ASSESSMENT STRATEGIES FOR WORK-INTEGRATED LEARNING AT HIGHER EDUCATION INSTITUTIONS

- Relevance
- Quality
- Capacity

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Date: September 2004
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Assessment Strategies based on Quality, Relevance and Capacity in Work-Integrated Curriculum Development at Higher Education Institutions

Introduction

The policy and legislative commitment of the South African Government as evidenced by the Education White Paper 3 of 1997, the National Plan for Higher Education 2001 and the establishment of the Higher Education Quality Committee (HEQC) have articulated the purpose of higher education to meeting the learning needs and aspirations of individuals. This would include the higher level knowledge and skills needs for growth and prosperity through economic development. Prosperity would also encompass learning interventions to support social and development societal needs, toward improved active citizenship.

There have been repeated calls for Higher Education to be more responsive, accountable, relevant and accessible. This implies a possible disjuncture between policy objectives and the ability of Higher Education Institutions to deliver on their mandate. Discussion documents and debates on a Human Resource Development Strategy, along with the South African Qualification (SAQA) Act (1995) and the Skills Development Act (1998), creates opportunities to focus on work-integrated learning as a Co-operative Education model for applied learning.

Higher Education Institutions (HEI’s) in line with the objectives of the National Qualification Framework (NQF) and the principles embedded in an outcomes-based (OBET) approach to teaching and learning have an obligation to review curriculum development and implementation strategies. This is to ensure that the integration of academic and work-based learning, provides a model, in preparing graduates for the world of work.

Relevance

Technikons have since their inception about 25 years ago been on a development and growth trajectory to be career focussed in their vision and mission. As HE and particularly UoT and CU’s we need to expand on many of the positive distinctive features of Technikons. These would include:

1. Links with Industry
2. Research (Applied)
3. Entrepreneurship
4. Co-operative Education
5. Innovation and Commercialization
6. Science and Technology Transfer
7. Quality Service Delivery
8. Community Outreach

The above all speak of a renewed and ongoing understanding of responsiveness to economic and social development needs. This responsiveness, is to have an appreciation of the changing requirements of knowledge, skills and competencies in the world of work and the implications and their application in Higher Education. This would also embrace a more overarching focus on societal goals and a critical citizenry that recognizes and engages with a range of key stakeholders from Government, labour, the private sector, social and community partnership.
Curriculum Development

Curriculum development that incorporates a work-based or work-integrated prescribed learning outcome should be informed by and curriculated in partnership with commerce and industry. The decision to prescribe a block of experiential learning time in industry should be informed by the assessment criteria of the structured learning outcome components.

Work-integrated learning must be understood to be a learning and development experience that focuses on the student needs. The experiential learning in the workplace must be carefully planned to accommodate the particular workplace environment and its integration with the academic learning at the institution. To effectively manage the learning process, in preparation for and during the experiential learning, needs to enjoy similar priority in terms of infrastructure and resource allocation as is the case for the academic learning environment. The following diagram serves to highlight some of the aspects that contribute to a supportive learning environment.

An outcomes-based approach, in line with NQF, is the ideal mechanism to structure learning experiences for students. These learning areas are:

- **Orientation** (Work-prepared skills programmes)
- **The Placement** learning process
- **Structured workplace** learning and assessment

Outcomes-Based (OBET) Education and Training in a National Qualifications Framework (NQF)

The NQF arose out of a need for an integrated approach to education and training. The fundamental need was for articulation between education and training which positioned and recognized all education and training in a national framework.

This approach supported career paths that included the recognition of prior learning (RPL), different combinations of education and training, as the basis for progression through recognized levels and across educational bands.
The 10 levels of the NQF are structured to reflect increasing complexity for learning performance and competence, in relation to skills, knowledge, problem solving analysis and accountability, within a wide range of contexts and disciplines.

The outcomes-based approach places the primary focus and emphasis on the outcomes of learning and a move away from traditional content driven objectives. The result is a student centred approach that encourages self-confidence, reflections on learning and the enhancement of critical outcomes (soft skills) as a direct link to the successful integration and application of contextual or discipline specific learning.

