QUALITY ELEMENTS

OF A

WELL-PLANNED,

COST-EFFECTIVE, WORKPLACE

EDUCATION & TRAINING SYSTEM

By Basil P. Dutton,

Member CAC/ISO/TC 176 (Canada) International Delegate

- Conduct ORGANIZATIONAL NEEDS ANALYSIS to identify & distinguish between the training and non-training issues.
- Conduct (TRAINING) NEEDS ANALYSIS (incl. "GAP" Analysis)
- Identify appropriate TRAINING "SOLUTIONS"
- Conduct a COST BENEFIT ANALYSIS on these training solutions
- Determine TRAINING STRATEGY and write TRAINING PLAN which contains the proposed training solutions identified -–on a prioritised basis (The Training Plan MUST contain an implementation schedule)
- Determine EVALUATION methods to be used & implementation schedule
- Determine REINFORCEMENT methods to carry out the effective transfer of SKILLS acquired

Preamble

'Education' and 'Training' here are not intended to be used in the mutually exclusive sense---rather to *complement* or *supplement* one another, depending upon the need/s identified in the Organizational Needs Analysis. Please refer to attached Table.

'Education and Training': Sound business strategy - not a band-aid solution

There is a growing recognition of the critical and strategic importance of "Education and Training" in today's global marketplace, which has already experienced in the '90s, and continues to experience today, rapid and profound change. This change has been brought about, and continues to be brought about, to a very large extent by an information technology that continues to take giant strides in the 21st century, whose gates we have recently entered.

More and more organizations are employing Education and Training as a business strategy that will provide them with a competitive edge resulting from increased organizational effectiveness. This is being clearly reflected in the organizational structures and strategic direction of a large number of organizations worldwide.

Organizations are indeed becoming increasingly aware that educated and trained employees are their most valuable single asset.

Education and Training is about *change* and *adjustment* - possibly the most effective single change in leading an organization in its quest for excellence in quality.

In recognition of the foregoing, an ISO international working group was formed in 1993 and entrusted with the task of writing an ISO document that addressed this growing international need for effective E & T systems. The Working Group received the official designation of ISO/TC 176/SC3/ WG4 and the published document was to bear the document number of ISO 10015. The document was intended to help "ISO 9000" users identify and develop key quality elements in a well-planned, cost-effective Education and Training System, which, when effectively implemented, would help organizations to meet their commitment to produce goods and services of the highest quality in a rapidly changing global marketplace where customers demand nothing less than the best. I would respectfully submit that Canada played a significant role in the development of the Standard. After meetings that took place in Budapest, Paris, Toronto, Frankfurt, Durban, Geneva, Tel-Aviv, Goteborg, and Rio de Janeiro,
this document was successfully published by the ISO Central Secretariat, Geneva as ISO Standard 10015 ' Quality management – Guidelines for training' on December 15, 1999. It is noteworthy that the standard is being successfully used by countries outside the 'scope' of ISO 9000 – i.e. as an HR tool for setting up E & T Systems.

Scope and purpose of this paper

The primary purpose of this paper is to offer assistance to organizations - regardless of size and sector - in using *ISO 10015* to develop sound and cost-effective Education and Training Systems as an effective means of increasing their organizational effectiveness, ---- and therefore their overall operating efficiency and competitiveness.

The reader's attention is drawn to the 5 paragraphs of this 'Introduction' of *ISO 10015* (pages v and vi) which read as follows:

"The Quality Management principles underlying the ISO 9000 family of standards (of which the ISO 10000 series form a part) emphasize the importance of human resource management and the need for appropriate training. They recognize that customers are likely to both respect and value an organization's commitment to its human resources and its ability to demonstrate the strategy used to improve the competence of its personnel.

Personnel at all levels should be trained to meet the organization's commitment to supply products of a required quality in a rapidly changing market place where customer requirements and expectations are increasing continuously.

This International Standard provides guidelines to assist organizations and their personnel when addressing issues related to training. It may be applied whenever guidance is required to interprets references to "education" and "training" within the ISO 9000 family of quality assurance and quality management standards. Any reference to "training" in this document includes all types of education and training.

