

ORGANISATION OF EASTERN CARIBBEAN STATES (OECS)

EASTERN CARIBBEAN EDUCATION REFORM PROJECT

Software Evaluation Manual For Country-Level Training

Prepared for:
The OECS Education Reform Unit

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1. Objectives of the Workshop Series

The primary objective of this workshop series, as described under the Eastern Caribbean Education Reform Project (WBS 4400: Support Development of IT in Education), is to:

“Plan and facilitate a one-week sub-regional course on the effective use of computers in education, with special emphasis on an approach for the evaluation of instructional software for use in classrooms.”

It is expected that at the end of this course, the following main outcomes will be realized:

1. Participants gain useful insights and practical skills for the systematic selection and evaluation of computer software for instructional uses.
2. Participants develop full appreciation for critical considerations, inputs and strategies for developing a software selection/evaluation and integration process in their respective countries.
3. Participants realize personal benefits of practical experiences/lessons learned from the planned “hands-on” exposure to evaluation of a variety of software packages.
4. Useful strategies developed for consolidation of the course contents, and in preparation for follow-up training of other trainers by the participants.

2. Introduction:

Commercially produced software for computer-assisted & computer-managed instruction are increasingly being introduced and adopted/used in schools and other sectors of the education community. Consistent with the rapid infusion of technology into activities of the wider society, educational entities have little or no choice but to enhance their core functions with the appropriate technologies. However, the use of commercially developed software cannot be effective and most beneficial without a proper selection, evaluation and integration process.

Questionable Assumptions:

Three common assumptions about commercially developed software are:

- i) That the instruction presented in the software was systematically designed & developed on the basis of sound instructional principles & techniques;
- ii) That the prescribed instruction has been validated and determined to be appropriate for the proposed target users;
- iii) That the packaged content can be easily integrated into existing school curriculum and learning activities.

Key Questions:

Before technology (software) selection and use at least seven critical questions should be addressed by educational leaders.

1. What levels of interest & need are there for the technology (software)?
2. How well can the available software meet the essential needs of the target group?

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3. Does the software include or require support systems from the provider/source?
4. Are users easily trained to use it in education and existing curriculum?
5. Can it be updated or upgraded, at what cost, and at whose expense?
6. Are performance criteria known or checked; and are any record of lessons learned?
7. Are the suggested benefits worth the costs (Unit; Prep; Support; & Cycle) ?

3. Instructional Delivery Strategies for the Course:

The following are suggestions for individual country level trainers of trainers and technology resource persons who are involved in the delivery of this course. While the course materials may be delivered as outlined, it is important to note that presenters are free to use their own creative ideas for structuring the course materials delivery and related activities. Perhaps the most critical point to observe is that the course must be in a highly participatory/hands-on mode, where participants not only play the role of learners in using the sample software, but also explore the topical issues and form their own impressions of the instructional software they are given to examine/evaluate.

Instructional presentations on technology topics - (see workshop materials below).

The presenter should use a series of graphic (e.g., power point) presentation slides to launch the knowledge exploration and discussion on each of the topics, while participants should be constantly encouraged to discuss the ideas in relation to their individual teaching and learning experiences.

Group discussions, and practical work sessions on design & development of the selection criteria and software evaluation instrument to be use in the sub-region.

Participants should be engaged in a brainstorming session to establish the foundation and the basis for identifying evaluation and performance criteria for software. They should be presented with a framework (the structure of a draft evaluation instrument) and asked to comment on the scope for instrument adoption, or adaptation of the instrument in their respective school or instructional situation.

Hands-on exploration and assessment of selected software - (practical evaluation).

Where software vendors/consultant/providers are invited to demonstrate their variety of instructional software, they should be limited to merely demonstrating and discussing features and potential applications of their products, but they should not be involved in the software evaluation process. Participants should be given a practical orientation to using the instrument, and should be allow enough time to conduct the evaluation (with the aid of "Key Words" as the simple advance organizer/guides to assessing each criteria).

Discussion of follow-up training strategies and planning for other training.

Participants should be involved in an open collaborative treatment of training and software integration strategies to be used in the follow-up training they are expected to conduct with their school-based colleagues. They should then be given a planning framework for developing their proposed training programs, along with ideas/suggestions for how to secure resources for the training programs.