The implications of OBET for curriculum development creates opportunities for recurruculation that should promote new paradigms and approaches to teaching and learning, assessment and service delivery facilitation. The role of the lecturer changes from provider of knowledge content, to manager of the learning process. This facilitation starts with the whole qualification exit level outcomes and the associated assessment criteria. These outcomes cascade down to smaller enabling or sub-outcomes, each with their own assessment criteria that could be evolved down to a unit standard as the smallest unit of learning. Academic credit allocation now relates to notional hours of learning and such accumulation of credits can be clustered into flexible modules, for ease of progression and articulation.

The most positive aspect of OBE for work-integrated experiential learning is that specific outcomes within the qualification can be identified which could best be achieved in the workplace. The accumulation of these specific outcomes along with the associated credits and notional hours should inform structured learning programs and timeframes for experiential learning. At the same time level descriptors, as currency for staged levels of complexity can be infused into critical cross-field benchmarks, as the basis for generic assessment criteria in any programme discipline.

The above scenario presents many challenges and opportunities, but can only be realized if supported by adequate funding and dedicated resources for curriculum development, while the core business activities of teaching and learning has to be maintained.

**Quality Assurance**

The integrity of the NQF is achieved through the auditing and review of quality learning provision. Quality Assurance of service and programme delivery represents an ongoing cycle of continual growth and development. Quality should be viewed as a transformative process of implementation, accountability and the pursuit of excellence. A clear understanding of quality definition should underpin approaches to quality delivery mechanisms. The following distinctions should be noted:

- Quality Management System: A combination of processes to ensure that the degree of excellence specified, is achieved.
- Quality Assurance: The sum of activities / elements that assure the quality of products and services.
- Quality Audit: Activities undertaken to measure the quality of products and services.
- Quality Control: Undertaken by the persons who make the product or deliver the service.
Given that the establishment of the NQF is aimed at transformation at the level of programme delivery, it becomes necessary for HEI’s to demonstrate programme delivery in line with NQF principles. To this end the following questions specifically relate to work-integrated experiential learning and form part of the Co-operative Education partnership model:

- What are the learning components (modules) that make up the programme?
- How is learner-centeredness ensured in the delivery?
- How are learners given feedback on their performance?
- Does the programme outcomes ensure that the learner is able to integrate the knowledge theory through work-based provider linkages?

Co-operative Education provides an overarching framework for learning integration between HEI’s and work-based learning as illustrated in Figure 4.

Co-operative Education is an integrated model consisting of:

- An Academic Learning Component
  - Theoretical Studies
  - Laboratory Work
  - Evaluated Tests/Assignments/Projects/Exams

- An Experiential Learning Component
  - Structural Learning
  - Instructional Experiences
  - Evaluated Reports/Projects/Assignments/Orals

**O U T C O M E S**
- knowledge
- skills
- attitudes

*Figure 4*

It is generally recognized that academic learning at the institution is planned, resourced and structured to ensure an environment that supports the student experience of learning. Examples would include orientation, subject syllabi guidelines, assessment methods, timetables, lecture and teaching methodology, support intervention for access, bridging programmes, libraries, laboratories, tutorship and extended programmes.

As the workplace is not a learning institution, but rather a place for productivity and profit, it stands to reason that for work-based learning to be successful the obligation would rest on the HEI to ensure that similar emphasis is placed on ensuring processes that track the student’s development, learning and transition from the HEI into the workplace, until the return to the institution at the end of the experiential period.
Best Practise

Best practise refers to the operational implementation of core elements that, linked together, will ensure that the experiential learning experience of the student becomes a total experience that enhances development. Best practise therefore recognizes the didactic as well as the educational management of the entire experiential learning experience. These operational elements are illustrated as follows:

ELEMENTS OF THE EXPERIENTIAL LEARNING CYCLE

1. ORIENTATION OF STUDENT
   Explain concepts / Outline objectives / Work preparedness skills

2. POLICY & GROUND RULES
   Formally sets out the procedures and policy during orientation

3. LEARNING PROGRAMMES
   Identifies learning and outcomes, competencies and evaluation methods

4. PLACEMENT
   - Available Workstations
   - Students Apply
   - Shortlisting / Interviews

5. REGISTRATION
   Records eligibility and start of experiential learning in industry

6. VISITATION/MONITORING
   - Monitor work environment
   - Learning progress
   - Interim Assessment

7. ASSESSMENT OF LEARNING
   - Submit reports
   - Oral sessions
   - Projects / Assignments

8. STUDENT FEEDBACK
   - Comment on experience
   - Highlight benefits
   - Recommendations

9. INDUSTRY FEEDBACK
   - Student performance
   - Training relevance
   - Recommendations

10. OUTPUT
    - Student success
    - Co-op. stats and trends
    - Review for improvement

Figure 5

Each operational element as a contributor to student learning could then be examined in detail to define best practise parameters as a minimum standard benchmark for regular review and improvement. Each aspect has its own learning outcome and added value to the student learning and experience. The best practise and outcomes are defined in sequence as follows:

(a) Orientation: Work Preparedness and Life Skills Programme

Students receive instruction to prepare them for the world of work. Policy and ground rules clarify roles and the obligations of the students, HEI’s and industry in the co-operative education partnership.

Students acquire job-seeking skills such as CV writing, application procedures, interview and presentation skills. Other life skills such as time management, team building and communication are also introduced.

A work-preparedness skills programme CANNOT be achieved by gathering students in a hall for 1 hour. Students have to be prepared for the workplace over a period of time.
OBE gives us the opportunity to identify specific learning outcomes and assessment criteria that will generate activities and tasks which will allow the student to demonstrate knowledge and competence across a range of learning areas that will prepare them to apply the generic critical skills in preparation for the world-of-work. This learning process should attract notional hour credits when done correctly.

(b) **The Placement Process**

The HEI markets and promotes Co-operative Education to commerce, industry and government and secures accredited workstation placement opportunities. Learners are introduced to a range of companies and have to apply and secure their own placements. HEI’s facilitate the application and interview process as required and students are selected by the companies after short-listing and interview processes.

Placement is NOT an administrative exercise of allocating students to companies. It must be understood to be a learning experience for the students where they have to acquire knowledge, skills and competencies to prepare for and secure their own placement as an outcome of the placement learning experience. This placement learning process therefore also has specific outcomes and assessment criteria along with credits to measure success. They have to meet minimum criteria and then have to apply and experience the shortlisting and interview process, which should lead to the successful outcome of securing a placement. Mock interviews are part of the learning which must be assessed formatively.

The acquisition of industry support to participate in the programme, requirements resources which must not be underestimated. The often-heard remark of “insufficient availability of workstations” is more often than not the inability of institutions to provide sufficient and competent staff to market and negotiate good quality workstations to meet the learning needs of the programme. Once the company agrees to participate you need competent staff to facilitate the placement learning experience of the student into industry.

(c) **Learning Programme**

Learning criteria and specific outcomes are documented to give guidance to the student and mentors on the work-based training and learning areas for the specific disciplines. Students are guided on how the work learning experiences should be integrated and recorded. Assessment criteria and evaluation timeframes are documented and clarified.

The structured learning begins to unfold once the student has been placed. Although the learning programme and obligation are clarified during orientations, the student has to be supported once in the learning environment. The relationship between workplace supervisor / mentor has to be monitored by Technikon staff. Problems associated with interpretations of learning programme, student and industry expectations, actual workstation conditions need to be supported so that valuable time is not lost or moral dampened which could negatively impact on the learning progress.

(d) **Visitation and Monitoring**

HEI staff visit students to ensure that their learning experience meets the expectations of all parties. The students, mentors and academic staff meet to discuss progress. Logbook entries, presentations or any other agreed evidence portfolios or artefacts may be used to assess student progress.
Visits to students at the workplace are planned timeously and by appointment. Frequency of visits will depend on geographical location, costs and related factors.