An organization's objectives for continual improvement, including the performance of its personnel, might be affected by a number of internal and external factors including changes in markets, technology, innovation, and the requirements of customers and other stakeholders. Such changes may require and organization to analyse its competence-related needs. Figure 1 illustrates how training could be selected as an effective means of addressing these needs.

The role of this International Standard is to provide guidance that can help an organization to identify and analyse training needs; design and plan the training, evaluate training outcomes, and monitor and improve the training process in order to achieve its objectives. It emphasizes the contribution or training to continual improvement and its intended to help organizations make their training a more effective and efficient investment."

Education and Training systems - a quality focus

Having made numerous references to sound and cost-effective Education and Training Systems, we need to identify & define the key QUALITY elements and attributes such a system should possess.

I would suggest that the quality elements of a well-planned, cost-effective Education and Training system are described by the 'action' verbs : IDENTIFY, ANALYSE, DESIGN, PLAN & DELIVER, EVALUATE, and REINFORCE & VALIDATE, elements of a continual improvement process, which fit the PDSA (Plan-Do-Study-Act) model originated by Shewhart and developed further by Deming. The process is illustrated in the attached Table.

STRUCTURAL CONTENT OF ISO 10015
- •   Foreword
- •   Introduction
1.   Scope
2.   Normative Reference
3.   Terms and definitions
4.   Guidelines for Training
    - 4.1   Training: a 4-stage Process (Figure 2 – Training Cycle)
    - 4.2   Defining Training Needs
    - 4.3   Defining and Planning Training
    - 4.4   Providing for the Training
    - 4.5   Evaluating Training Outcomes

5.   Monitoring and Improving the Training Process

    - 5.1   General
    - 5.2   Validation of the Training Process

- •   Annex A (informative) Table

<u>Optimising our Education and Training investment - meeting the challenges that lie ahead</u>

If we are to employ Education and Training as an effective business strategy in meeting the global challenges that confront us, we need to concentrate our efforts much more on three basic system elements in the Education and Training system referred to earlier, viz. **Needs Analysis/Assessment, Evaluation, and Reinforcement.** Our system must contain a clear relationship between PURPOSE, PROCESS, and anticipated OUTCOME. Please refer to the attached Table once again.

<u>NEEDS ANALYSIS/ ASSESSMENT</u>

Success or failure of any education and training will depend to a very large extent on the accuracy and effectiveness of the Needs Analysis. Too often, the critical process of accurately identifying need is poorly conducted, resulting in "band-aid" type of solutions. It is almost like attempting to find the solution to a problem that hasn't yet been clearly identified. Another analogy might be - if you're not really sure where you want to go, is there any real point in selecting a means for getting there?! To safeguard against the possibility of planning a training solution to a non-training issue or problem, an **Organizational Needs Analysis** should be conducted. This will help separate training issues from non-training issues (as illustrated in the attached Table). A poorly conducted needs analysis can result in training being used as a solution to a situation that could perhaps have been more effectively addressed by some other method.

The most effective needs analysis is the one that considers the organization's **total needs,** i.e. by addressing the entire organizational structure. This ensures that the benefits of individual training initiatives are utilized, where appropriate, on an organizational basis.

Essentially, an (organizational) needs analysis should help the organization answer the following:

①   Where is the organization heading?
②   What resources will be required to get there? Is the existing HR base adequate/suitable or is hiring necessary?
③   What will the organization look like when it **DOES** get there?

The scope of these parameters will of course greatly depend upon the time frame the organization has selected.

A final question that will help link instructional objectives with the organizational goals - at the successful completion of this training initiative, what will the trainee(s) be expected to be able to do -- as a *direct result* of this training?

Consideration should also be given to the following questions so that the EVALUATION and REINFORCEMENT/VALIDATION processes are carried out as effectively as possible.

➢   What **evaluation** techniques/methods will be used to determine the success or failure of the training? What data is needed and how will this data be collected?

➢   What **reinforcement** techniques/methods will be used to ensure that the knowledge and skills acquired during training are transferred effectively to the trainees' workplace?

