illustrates that even if we re-estimate the design time implied by a comparison of actual costs and other costed time commitments (at 1.93 hours/notional learning hours based on the salary figures supplied), then this programme runs at a deficit with respect to income from student fees.

Case Study 7

This case study relates to an undergraduate course of approximately 250 notional learning hours, which currently caters for 60 learners. The provider does not consider it to be a distance education course despite the limited notional learning time spent in face-to-face contact. The course is offered over two semesters, with most students enrolling during the first semester. Educational strategies include:

- Independent study of about 2.5 hours per week

- Short workshops/lectures of 2.5 hours once a month for 60 students in the same group
- Remedial training/consultation with subject expert on the same day as the lecture/workshop
- Six teleconferencing sessions of 2.5 hours can be offered for some subjects in the programme, but were not offered for this course in 2003

Tutors for the programme are paid a set rate which must cover their preparation time, the time spent in contact sessions and the time spent on assignments.

Assessment comprises two tests and one assignment per semester, with the semester mark accounting for 50 per cent of summative assessment. It also includes a theory exam of three hours in duration (25 per cent of summative assessment) and a practical project (counting for 25 per cent of summative assessment).

Materials are primarily print-based and comprise two textbooks and specially prepared support materials of approximately 50 pages. Students also receive videocassettes produced internally at a relatively nominal cost. Course design time has been estimated at one hour per notional learning hour, with the course curriculum being completely reviewed on a five-year cycle.

The average throughput rate for the course over the past three years is not known at this time. Table 13 summarises the core costing data for this course.

Table 15: Costing case study 7

Cost type	Cost (assuming maximum uptake of learner support) (ZAR)
Lecturing staff (workshops, individual consultations, teleconferencing)	3,600
Assessment (lecturers/moderator/invigilators)	573
Course design	3,059
Administration	5,824
Materials, telephone, travel	46,937
Overheads @ 30%	17,998
Total cost	77,990
Cost per student	2,600
Cost per successful student @ 80%	3,250
Fee income per student	3,694
If student numbers halve:	
Cost per student	3,313
If student numbers double:	
Cost per student	2,295

Table 15 shows that at the current enrolment the course is able to make a small surplus on student fees alone.

Case Study 8

This case study relates to an undergraduate course of approximately 110 notional learning hours, which currently caters for 17 learners. Educational strategies include:

- Independent study of about one hour per week
- Individual consultation amounting to about one hour per student per course
- Presentations/lectures of about two hours per week and involving six students at a time

- Service-learning/field studies support amounting to about one hour per student per week of the 12-week course.

Much of the formal assessment takes place during contact sessions. Assessment comprises an individual exam (30 per cent of summative assessment), group case studies (15 per cent of summative assessment), video case studies (15 per cent of summative assessment), service learning presentations (30 per cent of summative assessment) and class activities (10 per cent of summative assessment).

Materials are primarily print-based and comprise approximately 200 printed pages. Students also receive two 32-minute videos produced internally at a nominal cost. Course design time has been estimated at one hour per notional learning hour, with the curriculum subject to review on an annual basis. Support services are available on-line and by e-mail, but do not appear to be the primary means of learning and teaching for this particular course even though it is advertised as an e-learning course.

The throughput rate for the course in its first year was 94 per cent. Table 16 summarises the core costing data for this course.

Table 16: Costing case study 8

Cost type	Cost (assuming maximum uptake of learner support) (ZAR)
Lecturing staff (workshops and individual consultations)	83,424
Assessment (lecturers/moderator/invigilators)	10,210
Course design	12,100
Administration	13,376
Materials, telephone, travel	3,155
Overheads @ 30%	36,680
Total cost	158,945
Cost per student	9,350
Cost per successful student @ 94%	9,947
Fee income per student	
If student numbers halve:	
Cost per student	16,576
If student numbers double:	
Cost per student	8,576

Course income figures were not provided, but given the level of the course, with the current student enrolment, this course would need to be very heavily subsidised.

Case Study 9

This case study relates to an undergraduate course of approximately 857 notional learning hours which currently caters for 607 learners. Educational strategies include:

- Independent study of about 7.3 hours per week
- Individual consultation amounting to about 15 minutes per student per course
- Fortnightly contact sessions lasting four hours to 45 groups of about 13 students per group
- Workplace visits of two hours per student per course.

Assessment includes minor assignments used for formative feedback purposes only. Summative assessment includes major project-based assignments (50 per cent) and semester exams (50 per cent).

Materials are mixed media and include two textbooks/readers, 1,212 pages of printed materials, a videocassette, and three audiocassettes. Course design time has been estimated at two hours per notional learning hour on a five-year design cycle.

The average throughput rate for the course over the past three years is 85 per cent. Table 17 summarises the core costing data for this course.

Table 17: Costing case study 9

Cost type	Cost (assuming maximum uptake of learner support) (ZAR)
Lecturing staff (workshops and individual consultations)	543,533
Assessment (lecturers/moderator/invigilators)	241,704
Course design	90,792
Administration	210,647
Materials, telephone, travel, postage	954,709
Overheads @ 30%	612,415
Total cost	2,653,800
Cost per student	4,372
Cost per successful student @ 85%	5,143
Fee income per student	4,300
If student numbers halve:	
Cost per student	4,991
If student numbers double:	
Cost per student	3,653

Table 17 indicates that this course, which makes use of a range of media and for which quite extensive face-to-face contact-based support is offered, is close to breaking even in terms of direct operational costs on student fees at the current level of enrolment.