(e) Assessment
Interim and continuous assessment occurs throughout the experiential learning period. Assessment and evaluation performed by mentors, technikon staff or external examiners. Logbooks, assignment reports, projects, presentations or any other agreed evidence portfolios may be used to assess and evaluate student learning. Marks, credits or records of OBE competence may be used to reflect student success and learning outcomes. Structured and recorded feedback by students and employers in industry can serve as a quality assurance tool for review and improvement.

Best Practise in the context of the student learning and development now takes on a process logic with learning outcomes for each of the above categories. Each learning area can now be unpacked, defined using the quality template of input, process and output for each learning element (Figure 6). In an outcome-based curriculum, learning outcomes and assessment criteria for each element above will have to relate to the nature of the knowledge, skills and competencies for the progressive development of the student as they move through the experiential work-based experience.

Each element then has its own resource demands and accountability for outputs. This approach can now meaningfully address funding provision linked to specific learning outcomes.

Assessment
Assessment is fundamental to the design of any curriculum. Assessment is a process of collecting and interpreting evidence, in order to make judgements on the outcomes of predetermined processes or procedures in a system, towards achieving defined goals or objectives. Evidence can be generated and collected at different times and places with the use of various methods, instruments, modes and even media.

A significant point of departure in presenting notions of assessment in this paper is the inter-relationship between the parallel processes of:

1. Work-integrated assessment of the learner performance
2. Quality Assurance in the Educational Management of the work-based learning operations and service delivery environment.

The outcome of the above assessment strategies will be dependent on the many stakeholders who have an interest and involvement in the successful performance of the student. These would include the students themselves, parents, sponsors, employers, mentors, supervisors and lecturers.

The Higher Education Quality Committee (HEQC) of the Council for Higher Education in South Africa (CHE) has statutory responsibility to conduct assessment audits as indicated in the Higher Education Act of 1997.
The nature of such assessment does not seek to measure actual quality of outputs in relation to teaching and learning performance but rather to:

- Establish the nature and extent of the quality management systems in place; what policies, systems, available resources, strategies and targets exist for the development and enhancement of quality.
- Evaluate the effectiveness of such systems on the basis of evidence produced by the institution that will provide indicators of success and effectiveness.

When work-integrated learning forms part of and integral to the exit level outcomes of the qualification, then it is incumbent on the HEI to ensure that the assessment and evaluation of the student’s learning experience is managed and measured with the same rigour and credits that apply to the theoretical component of the curriculum.

It is common cause that work-based learning is very often not well structured or meaningfully integrated into the curriculum. The quality and quantity of workplace provision is at times inadequate and the opportunities for maximizing student learning and development is compromised. This has serious and negative implications for funding provision.

**The Quality Cycle Approach**

The HEQC proposes to use the quality cycle approach to quality management as an assessment paradigm for audits and for the formulation of audit criteria.

It could be argued that the elements that make up this model could be used as key performance indicators for a management framework at the level of student performance and institutional management compliance of the work-based learning support environment. Broadly these activities would be:

<table>
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<tr>
<th>Quality Management Framework</th>
<th>Learner Performance</th>
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<tr>
<td>• Policy Development</td>
<td>• Planning for Learning Outcomes</td>
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<tr>
<td>• Implementation</td>
<td>- Preparation</td>
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<tr>
<td>• Evaluation / Review</td>
<td>- Placement</td>
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<tr>
<td>• Improvement</td>
<td>- Curriculum</td>
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<tr>
<td></td>
<td>• Implementation</td>
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<td></td>
<td>- Monitor / Visitation</td>
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<td>- Assessment Feedback</td>
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<td></td>
<td>- Curriculum</td>
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<tr>
<td></td>
<td>• Evaluation / Review</td>
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<td>- Student Success</td>
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<td>- Satisfaction Surveys</td>
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In this context the approach would be to ensure that the documented evidence of the entire operational and learning outcome chain is organized. Operational and networking procedures have to be agreed upon to ensure daily delivery. Communication networks between students, the academic staff and industry mentors have to be structured not only in terms of frequency but more significantly in terms of outputs of evidence, decision making and problem identification, formative assessment interventions and referral strategies for added value improvement.
The following diagram illustrates how the system generates built-in accountability measures.

