

Setting up Vocational Qualification Set up for Competency Based Education for People at Work

Milind S. Mali* Dr. Vijay V. Mandke**

Abstract

With the onrush of "Technology" at work places and with issues of productivity, cost-effectiveness, needs of sustained development and competitiveness in industries, the requirement of continuing education and professional development of those in work is fast becoming central to survival and growth of any national and regional industrial sector. This essentially is the question of linking education - training, as the acquisition of knowledge through the educational process needs to be dovetailed with specifics of training for a particular technology and particular work place, where only index of attainment of training objective is if the learner can actually "do" the job. The Vocational Qualification (VQ) Set Up as visualized through this project proposal is essentially a step in the above direction.

VQ Set Up: Aim and Target

Consistent with above responsibility, the VQ Set Up could aim at promoting, implementing and monitoring competency based vocational* education and training to provide more and better vocational education and training which meets the real (functional) needs of employment, and prepares individuals (employees) for changes in technology, markets and employment patterns. As a result, the VQ Set Up targets employees to enable them to develop their vocational competence for improved performance or for job mobility.

VQ Set Up: Development Process

VQ Set Up development process could begin with establishment of Employment Sectorwise Bodies, comprising representatives of employer group, trade unions, educational institutions and technologists, further these bodies can also be

competence level specific.

Functional Areas

It is the Employment Sectorwise Bodies, thus constituted, which will have the responsibilities for uniquely classifying the functional areas vis-a-vis need of employment sectors, e.g. tending animals, plants and land, extracting and providing natural resources, constructing, engineering, manufacturing, transporting, managing, developing and extending knowledge and skill etc. These functional areas may be further subclassified, namely, constructing would incorporate functional areas of planning, designing and surveying, building, finishing, and installing and maintaining services. Manufacturing may incorporate functional areas of processing minerals, processing organic matter, manufacturing textiles and garments,

*Asst. Prof. in Mech Engg. Smt. Kashibai Navale College of Engineering, Pune.

**Research Leader, Center for Information Integrity Research [CIIR], New Delhi.

manufacturing consumables, manufacturing electronics and electrical equipments. Managing may be further subdivided into subfunctional areas "Supervisory management", "Middle level management"; developing and extending knowledge. Skill may cover functions of providing learning opportunities, researching etc.

Competency

The Employment Sectorwise Bodies may then proceed to define specific competencies in each of functional / subfunctional areas so identified. For example, for the subfunctional area of "building" under the functional area "constructing", the competency may be "sustaining and enhancing the performance of the organization to achieve its objectives". This competency could also be needed at middle Manager level. And coming to the functional areas of "Providing learning opportunities", the subfunctional areas could be "Distance learning", and some of the competencies needed under it may be: Find and select open learning packages and programmes, Design and develop open learning programmes, Provide administrative services for open learning, Evaluate and validate an open learning scheme, etc.

Competency Levels

As competences range from those for routine, repetitive functions (crafts- Level 1) those for mainly routine, and predictable functions, but with some complex or non-routine facets and requiring group participation (trade-Level 2) to varied complex functions, non-routine, requiring considerable responsibility and autonomy, though control or guidance of others is often required (operator- Level 3); to broad range of complex, technical or professional functions of supervisory character requiring substantial degree of personal responsibility and autonomy, and responsibility for the work of others and allocation of resources (Manager- Level 4); to functions of planning, design, management and evaluation (Systems Builder- Level 5). The Vocational Qualification Set Up would

understandably require any competencies so intended (for each of the subfunctional areas) to be located against above classification of levels. Thus, while the competency of "Building Maintenance and Estate Services" will get located at L-4 level, that of "Sustaining and enhancing the performance of organization to achieve its objectives" may get located at L-3 as also at L-4 level, and the competency of "Design and Develop Open Learning Programmes" under subfunctional area of Distance Learning may get located at L-5 level.

Unit of Competency

It is against such a precise positioning of each competence in the Functional area-vs-competence level matrix, that the Employment Sectorwise Bodies would then further develop the competency requirement by sub-dividing each competence into unit competence, where each unit is amenable to certification. This step is very important as it would permit the design of VQ Set Up to acquire modular character, thereby ensuring a tremendous flexibility for learner in clearing the competency requirements.

Appendix 1 gives sample statements of such units of competencies for some the competency levels mentioned earlier.

