DESIGN CONSIDERATIONS IN THE DEVELOPMENT OF A NEW ACADEMIC PROGRAMME STRUCTURE

Ansu Erasmus

1. INTRODUCTION

This paper discusses the merging of higher education institutions in South Africa, but also covers some generic design considerations. There are additional considerations for merged institutions because of the merging partners’ different approaches, philosophies and culture, which must be accommodated when designing a new programme structure. It discusses in particular some of the experiences of the Tshwane University of Technology (TUT), the result of a merger between three former technikons (Technikon Northern Gauteng, Technikon North West and Technikon Pretoria). The vision, mission and philosophy of these merging institutions differed sufficiently to create a number of challenges during the process of designing a new programme structure for the TUT.

The national documents that influenced and advocated for mergers provide a host of guidelines, but are silent on how the programmes should be structured after the mergers (Mfusi, 2004: 109). And yet the vehicle for achieving higher education transformation goals is the academic programme. Jansen (2004: 5) observes that ‘the curriculum is often treated as secondary to the larger financial and organisational alterations resulting from mergers’ and ‘…there are few (if any) systematic studies on the curriculum effects of merging two or more higher education institutions’. This paper discusses design considerations in developing a new programme structure for merged institutions from two perspectives: broadly conceptual (Section 2) and institutional (Section 3).

Although academic programme restructuring must of necessity be positioned in the international and national higher education context, this paper refers explicitly to such legislative and policy directives only when these have particular relevance to the discussion.

2. CONCEPTUAL FRAMEWORK

2.1 Defining the concepts

This section unpacks the academic programme design terminology used in this paper, so as to ensure a common understanding.

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Definitions of *curriculum* range from narrow interpretations to broad, all-encompassing statements which include almost every aspect of the full education system (SAQA, 2000: 5). According to Gravett & Geyser (2004: 147), the term ‘refers to the entire range of educational practices or learning experiences: it could mean the total provision of a particular institution, it could also refer to a programme, as well as to a module or a single lecture or learning experience’. In essence, a curriculum provides a systematic plan for teaching and learning to achieve specified learning outcomes.

*Curriculum design* is a basic frame of reference or template for planning a curriculum which enables the organisation of its components or elements, noting the relationships that exist among its components. The term refers to ‘the way we conceptualise the curriculum and arrange its major components (subject matter or content, instructional methods and materials, learner experiences or activities) to provide direction and guidance as we develop the curriculum’ (Ornstein & Hunkins, 2004: 16).

The term *curriculum development* refers to the technical aspects of curriculum, i.e. ‘how curriculum evolves or is planned, implemented, evaluated, as well as what various people, processes and procedures are involved in constructing the curriculum’ (Ornstein & Hunkins, 2004: 16).

A *programme* is a purposeful and structured set of learning experiences that leads to a qualification (CHE, 2004a: 25). It is a package consisting of a curriculum, learning resources, academic expertise and administrative support. In discussing academic programme restructuring, this paper considers this total package.

A *qualification* is the formal recognition and certification of learning achievement awarded by an accredited institution.

### 2.2 Curriculum organisation

Curriculum is organised in two ways, horizontal and vertical. These are not mutually exclusive: there is a continuum running from the one to the other. *Horizontal* organisation emphasises scope and integration and side-by-side arrangement of curriculum elements (Ornstein & Hunkins, 2004: 240). It takes a programmes based approach and is used particularly by universities of technology (UoTs). *Vertical* organisation, on the other hand, emphasises sequence and continuity and longitudinal placement of curriculum elements (i.e. a spiral curriculum) and is typically used by discipline based traditional universities.

In the new institutions (comprehensive universities) that have resulted from the merging of a university of technology with a traditional university, the organisational design element is particularly significant for the articulation between the two types of programmes. In mergers of former technikons, however, the challenge is to agree on a position on the continuum for the programme designs in the new institution. In the case of the TUT, two years after the merger, academics are still debating the most appropriate design. Compounding the problem is the failure of some academics to understand the
need to align future programmes with the institution’s mission statement and, more importantly, with the proposed HEQF (Higher Education Qualifications Framework – DoE, 2004b).