4. Definition of Some Related Terms

- **Curriculum:** All educational materials & activities organized to affect student learning.
- **Technology:** Tools, techniques, methods, & support systems used to design & deliver the products (of instruction).
- **Integration:** The creative matching and infusion of curriculum Content & pedagogy with appropriate technology.

5. Some Basic Principles of Instructional Design

| Critical Features | |
|--|-------------------------------|
| 1. Instruction & <u>Learners' Interest</u> | Learner Centered |
| 2. <u>Objectives</u> & Levels of <u>Capability</u> | Systematic Design |
| 3. Specification of Learners' <u>Role</u> | Learning Focused |
| 4. <u>Objectives/Strategies</u> Relationship | Guidance & Support |
| 5. <u>Prior</u> Knowledge to <u>Current</u> Learning | Interactivity{ with purpose } |
| 6. Rules/Procedures/Examples/Activities | Assessment/Evaluation |
| 7. The <u>Interactive</u> Nature of Learning | |
| 8. Provisions for <u>Practice & Feedback</u> | |
| 9. <u>Applications</u> of Learning to <u>Life</u> | |
| 10. <u>Performance Management</u> | |

6. Some Types of Software for Educational Uses:

1. **Tutorials:** - (information and skills development)
2. **Drills & Practice:** - (procedures, techniques & routines)
3. **Simulations:** - (skills development & problem solving)
4. **Discovery:** - (exploration and integrated/whole learning)
5. **ILS:** - (Integrated Learning Systems- various subjects)
6. **Authoring Tool-kits:** - (Creative designs, workshops, and collaboration)

- 7. **Multimedia:** - (Research & presentation, Power Point, Web Pages).
- 8. **Communication:** - (Accessing, management, monitoring, and control).

Tutorials:

Tutorials are software programs used primarily for presenting information, tips, rules, principles, and guides to skills development. They are perhaps best used in events 2, 3, and 5 of instruction (see list of events below). Tutorials usually begin with an introductory section that outlines the procedural steps to be followed, then the presentation cycle begins. The lesson can be terminated at any point by the learner, or the program. A closing or summary section is optional, but most useful tutorials include these and other reinforcement activities. Tutorials are not intended, or suitable, for competency development or mastery assessment.

Drill & Practice:

Drills are software primarily used for the practice of some routine, or skill, or technique. Drills simply provide practice & reinforcement for previously introduced basic concepts & techniques. However, drills are not appropriate for the reinforcement of higher order skills and complex concepts. Drills are not intended to teach, and are therefore appropriate only in the 3rd. event of instruction (providing practice). Drills are useful in limited areas of curriculum, such as with basic mathematics skills, spelling/vocabulary/language usage & simple psychomotor procedures.

Simulations:

A simulation/problem solving type software program is one that teaches by imitating or replicating the reality within an instructional situation. These are most useful in situations where the actual/real form of the matter to be handled in learning might pose some risk or danger - for example: in a chemical lab, or learning to fly an aircraft. Simulation and problem-solving type software can be used at any stage or in any event of instruction; But is perhaps best suited for first three events/stages.

Constructive/Discovery:

This category covers a very wide range of computer-assisted instructional software that allows the learner to inquire into an information resource, using inductive learning/ instructional strategies. Discovery software programs can be designed/developed over a variety of content areas, including: Science, Mathematics, Social Studies, and Language Arts. The discovery-focused method in computer-assisted instruction (CAI) helps students develop problem-solving skills, research skills, critical thinking and analytical skills. Many discovery software programs are not self-instructional, and therefore may require significant inputs from teachers to structure the learning experiences. Discovery type software usually consists of a large database - allowing for varying explorations.

Integrated Learning Systems (ILS):

These are computer-based software packages that are said to be designed to deliver curriculum materials to students in an individualized, self-contained method that depends entirely on the computer to manage student's learning progression. Features of ILS software packages usually include:

- i) Diagnostic elements for students' learning needs assessment & placement;
- ii) Record keeping facility for responsive and cumulative performance;
- iii) A networked environment - usually required to run the program;
- iv) The capacity to manage student's work at varying levels;
- v) The provision, or requirement, of tutorial practice sessions/activities;
- vi) The provision of periodic feedback to students;

- vii) At least three (3) basic elements of coverage: a) Curriculum content; b) students' achievement tests; c) records management system.