Case Study 10

This case study relates to an undergraduate course of approximately 485 notional learning hours, but is weighted at 600 notional learning hours – the discrepancy in part seems due to an underestimation of independent study time given the intensely classroom-based focus of the materials. The course currently caters for 135 learners (in the particular cohort reviewed, but over 1,000 students on the programme as a whole) and which is part of a four-year programme of study.

Educational strategies include:

- Independent study of about three hours per week
- Small group consultation with academic co-ordinators amounting to about 15 minutes per group of 15 students per course
- Fortnightly contact sessions lasting four hours for small groups of about 10 to 20 students
- Workplace visits, usually requiring a whole day, and especially targeted at at-risk students

Tutor training workshops lasting two to three days are held four times a year either centrally or in regional locations.

Assessment includes written assignments, portfolio evidence and presentations thereof, journals kept by students and tutor records. Assessment is cumulative and negotiated, and involves self-assessment, peer assessment and tutor assessment, with some moderation at regional and central levels. Presentations of portfolio evidence are also moderated by external academics.

Materials are print-based and comprise 320 to 350 pages divided into manageable study modules of about 40 pages. Course design has been a cumulative, organic process and has been estimated at four hours per notional learning hour on a five-year design cycle, but with most of the initial design time weighted towards the first two years of the programme. Only one cohort has completed the fourth year of this four-year programme and the throughput for this cohort for the full programme was 68 per cent. Table 18 summarises the core costing data for this course.

Table 18: Costing case study 10

Cost type	Cost (assuming maximum uptake of learner support (ZAR))
Lecturing staff (workshops and individual consultations)	134,088
Assessment (lecturers/moderator/invigilators)	120,875
Course design	59,234
Administration	151,145
Materials	12,285
Overheads @ 30%	143,288
Total cost	620,914
Cost per student	4,599
Cost per successful student @ 68%	6,763
Fee income per student	
If student numbers halve:	
Cost per student	7,420
If student numbers double:	
Cost per student	3,882

Course income figures have not been supplied. However, for the purposes of illustration, a probable course fee of ZAR 3,000 would imply that the course runs at a deficit with respect to student fees.

Case Study 11

This case study relates to one semester of an undergraduate course for external students. Educational strategies include:

- Independent study (no estimate available)
- Contact sessions (not quantified)
- Evaluation of workplace-based practice.

Summative assessment includes assignments and an exam. Materials comprise eight units of specially designed print materials and eight supporting audiocassettes. Provision is made for review of the course design and materials on a semester basis.

The average throughput rate for the course is not known. Table 19 summarises the core costing data for this course.

Table 19: Costing case study 11

Cost type (per student at the current enrolment)	Cost (assuming maximum uptake of learner support) (ZAR)
Lecturing staff (workshops and individual consultations)	571
Assessment (lecturers/moderator/invigilators)	800
Course design	238
Administration	476
Materials, telephone, travel, postage	905
Overheads	809
Total cost	
Cost per student	3,799
Cost per successful student	
Fee income per student	3,799
If student numbers halve:	The data was not supplied in a form that allowed for scenario planning using the costing database.
Cost per student	
If student numbers double:	
Cost per student	

As indicated in Table 19, student fees are expected to cover the full cost of offering the course.

Case Study 12

This case study relates to a course which forms part of a two-year programme leading to a certificate with a weighting of approximately 427 notional learning hours. It is currently offered to 40 students who include adult educators, community development workers, extension agents, etc. The programme was initially introduced in conjunction with another institution in another country, but now a country-specific course is offered. The course is offered once per year in two centres and lasts for 36 weeks.

Educational strategies include:

- Independent study of about five hours per week
- Individual consultation amounting to about a few minutes per student per week
- Three contact sessions in two centres, comprising a total of 72 hours of contact time

Summative assessment includes assignments (60 per cent) and an exam (40 per cent). Materials comprise 453 pages of specially designed print materials. Course design time has been estimated at five hours per notional learning hour on a five-year design cycle.

The average throughput rate for the course is 65 per cent. Table 20 summarises the core costing data for this course.

Table 20: Costing case study 12

Cost type	Cost (assuming maximum uptake of learner support) (ZAR)
Lecturing staff (workshops and individual consultations)	10,800
Assessment (lecturers/moderator/invigilators)	6,460
Course design	32,025
Administration	9,296
Materials, telephone, travel, postage	2,187
Overheads @ 30%	18,230
Total cost	78,998
Cost per student	1,975
Cost per successful student @ 65%	3,308
Fee income per student	750
If student numbers halve:	
Cost per student	3,567
If student numbers double:	
Cost per student	1,452

As indicated Table 20, this course offers a relatively high level of contact support at 16.5% of notional learning time, and the current enrolment is too low for the course to benefit from economies of scale. As a consequence, the course runs at a deficit with respect to income from student fees.

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