Element of Competency, Performance Criteria and Context Indicators

Once units of competencies for each competency are identified, the Employment Sectorwise Bodies will have the task of delineating the Standards for the units of competencies. This they will do by stating the elements of competence and by suggesting performance criteria and context indicators for each element.

An Element of competence is description of what a worker in a given sub-functional area or a functional area is able to do. It is statement of action or outcome which the person should be able to demonstrate. Against this, performance

criteria will have to be given for each element of competence and they will provide a basis for an assessor to judge evidence that an employee/worker can perform the activity specified in the element. Finally, the context statements will elaborate the statement of competence by making explicit the context to which the elements and performance criteria apply. They also put limits on the specifications to ensure consistency and uniformity in interpretation of competency.

Appendix 2 gives illustrative examples of elements and Appendix 3 performance criteria and context indicators for some of the units of competencies given in Appendices 1 & 2.

Evidence of Competency

And with performance criteria and context indicators identified for each element of the units, the VQ Set Up development process would come to its final stage wherein Employment Sectorwise Bodies will be required to state the types of evidences that need to be assessed to judge if the learner has acquired competence for certification under the VQ Set Up framework. This evidence may be in terms of combination of following:

- Performance evidence
- Supplementary Evidence from oral questioning, open written answers, multiple choice tests
- Evidence from prior achievements

Awarding Vocational Qualification Certificates

Once Employment Sectorwise Bodies have completed the VQ development by defining the competency, units, elements, performance criteria, context and desired evidences, the VQ Set Up may undertake the task of identifying the Vocational Qualification Awarding Desk. It may be noted that the VQ Set Up by itself may take this responsibility or it could accredit an assessment body which may be a training

institute or a training division of an industry or a professional body or any other similar Public or Private Sector organization, to carry out the assessment function, and endorse the qualification to be certified.

The selection of assessment bodies can mainly be based on their ability to show that their "Assessment Methods" are compatible with "Evidence Requirements" of Employment Sectorwise Bodies, i.e. the assessment methods of assessment bodies should generate the required evidence. Another important point that may be considered in the selection of Awarding Bodies is the competence of their Assessors and internal verifiers.

Provision of opportunities for learners to generate evidences: The instructor package

One of the most important functions of VQ Set Up will be to promote as many alternate routes as possible for learners to generate documents/evidences for assessment by assessment Bodies. In concrete terms, a learner may go through a course at a college or attend a training course at an industry or by a private training institute or study an instructional material under distance learning or be trained on job by his employer.

While collecting all these evidences and assessing them, the Assessment Body as also the VQ Set Up, in addition, may also play a role of "Training Body" by organizing courses, in residence or under open learning, thereby offering a learner more educational opportunities.

Methods of Assessment

It is so collected evidence that the Assessment Body assessors may then assess through a combination of evaluation instruments mentioned below:

1. Natural observation at work place
2. Extracted examples within the work place

3. Competency tests, skill tests
4. Projects / assignments
5. Written answers
6. Oral answers
7. Assessment of Prior Learning based on employer certificates, computer programmes developed, documentary evidence, etc

enable the planning of works.

Unit 3: Agree and plan operations for the execution of work.

Execute Maintenance

Unit 4: Plan, allocate and support work programmes for the maintenance and alteration of property.

Unit 5: Monitor progress and cost of work

Unit 6: Improve services Personnel / Supervision

Unit 7: Recruit and select personnel

Unit 8: Create, maintain and enhance effective working relationship

Unit 9: Exchange information to solve problems and make decisions.

- b. *An illustration of units of competencies for L-3 level competency in "Sustaining and enhancing the performance of the Organization to achieve its Objectives":*

Services, Products & Systems

Unit 1: Maintain and improve service and product operations.

Use of Resources

Unit 2: Recommend, monitor and control the use of resources.

Changes

Unit 3: Contribute to the implementation of changes in services, products and systems.

Personnel

Unit 4: Develop teams, individuals and self

Unit 5: Plan, allocate, monitor and evaluate work carried out by teams and individuals.

Unit 6: Maintain and develop a positive working

Quality Assurance & External Monitoring

The VQ Set Up would then also have a responsibility to monitor the entire process of action of implementing Vocational Qualifications by the instruction imparting and certificate awarding agencies, as per the guidelines to be developed by VQ Set Up. Thus it is decentralized management with requirements of quality control at the instruction imparting and assessment stages.