In most ILS software systems currently available, the term **“integrated”** is a misnomer; or is at best poorly developed.

Games:

Games are a powerful instructional tool for the 1st. event of instruction; But they are also very useful in the development of mouse skills and dexterity/ manipulation of graphics.

Productivity Tools:

Productivity tools software programs, such as: word processing, spreadsheet, and graphics programs, can be used to enhance teaching activities/strategies. These software programs can be used in just about any subject area, and are particularly useful in helping both teachers and students develop information processing and research skills, problem solving, and creative thinking. These productivity tools can make it easier for students and teachers to organize and edit their work. Other useful applications include database development, data analysis, creating projects, managing projects, and collaboration.

7. Elements of Instructional Software

| Basic Elements | Augmented Elements |
|-------------------------------------|---|
| 1. Curriculum related content | * Course support tools (e.g. customizing) |
| 2. Instructional format & procedure | * User tools (for both teachers & students) |
| 3. Core activities within lesson(s) | * Online resources and help tools |
| 4. Learner record-keeping facility | * Reinforcement activities and |
| 5. Program management system | * Project (Collaboration) Ideas. |
| 6. Assessment & reporting system. | |

8. Computer Technology (Software) and the Events of Instruction:

Firstly, it should be appreciated that the list of events below is only one generic model of instruction. However, the instructional development process using computer software is quite similar to that with any other instructional media.

Activity:

For each of the events of instruction, provide a sample explanation of how the process could develop with a software program of your choice.

Use the following table to develop/match the events of instruction with technology/software utilization activities. This is best done as a collaborative exercise.

| Event of Instruction | Instructional Activity | Student Learning Activity |
|--|-------------------------------|----------------------------------|
| Event #1: Gaining the Learner's Attention | | |
| Event #2: Presenting the Information | | |
| Event #3: Guiding the Learning Process | | |
| Event #4: Provide Practice Opportunities | | |
| Event #5: Provide Feedback & Clarification | | |
| Event #6: Assessing Learning Outputs/outcomes | | |
| Event #7: Application and Revision | | |

9. Some Critical Question Before Software Use:

- What types and levels of objectives are covered by the software?
- Is it the best, or a supplemental, means of delivering the instruction?
- How appropriate and adequate are the related content and activities?
- How consistent are its design features with the existing curriculum?
- Can teachers easily adopt, or use, the software instructional strategies?
- What are the critical systems requirements for its effective use?
- How can, or will, its effectiveness be determined by evaluation?
- What level of support (e.g., user manuals and orientation) is provided?

10. Software Evaluation: Towards a Useful Instrument

1. **D**etermine the needs of users and clarify conditions
2. **O**btain/develop criteria and performance checklist
3. **I**dentify/specify required features & support systems
4. **S**urvey likely sources, and check track-record of uses
5. **P**lan for, invite, and observe demonstration of use(s)
6. **A**rrange for pilot use with sample target users & experts.

Software & System Evaluation Criteria

| | |
|---|---|
| TECHNICAL QUALITY: | System meets international standards, with durable & adequate capacity, good design features, graphics, and user-friendly format. |
| INSTRUCTIONAL QUALITY & VALUE: | Presents sound instructional design/delivery structures, valid content & learning choices. |
| SUPPORT SYSTEMS: | Adequate user guide, help, maintenance, student/teacher tools and records systems. |

RELATIVE VALUE: Cost/benefit - relative to main purpose(s).
Price compares favourable in the market.