Some of the more important methods of data collection for an **effective Needs Analysis** are:
interviews with Supervisors/Management; employee interviews/questionnaires; employee attitude surveys or other organizational surveys. A number of computer programs currently exist that facilitate the application of this method--from questionnaire design to compilation of results for interpretation; observation/'walkthrough' facilities; group discussion/focus groups; review of information (records-exit interviews, problem logs, etc.); performance reviews; employer/employee committee meetings; subject matter expert (SME) input; course evaluation/tests; measures of performance (e.g. reject rates, productivity, customer service).

The method selected should of course be dependent upon the circumstances surrounding the particular need.

Some of the concepts of the well-known quality tool QFD (Quality Function Deployment) might be effectively utilized in this process to ensure that the education and training needs identified are truly customer-focused, bearing in mind that the **customer** is anyone who benefits from the changed behaviour that occurs as a result of the training initiative -- trainees themselves, their

managers, co-workers and colleagues, those who interact with the trainees from other divisions, branches, etc. The Ontario Society for Training and Development (OSTD) published in 1995 its "TRAINING COMPETENCY ARCHITECTURE" which addresses: Analysing Performance/Training Needs, Evaluating Training, identifying core competencies, developing competency profiles, etc. - a very useful reference for HR professionals and others.

EVALUATION (incl. Return on Training Investment)

Too often, too little time is spent in addressing the important, if not critical, question - "How effective was the training in satisfying the identified training need?"

In the increasing competitiveness of the global marketplace, evaluation is assuming greater importance as a critical element in any sound and effective Education and Training system.

However, it makes little or no sense selecting a suitable **EVALUATION** technique unless a clear understanding exists of **WHAT** is being evaluated. Consideration should therefore be given to EVALUATION **during** the Needs Analysis process, since selection of an appropriate Evaluation technique will depend to some degree upon the data collected for the Needs Analysis.

There are a number of recognized Evaluation systems that exist in North America, the two most popular of which are the Kirkpatrick Approach and the CIPP (Context, Input, Process, Product) Model. The Kirkpatrick Approach is the more widely used where a wider spectrum of application is preferred. Both systems focus on **four** levels.

The following provides a summary of the **KIRKPATRICK** Approach.

Level   **Function/Situation evaluated**

① REACTION   How did trainee **FEEL** about the program? (useful in improving instructional techniques, selection of instructional methods, etc).

② LEARNING   What trainee **KNOWS** as a result of the program (useful for improving task analysis, knowledge and skills analysis, and selection and design of instructional methods).

③ BEHAVIOUR (JOB PERFORMANCE)
         What trainee **DOES** differently after the program.

④ RESULTS   Whether on-the-job application of the knowledge and skills acquired during training produced the desired (measurable) results. The basic measure of results is **PRODUCTIVITY** and these results are used in Cost/Benefit Analysis computation.

Essentially, **EVALUATION** techniques are used to determine ("qualitatively" and "quantitatively") if the training intervention was justifiable in terms of the investment involved - time, money and effort.

There are a number of ways data (both 'hard' & 'soft') can be collected for the purpose of evaluation. This would include: observing on-the-job performance; 1:1 interviews; tests; questionnaires and surveys; demonstrations; role plays and/or simulations; comparing records - before and after training, which might indicate: reduced absenteeism; reduced grievances; reduced costs; increased profits; increased operational efficiency; reduced staff turnover, etc.

The method used for data collection will depend to a large extent on the 'Level' of Evaluation involved.

If Education and Training is to treated as a business investment, the return on that investment should be capable of being quantified/calculated. A Cost/Benefit Analysis (CBA) is an appropriate process for converting data into monetary terms/values, providing thereby a means of calculating a return on (training) investment. One of the simplest ways of conducting a CBA is by listing COSTS on one side, BENEFITS on the other. "Hard" and "Soft"

data should be included, as also "Opportunity"costs. Costs and Benefits are then compared -- estimates being based on annual amounts.

① Net Annual Benefit = Estimated (annual) Benefit - Estimated (annual) Total Cost

② Benefit to Cost Ratio = $\dfrac{\text{Annual Benefit}}{\text{Annual Cost}}$

③ Return on (Trng.) Investment = $\dfrac{\text{Net (p.a.)Benefit}}{\text{Annual Cost}}$ X 100

The 2000 ASTD's (American Society for Training & Development) STATE OF THE INDUSTRY REPORT provides the following summary of the "evaluation" survey conducted based on the Kirkpatrick model (referred to earlier) -----------

- 77% used Level I (REACTION)
- 36% used Level 2 (LEARNING)
- 15% used Level 3 (BEHAVIOUR)
- 8% used Level 4 (RESULTS)

For North American business to be more efficient (and therefore more competitive), MUCH more Level 4 Training Evaluation needs to be done.