The next section discusses several important curriculum design dimensions.

### 2.3 Curriculum design dimensions

In addition to the organisational elements of curriculum design, Ornstein and Hunkins (2004: 241–5) identify six design dimensions:

- **Scope:** the breadth and depth of content, topics, learning experiences and cognitive and affective learning (horizontal organisation of curriculum elements).

- **Sequence:** cumulative and continuous learning (vertical organisation of curriculum elements).

- **Continuity:** the vertical manipulation or repetition of curriculum components, as in a spiral curriculum.

- **Integration:** the linking of all types of knowledge and experiences contained in the curriculum in an integrated manner.

- **Articulation:** the interrelatedness of various aspects of the curriculum vertically and horizontally.

- **Balance:** the appropriate weight given to each aspect of the curriculum design.

Other dimensions can be added, depending on an overarching (national) educational philosophy and the particular educational approach that an institution/faculty/department chooses to adopt. In an outcomes based education (OBE) paradigm, for instance, a critical dimension is curriculum *alignment*. This is the principle of ensuring that the purpose of a programme (or module) is supported by the content selection, learning outcomes, teaching–learning methods and assessment practices used to deliver it (CHE, 2004b: 50).

The TUT supports an OBE approach to academic programme design, as is evident in its Institutional Operating Plan (IOP) and curriculum development policy. The Teaching, Learning and Technology strategy for the TUT that is currently being developed will also place a strong emphasis on the philosophy and principles of OBE.

Most curriculum designs are modifications or interpretations of three basic curriculum designs. The *subject centred* curriculum focuses on knowledge and content but may result in student passivity. A *learner centred* curriculum focuses on students’ lives, needs
and interests and is intended to result in active learning. A *problem centred* curriculum
draws on their social problems and needs, interests and abilities and therefore is intended
to result in lifelong learning. The OBE approach is learner centred, but could include
dimensions of a problem centred curriculum.

2.4 Design considerations in a learner centred curriculum

Learner centred education is a matter of emphasis and philosophy, rather than a choice
amongst alternatives. In the South African higher education context, OBE as an
educational philosophy is entrenched in the legislation and national policies that frame
the educational landscape. It is based on notions of constructivist learning which imply
that learning is situated in the real world, that there is active interaction between the
learner and the content, and that meaning is constructed by the learner on the basis of
previous learning.

In a learner centred curriculum it is critical that:

- clear learning outcomes are communicated to students;
- students take responsibility for their own learning and become independent
  learners, while lecturers’ facilitative role is emphasised;
- suitable print and/or electronic learning materials support learning;
- learning is integrated with assessment, which should be continuous and
  formative;
- the curriculum caters for diversity, i.e. it includes adult students, mature
  students and part-time students;
- alternative modes of delivery and student learning styles are accommodated;
  and
- the proportion of learning time (individually and in groups) is increased and
  teaching time is decreased.

2.5 Structure of curricula

There are two main types of curriculum structure, a disciplinary structure and a structure
based on credit accumulation and transfer (CAT). According to Ensor (2002, Chapter 8),
a disciplinary structure is characterised by an emphasis on disciplinary content, mastery
of conceptual structures and modes of analysis, argument, critique and knowledge
production, sequential learning, vertical coherence and apprenticeship of students into
specialised domains of knowledge, whereas a curriculum structure based on credit
accumulation and transfer is characterised by interdisciplinary organisation, portability of outcomes, multiple entry and exit points, and horizontal articulation, and includes shifts from courses to credits, from year-long courses to modules, and from departments to programmes. Table 1 shows the main differences between the disciplinary and the CAT structures.