Design of VQ Set Up: A means for entrepreneurial service sector activity in the field of education and training

It is visualized that a group of educational planners, educational technologists, industrial trainers and employers may constitute a VQ Set Up and initiate the above vocational training methodology for an identified sector, so as to demonstrate its training viability and later transfer the educational design to other employment sectors.

Appendix - 1

- a. *An illustration of units of competencies for L-4 level competency in "Building Maintenance and Estate Services":*

Plan Maintenance

Unit 1: Collect information to enable the maintenance and alteration property.

Unit 2: Evaluate and process information to

environment.

Information

Unit 7: Collect and evaluate information relating to personnel, departmental and organizational objectives.

Unit 8: Exchange information to analyze problems and organizational objectives.

Relationships

Unit 9: Obtain information, co-operation and support through establishing and maintaining relationships.

c. *An illustration of units of competencies for L-4 level competency in "Sustaining and Enhancing the Performance of the Organization to achieve its Objectives":*

Supply of resources

Unit 1: Establish and maintain the supply of resources to the organization/ department.

Changes

Unit 2: Implement change in services, products and systems.

Service and Product

Unit 3: Monitor and maintain service and product delivery.

Use of Resources

Unit 4: Monitor and control activities against budgets.

Unit 5: Evaluate, recommend and agree resource allocation to activities and projects.

Personnel / Supervision

Unit 6: Recruit and select personnel.

Unit 7: Develop teams, individuals and self

Unit 8: Plan, allocate, monitor and evaluate work carried out by teams and individuals.

Unit 9: Maintain and develop a positive working environment.

Information

Unit 10: Collect and evaluate information relating to personal, departmental and organizational objectives.

Unit 11: Exchange information to analyze problems and make decisions.

Relationship

Unit 12: Obtain information, cooperation and support through establishing and maintaining relationships.

Appendix - 2

a. *An illustrative statement of units of competencies and their elements for L-3 level competency in "Sustaining and Enhancing the Performance of Organization to achieve its Objectives" under the functional area of "Managing":*

Services, Products and Systems

Unit 1: *Maintain and improve service and product operations.*

Elements

1.1 Maintain the supply of resources to the organization/ department.

1.2 Maintain operations for one's area of responsibility.

1.3 Contain and minimize factors which disrupt operations.

1.4 Maintain the assurance of quality.

Use of Resources

Unit 2: *Recommend, monitor and control the use of resources.*

Elements

- 2.1 Submit recommendations for expenditure
- 2.2 Authorize expenditure within agreed budgets.
- 2.3 Monitor and control the use of resources.
- 2.4 Estimate the cost of projects.

Changes

Unit 3: Contribute to the implementation of change(s) in services, products and systems.

Elements

- 3.1 Contribute to the evaluation of projected changes to services, products and systems.
- 3.2 Implement and evaluate changes to services, products and systems.

Personal / Supervision

Unit 4: Develop teams, individuals and self

Elements

- 4.1 Define future personal requirements.
- 4.2 Assess and select candidates vis-a-vis team and organizational requirements.
- 4.3 Identify and review the development needs of teams, individuals and self.
- 4.4 Produce development plans for teams, individuals and self.
- 4.5 Develop oneself within the job role.

Unit 5: Plan, allocate, monitor and evaluate work carried out by teams and individuals.

Elements

- 5.1 Select and devise work methods and activities to achieve organizational objectives.
- 5.2 Set and update work objectives with teams and individuals.
- 5.3 Allocate, monitor and evaluate teams and

individuals to meet work objectives and individual development needs.

- 5.4 Provide feedback to teams and individuals on their performance against agreed work and development objectives.

Unit 6: Maintain and develop a positive working environment.

Elements

- 6.1 Maintain and develop a physical working environment.
- 6.2 Identify and minimize interpersonal conflict.
- 6.3 Implement disciplinary and grievance procedures
- 6.4 Counsel staff

Information

Unit 7: Collect and evaluate information relating to personal, departmental and organizational objectives.

Elements

- 7.1 Collect information relating to personal, departmental and organizational objectives.
- 7.2 Obtain and evaluate information on specific problems to aid decision making.
- 7.3 Record and store information.

Unit 8: Exchange information to analyse problems and make decisions.

Elements

- 8.1 Lead meetings and group discussions to analyse problems and make decisions.
- 8.2 Contribute to discussions to analyse problems and make decisions.
- 8.3 Advice and inform others.

Relationships

Unit 9: Obtain information, co-operation, and support through establishing and

maintaining relationships.