Factors to be considered in determining *value added* to the product as a result of training should include:

① To what (measurable) extent has **customer satisfaction** improved as a direct result of training?

② To what extent has "product quality" improved as reflected by and measured in terms of rejects and/or rework? Improved reliability?

③ Has training resulted in process improvement and a reduction in operating costs? Appropriate training topics/areas here may include SPC (Statistical Process Control), DOE (Design of Experiments), Process Mapping, QFD (Quality Function Deployment), CE (Concurrent Engineering), etc. The resultant reduced costs could then be included in "Cost of Quality" computations.

④ Has appropriate "Soft Skills" training resulted in reduced absenteeism, improved employee morale, better employer/employee relations, decreased employee turnover?

A more dedicated, contented and stable workforce will have a very significant impact on product quality.

REINFORCEMENT or follow-up Evaluation

This is another critical element in the overall process -- more often than not completely neglected or ignored. Having expended all that time, effort and money, how is the organization going to ensure that the newly acquired knowledge and skills are effectively *utilized* in the workplace -- as soon as practicable?

VALIDATION

Was there a better way of doing what we did? Could it have been done more cost-effectively?

Conclusion

I submit that "E & T" is not a panacea for all our economic woes and I do not have a ready made "blueprint for success" to offer you. I do believe, however, that a highly skilled national workforce (at all levels), capable of reacting and/or responding to change effectively and expeditiously will play a vital role in leading any nation's economic strategy. Transformation to an economy driven by Knowledge, Ideas, and Innovation will, however, demand an enormous amount of well-directed and well-dispositioned individual and collective effort, commitment and dedication at every level, which will involve doing things not only better, but in many cases - **differently.**

To conclude, I would like to refer you to Rule 9 of "The Ten Golden Rules of Competitive Societies" contained in Prof. Stephane Garelli's article "From Competitive Enterprises to Competitive Societies" (ex THE WORLD COMPETITIVENESS REPORT, 1995), which reads as follows:

"*Invest massively in education, especially at secondary level, and in the life-long training and improvement of the workforce".*

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│      CORPORATE VISION & STRATEGIC PLAN           │
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│        ORGANIZATIONAL NEEDS ANALYSIS             │
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                 identifies & separates
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│   TRAINING   │   │   NON-TRAINING   │
│   ISSUES/NEEDS   │   │   ISSUES/NEEDS   │
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1) IDENTIFY	**WHAT training at the <u>macro</u> level - identify major type/s such as Supervisory, SPC, MRP II, Computer, ISO 9000, Team Building, etc. is required to achieve the organizational objectives identified and defined?**
2) ANALYSE	**(and convert) the WHAT training at the macro level into some specifics such as WHO, HOW MUCH (at what level/depth of training), WHEN, INTERNAL/EXTERNAL delivery source COSTS vs BENEFITS What's the return, and when?**
	1 & 2 form the basis for the Training Needs Assessment/Analysis - the major objective of which is to accurately relate training needs to/with ORGANIZATIONAL GOALS.
3) DESIGN	**appropriate "training solutions" to meet the needs identified under 1 and analysed under 2 Review COSTS vs BENEFITS**
4) PLAN & DELIVER	**the training identified under 1, analysed under 2 and designed under 3 This Step deals with the operational detail of the 'Plan & Deliver' process.**
5) EVALUATE	**effectiveness of the training __ WHAT to evaluate, and HOW? review original Cost/Benefit Analysis-what did the training <u>really</u> cost? How close was our estimate?**
6) REINFORCE & VALIDATE	**the training delivered R - HOW will the organization effectively undertake the "Skills transfer" to the work place? V - Could the training have been more effective __ HOW in terms of any one or more of these 6 core processes?**

ETS (Education & Training system) - a Continual Improvement Process