**Table 1: Structure of curricula**

<table>
<thead>
<tr>
<th>Disciplinary structure</th>
<th>Credit accumulation &amp; transfer</th>
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<tr>
<td>• Apprenticeship into powerful ways of knowing: modes of analysis, critique and knowledge production.</td>
<td>• Producing highly skilled graduates for the workplace.</td>
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<tr>
<td>• Emphasis: mastery of conceptual structures and modes of argument.</td>
<td>• Modularisation of the curriculum and description of modules in terms of outcomes that can be matched and exchanged as part of accumulating credit towards academic qualifications (NQF function = clearing house).</td>
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<tr>
<td>• Rules for selecting curriculum content and evaluation reside in hands of academics.</td>
<td>• Shift from:</td>
</tr>
<tr>
<td>• Emphasis on disciplinary content.</td>
<td>o Courses to credits</td>
</tr>
<tr>
<td>• Discipline based undergraduate curricula.</td>
<td>o Year-long courses to modules</td>
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<td>• Formative education at both school and university level – apprenticeship of students into specialised domains of knowledge.</td>
<td>o Departments to programmes</td>
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<td>• Sequential learning.</td>
<td>o Subject based teaching to student based learning</td>
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<td>• Vertical coherence.</td>
<td>• Academic’s role is facilitative rather than expert.</td>
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*Source: Ensor, 2002, Chapter 8.*

In a merged institution it is critical to debate where the institution will place its emphasis and strategic thrust with regard to these two curriculum structures. The proposed HEQF (DoE, 2004b) provides opportunities for all higher education institutions to offer programme types characterised by either a disciplinary structure or CAT, or both. The
institution’s choice of programme model will have implications for the articulation of programmes between these two curriculum structures.

2.6 Implications of a programmes based approach for curriculum design

In response to international practice and recent national policy, the Higher Education Quality Committee (HEQC) has designed its quality assurance system using the institution and the programme as units of evaluation. Curriculum restructuring in South Africa has been shaped by the implementation of the National Qualifications Framework (NQF), which is premised on the implementation of outcomes based education (OBE). The HEQC operates within the NQF, therefore institutions that aim to meet the HEQC’s audit and accreditation criteria need to adopt a programmes based approach to curriculum design.

The implications for a programmes based approach in terms of curriculum design are far-reaching and include the following (CHE, 2004b: 36–8):

- Programme teams, led by a programme director, coordinator or convenor, need to plan, design and review programmes.

- The management information systems (MIS) that support institutional planning need to accommodate qualifications, programmes and courses/modules.

- The HEQC accredits programmes, it does not accredit an institution, faculty or department, therefore the institutional quality management subsystems need to focus on programmes as the unit of analysis.

- Courses/modules need to be designed and reviewed as components of programmes and not as isolated units.

- The HEQC’s programme accreditation requires that programmes conform to the general qualification standards indicated in the draft HEQF document in terms of level descriptors, qualification type descriptors and generic qualification standards.

- Curriculum alignment is a key principle underpinning a constructivist approach to curriculum design (such as curricula designed in an OBE format), therefore there needs to be alignment between the learning outcomes and the assessment of learning, as well as the content and teaching and learning activities to be used to achieve the learning outcomes.
2.7 Core features of an academic programme

The CHE Annual Report (2000/2001: 46) identifies the criteria of an academic programme as follows:

- Programmes would be *interdisciplinary* by comprising a compulsory core with foundational elements and electives.
- Programmes need to be *relevant and responsive* by addressing the needs of the economy and civil society.
- Institutions should become more *efficient* by developing niche areas around strong programmes, to avoid unnecessary duplication and promote quality.
- Programmes should promote *portability* between institutions and provide credit accumulation towards a qualification over time.
- Programmes should be carefully planned to relate aspects of the programme meaningfully in a *coherent* manner.

Academic programme restructuring will, therefore, need to meet the abovementioned criteria, in addition to the other design considerations already discussed. After having dealt with the broad conceptual considerations of curriculum design, attention should shift to more specific (institutional) considerations.

3. INSTITUTIONAL CONSIDERATIONS IN CURRICULUM DESIGN

In the design of a new academic programme structure in merged institutions, the institutional considerations could be categorised as institutional policy, structure, operation and administration. The institution’s vision, mission and strategic goals need to drive decisions about its programme structure, and its enrolment planning and Programme and Qualification Mix (PQM) need to address its size and shape generally. Academic planning (i.e. planning, designing, approval and resourcing of programmes, modules and qualifications) is crucial for determining the most appropriate academic programme structure for the particular institution.