![Diagram](Figure 6)

**Work-based Learning Criteria, Student Assessment and Success**

In the Audit Framework, the HEQC has identified teaching and learning as the critical focus area for its quality related activities. In this regard two activity areas have been targeted as a priority as follows:

1. Programme development and review
2. Student assessment and success

The HEQC believes that systematic institutional attention to work-integrated learning validated by the audit process, would cover a number of critical learning dimensions not adequately addressed in the past.

Within an audit context, the nature and arrangements for institutional planning, design and management of academic programmes are important indicators of the effectiveness of educational provision. Effective procedures in this area could ensure that programmes meet the needs of students and other stakeholders, are intellectually credible, and enable ongoing improvement in design and delivery. The same applies to professional and work-based learning in vocational programmes, where the monitoring of teaching and learning arrangements in the workplace is critical to ensuring the credibility of qualifications. The effectiveness of institutional programme management is also an important consideration, amongst others, in the eventual awarding of self-accreditation status to institutions by the HEQC.

Student assessment and success is a central indicator of teaching and learning effectiveness. The transformation goals of widening access, improving retention and throughput rates and producing graduates with appropriate knowledge and skills, can be supported and directed by an effective assessment system.
Although the curriculum may target skills, knowledge and attitudes appropriate to the goals of social and economic transformation, if assessment procedures fail to prioritise and test these competences, students are unlikely to acquire the intended learning outcomes. Finally, assessment has a critical influence on the quality of teaching and learning and can be used as a powerful point of leverage for change and improvement in education.

The HEQC has formulated a number of criteria for programme development and review in the case of work-integrated and work-based learning. These include criterion statements and are indicated below.

<table>
<thead>
<tr>
<th>Criterion 1</th>
<th>Sub-Area: Characteristics and needs of professional and vocational education</th>
<th>Criterion: The characteristics and requirements of professional and vocational education are accounted for in the development of the programme</th>
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<tr>
<td>(i) The programme promotes an understanding on the part of the student of the specific occupation for which he / she is being trained.</td>
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<tr>
<td>(ii) The programme has a balance of theoretical and practical or applied knowledge. The student masters the techniques and skills which are required by a specific profession or occupation.</td>
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<td>(iii) Work-based learning forms an integral part of the curriculum and placement in a work-based environment is regarded as an essential component of the programme.</td>
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<td>(iv) All relevant stakeholders, including employers and professional bodies (where applicable) are involved in the development of the programme.</td>
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<th>Criterion 2</th>
<th>Sub-Area: Management of Work-based Learning</th>
<th>Criterion: The management of work-based learning is done efficiently in order to promote quality in all the components of the programme</th>
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<tr>
<td>(i) Effective policies, processes and procedures are in place for the management of work-based learning and are consistently applied across the institution.</td>
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<tr>
<td>(ii) Learning contracts are utilised as a means by which the student, the higher education institution and the employer can negotiate, approve and assess the objectives and outcomes of the learning process. The roles of the various parties involved in work-based learning, ie: the institution, students, mentors and employers, are clearly spelled out in the contract.</td>
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<tr>
<td>(iii) Regular and efficient communication takes place between the institution, students, mentors and employers involved in work-based learning.</td>
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<tr>
<td>(iv) A system is in place (both institutional and at the place of employment) to record the contents and progress of the student’s learning experience in the workplace.</td>
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<tr>
<td>(v) Monitoring of work-based learning is done regularly and systematically. Feedback is utilised for improving the practice of work-based learning.</td>
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Criterion 3

Sub-Area: Mentoring System

Criterion: An effective mentoring system provides support for the student in the workplace

In order to meet the criterion, the following are examples of what would be expected:

(i) The mentoring system is educative, ie: it enables the student to recognise strengths and weaknesses in his / her work, to develop existing and new abilities, and to gain knowledge of work practices.

(ii) The mentoring system is supportive, ie: it offers opportunities to nurture and develop students.