Elements

- 9.1 Establish and maintain the trust and support of one's immediate superior.
- 9.2 Establish and maintain relationships with colleagues.
- 9.3 Establish and maintain contact with others who may provide useful information.
- b. *An illustrative statement of units of competencies and their elements for L-4 level competency in "Sustaining and Enhancing the Performance of Organization to achieve its Objectives" under the functional area of "Managing":*

Supply of Resources

Unit 1: Establish and maintain the supply resources to the organization / department.

Elements

- 1.1 Identify and evaluate the sources of supply.
- 1.2 Negotiate and agree supply details.
- 1.3 Maintain resource supply to the organization.

Change

Unit 2: Implement change in the services, products and systems.

Elements

- 2.1 Evaluate projected changes for benefits and disadvantages.
- 2.2 Negotiate and agree introduction of change (s).
- 2.3 Implement and evaluate changes to services, products and systems.

Services and Products

Unit 3: Monitor and maintain the service and product delivery.

Elements

- 3.1 Establish and agree customer requirements.
- 3.2 Maintain operations against specifications.
- 3.3 Monitor and maintain the availability and condition of resources.
- 3.4 Contain and minimize factors which disrupt operations.
- 3.5 Establish and maintain the quality of services and products.

Budgets and Use of resources

Unit 4: Monitor and control activities against budgets.

Elements

- 4.1 Authorize expenditure within agreed budgets.
- 4.2 Monitor and control use of resources.
- 4.3 Monitor actual income and expenditure against projections.
- Unit 5: Evaluate, recommend and agree resource allocation to activities and projects.

Elements

- 5.1 Estimate the costs and the benefits of projects.
- 5.2 Recommend and justify proposals for expenditure.
- 5.3 Negotiate and agree a budget.
- 5.4 Allocate resources between activities.

Personnel / Supervision

Unit 6: Recruit and select personnel.

Elements

- 6.1 Define future personnel requirements.
- 6.2 Determine specifications for agreed vacancies.
- 6.3 Assess and select candidates against team and organizational requirements.

Unit 7: Develop teams, individuals and self.

Elements

- 7.1 Identify and review the development needs of teams, individuals and self.
- 7.2 Produce development plans for teams, individuals and self.
- 7.3 Evaluate and modify the development processes used.
- 7.4 Develop oneself within the job role.

Unit 8: Plan, allocate, monitor and evaluate work carried out by teams and individual

Elements

- 8.1 Select and devise work methods and activities to achieve organizational objectives.
- 8.2 Set and obtain work objectives with teams and individuals.
- 8.3 Allocate, monitor and evaluate teams and individuals to achieve work objectives and individual development needs.
- 8.4 Provide feedback to teams and individuals on their performance against agreed work and development objectives.

Unit 9: Maintain and develop a positive working environment

Elements

- 9.1 Maintain and develop a physical working environment.
- 9.2 Identify and minimize interpersonal conflict.

- 9.3 Implement disciplinary and grievance procedures.
- 9.4 Counsel staff.

Information

Unit 10: Collect and evaluate information relating to personal, departmental and organizational objectives.

Elements

- 10.1 Collect information relating to personal, departmental and organizational objectives.
- 10.2 Obtain information on specific problems to make decisions.
- 10.3 Forecast trends and developments which affect objectives.
- 10.4 Record and store information

Unit 11: Exchange information to analyse problems and make decisions.

Elements

- 11.1 Lead meetings and group discussions to analyse problems and make decisions.
- 11.2 Contribute to discussions to analyse problems and make decisions.
- 11.3 Advise and inform others.

Relationships

Unit 12: Obtain information, co-operation and support through establishing and maintaining relationships.

Elements

- 12.1 Establish and maintain the trust and support of one's immediate superior.
- 12.2 Establish and maintain the relationship with colleagues.
- 12.3 Establish and maintain contact with others who may provide useful information.

Appendix - 3

Illustrations of Elements, Performance Criteria and Context Statements

a. Competency: L- 4 Building Maintenance and Estate Service

Competency unit 3: Agree and plan of operations for the execution of works.

Elements

1. Agree maintenance and repair work with client, user community.
2. Develop programme for execution of required works.
3. Procure physical resources for execution of works.
4. Priorities and batch works to satisfy contractual requirements, statutory requirements, and critical response times.