There needs to be a strong link between the institution’s academic programme structure and its transformational goals (CTM, 2001: 3–16). For example, if inclusivity and opportunity are the goals, then the structure should include programmes which will achieve such goals and promote the institution’s comparative advantage in the region, taking into account regional collaboration and possible rationalisation of programmes. Should the institution’s mission statement emphasise entrepreneurship (which is the case at the TUT), then this should be a component of the programme structure. Curricula should be reorganised around identified growth areas for the institution. The programme
structure needs to provide customised learning pathways which will accommodate student diversity, taking into account mature, part-time or non-traditional students. To accommodate these diverse student groups, the institution needs to consider alternative admission policies, flexible assessment methods (including recognition of prior learning) and an extension of the academic calendar (for example a trimester system). Any changes to the academic programme structure of course inevitably put pressure on the academic administrative system and increase the need for staff development.

An important consideration is the institution’s level of commitment to NQF implementation. The NQF is a tool and a set of guiding concepts for developing academic programmes, while the South African Qualifications Authority (SAQA) provides a template for submitting qualifications in an OBE format. Institutions need to have policies, processes and procedures in place which will conform to these requirements, but these will need to be driven by institutional management who are committed to implementing the NQF.

Another important consideration is whether the institution will be able to sustain the academic programmes by virtue of their ability to attract students, generate income and provide pathways for students to the job market, and at the same time ensure the academic coherence and integrity of the programmes.

Jansen (2004: 11, 16) warns that power differences in merging partners play a determining role in restructuring curricula, as curriculum integration depends on perceived hierarchies of status and authority, and thus of micro political struggles over whose content matters. Once the broad conceptual considerations and more specific institutional considerations are understood by all stakeholders, attention can be given to possible programme models.

4. PROGRAMME MODELS

A primary challenge for merged institutions is to establish a new programme profile in line with the new institutional mission whilst also creating a unique institutional identity in the higher education landscape. The development of appropriate programme models should largely be dictated by the way knowledge is organised in the curricula of academic programmes. The higher education sector responded to the Council on Higher Education’s proposals for a new academic policy by supporting a single, horizontal continuum of academic programmes ranging from narrowly vocational at the one extreme, through professional and career focused, to general informative at the other end. This implies that programme models in merged institutions may reflect programme configurations composed of different types of programmes on the continuum referred to above. The draft HEQF (DoE, 2004b) describes qualification types that are differentiated not on the basis of institutional provisioning but on their purpose. The professional and career oriented programmes characteristic of universities of technology may therefore combine both mastery of fundamental concepts and theoretical understanding and
application of theory in practical contexts within the confines of the qualification type descriptors of the HEQF.

Gibbon (DoE, 2004a: 28–32) discusses a number of programme models and corresponding organisational forms specifically designed for comprehensive universities. These models are also useful for framing new programme structures in merged universities of technology, as they provide possibilities for articulation from diplomas to other qualification types. Since the majority of current qualifications at universities of technology are at the diploma level, merged UoTs need to design programme models that will allow diplomas to articulate with other qualification types, either within the same programme cluster or within related programme clusters in a future HEQF.

According to Gibbon (DoE, 2004a: 28–32), there are two main categories of programme models and corresponding organisational forms: separate programme tracks with articulation, and partially integrated programmes. The separate track, stand-alone programmes (Figure 1) would be a good option in cases where there is little or no correspondence between programmes. These programmes would run parallel to each other, with the possibility of some rationalisation of duplicated programmes. In the case of universities of technology, depending on the careers that are available for specific programmes, a diploma with lower entry requirements and a lower exit point may run parallel to a professional bachelor’s degree with higher entry requirements and a first exit point after at least three levels of study. Articulation options need to be designed for students requiring a career pathway after obtaining a diploma. However, critical disadvantages of this model are the human resource implications and the infrastructural and administrative implications of running programmes in parallel.