Software Evaluation Instrument (SE/01)

| Instruction: For each characteristic use a rating scale of 1-4 (where 1 is lowest and 4 is highest) | 1 | 2 | 3 | 4 |
|--|----------|----------|----------|----------|
| Technical Quality | | | | |
| TQ.1: User <u>appeal</u> of the software presentation format & design/layout | | | | |
| TQ.2: Quality & appropriateness icons, <u>graphics</u> , and other visual displays | | | | |
| TQ.3: Multimedia options and potential for adaptation and/or <u>customization</u> | | | | |
| TQ.4: Quality & utility of the <u>media modes</u> (print, audio, visual) in the software | | | | |
| TQ.5: Structural quality (concepts, grammar, vocabulary) of the <u>instructions</u> | | | | |
| System Requirements | | | | |
| SR.1: Simultaneous <u>multiple user</u> access facility/potential | | | | |
| SR.2: <u>Compatibility</u> of the software system with existing/available platform | | | | |
| SR.3: Minimum system <u>support or upgrading requirement</u> to use the software | | | | |
| Instructional Quality | | | | |
| IQ.1: Clarity of <u>objectives</u> , introduction, and directions for the user | | | | |
| IQ.2: <u>Validity and relevance</u> of the contents presented in the material | | | | |
| IQ.3: <u>Cultural relatedness</u> of the material to the target learners' experience | | | | |
| IQ.4: Appropriateness of the <u>content & readability level</u> for the target group | | | | |
| IQ.5: <u>Instructional design</u> of the learning tasks, and scope & sequence of content | | | | |
| IQ.6: Provision for learner <u>interactivity</u> within learning chunks/segments | | | | |
| IQ.7: Encouragement of <u>creativity & problem-solving</u> in the instruction | | | | |
| IQ.8: Adequacy of <u>feedback</u> and validity of built-in tests within the instruction | | | | |
| IQ.9: Sensitivity to cultural and gender <u>biases</u> in the instructional activities | | | | |
| IQ.10: Potential for easy <u>integration</u> into existing course, and/or curriculum. | | | | |
| Support Materials | | | | |
| SM.1: Ease of access to, and <u>user-friendliness</u> of, the control & help features | | | | |
| SM.2: Quality and helpfulness of the <u>user-guide</u> (for both students & teachers) | | | | |
| SM.3: Quality & practicality of the <u>learner management</u> and records system | | | | |
| SM.4: Availability & quality of <u>support systems</u> , including maintenance facility | | | | |
| Relative Value | | | | |
| RV.1: <u>Price</u> compared with software of similar category and offerings | | | | |
| RV.2: Curriculum <u>coverage, or contribution</u> to the related training program | | | | |
| RV.4: <u>Overall costs</u> (Unit; Prep; & Support) relative to alternative media. | | | | |

Summary of Rating:**Interpretation of Scores:**

| Aspects | Max. Score | Actual Score | Ranges & Value of Total Score |
|---------------------|------------|--------------|--|
| Technical Quality | 20 | | 85-100 = Excellent & of high quality (recommendable) |
| System Requirements | 12 | | 75-84 = Good & usable with minor adjustments/changes |

| | | | |
|-----------------------|----|--|--|
| Instructional Quality | 40 | | 65-74 = Usable but requires adaptation & supplement |
| Support Materials | 16 | | 55-64 = Not recommended for use without modification |
| Relative Value | 12 | | 25-54 = Unacceptable for any use in this context. |

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11. Classroom Teaching Vs Software Delivery

| <u>Classroom Teaching</u> | <u>vs.</u> | <u>Software Delivery</u> |
|---|-------------------|--|
| 1. Individualized teacher planning developed by team, and design. | | 1. Designed & and programmed format. |
| 2. Time-tabled periods of instruction. self-paced. | | 2. Instructional chunks, |
| 3. Teacher-managed delivery of the managed delivery instructional materials & events. | | 3. Computer- |
| 4. General or Core subjects along and/or integrated with specialized content areas. content areas. | | 4. Individualized subjects and |
| 5. Coverage includes: (objectives; (lessons or content; steps or methods; tests; aims reinforcement activities, tests; practice; and evaluation). performance reports). | | 5. Coverage includes: content; diagnostic & objectives; drill & tests; & |
| 6. Instructional management by program managed teacher discretion. | | 6. Instructional by system administrator. |
| 7. Textbooks & reference materials. & user guide. | | 7. Software package |

8. Functional / performance levels levels access.
predetermined by age & grade.

8. Selective learning

9. Validation (assumed) by MOE.
by designer

9. Validation (assumed)

Note: Features of teaching will vary depending on individual teacher training & professional competency levels; and features of software will vary according to software sources, design quality and levels of delivery.