Incorporation of OBET Paradigm (Outcomes Based Education and Training)

Burchell Hodges and Rainsbury (1999) suggests that employers value all competencies in students which would include both technical competencies (ie: hard and cognitive skills) and non-technical competencies (ie: soft or behavioural skills).

The assessment of work placements therefore should measure contextual learning outcomes and these have to be integrated with the generic (soft skills) critical cross-field outcomes which would include:

- To identify and solve problems
- To collect, analyse and evaluate information
- To organise self and others
- To engage in teamwork
- To communicate effectively
- To use technology to enhance learning

Given the understanding that the workplace environment in which students conduct their placements are highly complex environments, the assessment criteria has to factor in the unpredictable variables such as student needs, backgrounds, social skills, physical, mental and emotional attributes. Therefore to record the skills of students in a way which divorces them from the infinitely variable context in which they work, is to miss the essence of what it is to be a learner.

The way forward for the assessment of experiential learning in work placements is to combine summative assessment with formative assessment. In the formative mode of assessment student and faculty focus on learning rather than accountability, and emphasise growth and development over “final judgement”.

The development of an individual capable of reflective practice (Schon, 1983, 1987) and diagnostic evaluation of their own strengths and weaknesses as practitioner in whatever field they are engaged in (Stones, 1994), will likely be of more long-term benefit than assessment based on a rather spurious mark or grade that is based, at best, on a sampling or snapshot of a students’ ability on the day or days in which it was conducted. Instead of leaving their programme of study with a “pass” for their work placement, students can leave with a profile or portfolio of their abilities. This also will enable future employers to ascertain if these individuals possess the skills and attributes desired.
Models for Assessment of Work Placements

The complexity of work-based assessment has to be acknowledged and any attempt to propose that a simple pass / fail system would work would be in conflict with the spirit and objective of an outcomes-based approach to assessment. A multi-model arrangement has to be negotiated between stakeholders which could include:

- Employer’s views on the quality and competence of student performance.
- The student records on reflective understanding and the integration of work-experience with academic learning.
- The preparation of assignments and portfolios profiles.

Accumulation of learning outcomes credits

The outcomes-based approach to curriculum design creates an opportunity to allocate credits for work-based learning derived from the curriculum design process of the whole qualification.

Figure 7
The approach would be to select a Learning Area (ie: a discipline context such as Civil Engineering, Tourism Management or Information Technology, etc.) and then to make statements of specific outcomes of achievement along with the assessment standards. The assessment standards would include:

- The criteria itself
- The level of complexity (level descriptor)
- Evidence of outputs

The outcomes would now be negotiated with industry to select which outcomes can best be achieved in the work environment. Agreement then has to be reached on assessment criteria, assessment instruments and outputs of evidence.

Work-based learning outcomes can now be structured based on notional hours as a generic critical outcome and then credit allocations can be guided by the time frame of 1 Credit = 10 Notional Hours (ie: the time it takes an average learner to learn, experience and achieve [through assessment] a particular learning outcome).

Prescriptions on time used in this context is not intended as a judgement for success but rather an incentive to motivate acceptable standards for work ethic and productivity considerations.

**Conclusion**

Higher Education Institutions face many challenges as it strives to position itself as a major player in the development of human capital through qualifications which are responsive to technological developments, economic and social development needs.

Work-integrated experiential learning programmes are a specific learning intervention strategy that has significant benefits for students, academic staff and industry. The challenge is to ensure that quality and adequate resourcing underpins service delivery and implementation that can guarantee the student a vertical added value knowledge learning progression through the work-based learning programme as part of the curriculum.

Work-based Learning must be viewed as a learning programme experience whereby the “classroom” is transferred to the workplace and therefore the Institution and the Department of Co-operative Education has an obligation to ensure that the necessary infrastructure and support to underpin successful learning outcomes is given the same priority and financial support as we do in a more controlled and managed environment for the academic programme at the Institutions. Similarly work-integrated curriculum design must ensure that the assessment criteria and instrument can match the intellectual and pedagogic rigour of pure academic programmes.
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