**Figure 1: Separate tracks (DoE, 2004a)**
Partially integrated programmes such as the consecutive or extended track model (Figure 2) provide opportunities for students to enter at a lower level than is required for degree studies and follow a common curriculum up to an exit point leading to a career focused qualification that is below the level of a degree. Students may then choose an extended part of the curriculum, which would lead to the award of a degree. The extended part of the track is specifically designed to take the student from the level of the applied qualification attained in the first part of the curriculum through to degree level work. This model may be appropriate for UoTs as it also allows students who demonstrate a capacity for degree studies to continue towards a degree.

**Figure 2: Extended track model (DoE, 2004a)**

The ‘Y’ or alternative track model (Figure 3) allows students to enter at a lower level than for degree studies, complete a common curriculum of shorter duration than in the extended model, and then select a track which takes them in either a more applied or a more theoretical direction. At the point where the programme splits into alternative tracks, it might be necessary to set specific achievement levels for acceptance into the degree track.
In the inverted ‘Y’ model (Figure 4), different entry requirements are set for parallel applied and theoretical tracks, which then fuse into a common curriculum at a higher level. Students in the applied track would need to acquire the theoretical and conceptual tools needed for higher level study, probably being required to take extra courses and meet specific achievement levels. This model has the distinct advantage of enhancing access by offering different entry levels to programmes while still providing the route for progression into degree studies.

Figure 4: The Inverted ‘Y’ model (DoE, 2004a)
The shared stem model (Figure 5) focuses on rationalising some of the components of similar programmes without moving to a completely common curriculum at any level. Students from an applied programme and students from a more theoretical programme might attend some courses in common where there is strong curriculum overlap. The programmes will have different entry and exit levels.

**Figure 5: Shared stem model (DoE, 2004a)**

5. **THE PROPOSED HIGHER EDUCATION QUALIFICATION FRAMEWORK: PROGRAMME DESIGN IMPLICATIONS FOR HIGHER EDUCATION INSTITUTIONS**

The draft HEQF made far-reaching proposals for a qualifications framework for South Africa, which would affect institutional decisions about a programme structure. The absence of the finalisation of the HEQF has left higher education in a curriculum review vacuum, as institutions cannot predict the complexities of the new HEQF. Institutions have therefore opted to base their decisions on the proposals contained in the draft HEQF, or avoided making decisions about programme structures pending the finalisation of the HEQF.

The TUT has chosen to continue with institutional planning based on our current understanding of the draft HEQF (see Figure 6).
The TUT’s interpretation of the HEQF is that the framework provides opportunities for all higher education institutions in South Africa to design programmes based on any of the qualification types described in the document. For the TUT’s programmes to be accommodated in the new HEQF, we will need a major academic programme overhaul to benefit from the new configuration. There are, however, a number of crucial difficulties yet to be clarified that hinder the curriculum processes at the TUT:

- The placement of a 360-credit diploma at Level 6. The universities of technology see their current diplomas as being pitched at Level 7, and therefore this proposal seems to ‘degrade’ diplomas to a lower NQF level.

- The lack of direct articulation between diplomas and postgraduate qualifications. The HEQF proposals imply that a student with a diploma will need to achieve a Bachelor’s degree or a Professional Bachelor’s degree before admission to a postgraduate qualification.
• The status of the current BTech, MTech and DTech qualifications, and transitional arrangements for phasing out these qualifications. According to the HEQF, these qualification types will no longer exist.

• The placement of the 480-credit Professional Bachelor’s degree at Level 7. As the requirement for this qualification is at least 96 credits at Level 8, the institution questions why it should not be pitched at Level 8.

• The financial implications of the weighting factor for teaching outputs, if the diploma remains at Level 6, and the Professional Bachelor’s degree at Level 7.

6. CONCLUSION

The design considerations for academic programme structures in merged institutions are varied and complex. These institutions need not only to consider the overarching international higher education trends, the national legislative and policy context, and the conceptual complexities, but also to be highly sensitive to the institutional philosophy, vision, mission, strategic goals and objectives of the new institution. A variety of academic programme model options exist which need to be debated given the current uncertainty about the HEQF. The higher education environment, and particularly the difficult environments created by mergers, are challenging higher education institutions to be innovative in their quest to design academic programme structures that most appropriately reflect their commitment to higher education transformation goals.

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