Elements 4 : Performance Criteria

1. Priority is attached to works orders.
2. Where prevailing circumstances demand or urgency changes, works are prioritized accordingly.
3. Where significant and increased damage will result it work is not carried out promptly, appropriate priority is attached.
4. Where operational effectiveness is comprised by maintenance requirements, appropriate priority is attached.
5. Work orders are batched to satisfy organization requirements, resource availability and contractual agreements.

Context Indicators

- Contractual agreements
- Statutory requirements

- Types of works orders
- Types of organizational requirements
- Types of resources: Labour, Plant, Finance, Time

b. L-4 Competency in Functional Area of "Managing"

Sustaining and enhancing the performance of an organization to achieve its objectives

Services, Products and Systems

Competency Unit 2: Implement change in services, products and systems

Elements

1. Evaluate projected changes for benefits and disadvantages.
2. Negotiate and agree the introduction of change(s).
3. Implement and evaluate changes to services, products and systems.

Performance Criteria for Element 2

1. Information on projected change is passed on to the appropriate people with minimum delay and contains sufficient detail for people to evaluate the change for their area of responsibility.
2. Negotiations are conducted in a manner which maintains good working relations.
3. Agreements reached include implementation plans at the necessary level of detail and are in line with organizational strategy.
4. Records of negotiations and agreements are complete, accurate and legible and passed on to the appropriate people.
5. Where compromised are made, these are mutually acceptable and consistent with organizational practices and strategies.
6. Where the manager is unable to secure

the changes which s/he anticipated, the reasons for this are conveyed to the relevant staff in a positive manner.

7. Relevant people are encouraged to understand and participate in any changes made.

Context Indicators

- Personnel requirements
- Cost factors
- Availability of services and products
- Quality of services and products
- Changing employment / work practices (including shift patterns)
- Methods to produce waste
- Introduction of new equipments
- System design

Negotiations and Agreements can be in the form of;

- Face to face discussions
- Telephone calls
- Correspondence
- Memos

The manager negotiates with;

- More senior managers
- Colleagues
- Subordinates
- Staff representatives
- Representatives from external organizations

c. L- 4 Level Competency in functional area "Managing"

Sustaining and enhancing the performance of an organization to achieve its objectives.

Competency Unit 6 : Recruit and select personnel

Element 3

Assess and select the candidates against team and organizational requirements.

Performance Criteria for Element 3

1. The assessment and selection of candidate compiles with the organization's procedures and legal requirements.
2. Information obtained from each candidate is judged against specified selection criteria.
3. Additional factors which may have influenced the assessors are noted.
4. Unintended deviations from agreed procedures are identified and corrected before selection requirements and specifications.
5. Selection recommendations are matched against agreed organizational requirements and specifications.
6. Selection recommendations are communicated to only authorize people.
7. Appropriate records are complete, accurate and clear.
8. Where there is difficulty in interpreting the selection criteria or there appears to be a conflict of criteria, advice is sought with minimum delay from the appropriate people.
9. All candidates are promptly informed of selection decisions following each stage of the selection process.
10. Information provided to the candidates is accurate and clear.
11. Recommendations for improvements to any aspect of selection are communicated promptly to appropriate people.

Context Indicators

The manager assesses candidates for posts which are;

- Permanent

- Temporary
- Full – time
- Part – time

References

1. Mandke V. V., Ghosh Anjan and Arora J. L., "Student Evaluation under co-operative Education Programme at First Degree Level," World Conference on Co-operative Education, Edinburgh, September, , 1985: 610-613.
2. Mandke V. V., "BITS Practice School" A Case Study in Industry – University Collaboration, Published by BITS Pilani, 1980.
3. Brodhead, C. W. "Image 2000: A Vision for Vocational Education." Vocational Education Journal 66, No. 1, January 1991: 22-25.
4. Buzzell, C.H. "Let our Image Reflect our Pride." Vocational Education Journal 62, No. 8 November-December 1987: 10.
5. O'connor, P.J., and Frussell, S.T. "The Marketing of Vocational Education." Vocational Education Journal 62, No. 8, November-December 1987: 31-32.



Cont. from Page No. 56

5. Keen, Peter G.W. *Shaping the Future: Business Design through Information Technology*, Boston: Harvard Business school Press, 1991.
6. Mooney John; Vijay Gurbaxani; and

Kenneth Kramer. "A Process Oriented Framework for Assessing the Business Value of Information Technology". The DATABASE for advances in information systems, Spring 2006.