12. Essential Skills for Teachers in the ‘Age of Technology’

1. Strategic instructional planning and designing
2. Research, information processing
3. Diagnosing learners' needs and interests
4. Designing and/or selecting instructional materials
5. Matching instructional ends with means
6. Organizing/structuring teaching/learning activities
7. Using and managing information technologies
8. Communicating in various instructional modes
9. Motivating learners and encouraging interactivity
10. Evaluating performance outcomes of instruction.

13. Some Ideas for Computer (software) Uses in Education:

Sample Goals:

1. To improve literacy/numeracy software.
skills acquisition:

2. To motivate & involve learners:
visually

3. To encourage research and WWW.
information-processing skills:

4. To broaden the range of curriculum objectives:

5. To prepare students for the

Sample Software Applications:

- Use drill & practice, or ILS type

- Use multimedia software with rich materials.

- Use the word processing tool &

- Use project-based software and networking/collaboration.

- Use basic computer-skills software.

“World of Work”:

- | | |
|---|--|
| 6. To enhance teacher's skills and teaching strategies: | - Use productivity tools, graphics, and multimedia software. |
|---|--|

Sample Software Utilization in the Sub-region

| <u>Some Software in Use</u> | | <u>Examples of Uses Being Made</u> |
|--|-------|--|
| • Office 97/2000: (CXC/GCE) | | - Preparing students for exams |
| • Mavis Beacon: | | - Developing keyboarding skills |
| • Games (e.g. Atari): entertainment | | - Developing mouse skills, and |
| • Microsoft Suite: generation | | - Preparing for word processing & data |
| • Celcat: | | - For administrative purpose <u>(time tabling)</u> |
| • Skills Bank 4: Studies, Etc. | | - Maths, Language, Science, Social |
| • Language Tutor: development | | - For Spanish and French language |
| • Encyclopedia: | | - For research, data processing, and Social Studies |
| • Sequoyah (Literacy): problem solving | | - Literacy, general knowledge, and |

14. Evaluation: Definition, Purpose, Levels and Procedure

Evaluation is the process of determining value, quality, efficiency, and/or effectiveness of a product, process, or condition. It is also the systematic process of collecting, analyzing and interpreting data to inform decision-

making. The primary focus of an evaluation is usually on outputs/results, outcomes/benefits, impact, and side effects.

There are essentially four levels of evaluation:

- Level 1: Suitability and Appreciation**
{Focus on validation by user impression & preference, and situation fit}.
- Level 2: Effectiveness and Efficiency**
{Focus on objectives achievement; met needs; uses made; or results}
- Level 3: Utilization and Application**
{Focus on skills/knowledge acquisition, attitudes, and the transfer of skills to the real world/of work}.
- Level 4: Impact, Benefits, Gains, and Lessons Learned**
{Focus on quality of life changes, improved systems, and side effects}

The two basic types of criteria in evaluation:

Intrinsic Criteria:

Relevance - to context & purpose **Practicality** - of conditions & resources
Acceptance - by stakeholders & users **Legality** - consistency with contract
Legitimacy - consistency with policy

Extrinsic Criteria:

Effectiveness - performance objectives **Intennded Outcomes** - impact & Effects.
Unintended Outcomes - side effects **Worth/Payoff** - benefits minus liabilities
Lessons Learned - insight & experience

Computer Software Selection & Evaluation: A Procedural Model

| Phase/Stage | Suggested Activity | Responsibility |
|--|---|-----------------------|
| 1. TNA/FEA (Training Needs Assessment & Front End Analysis) | a) Diagnostic assessment of learning needs b) Assessment of teaching/learning conditions. | |
| 2. SOURCING (Checking Likely Sources of Software Supplies) | a) Profiling software sources & checking credibility b) Comparing & deciding on reliable sources | |
| 3. EVALUATION (Preview, Demo and Selection of Software) | a) Using software selection & evaluation criteria b) Assessing suitability & costs of software | |
| 4. PROCUREMENT (Securing Software by Approved Funding) | a) Securing funding & communicating with supplier b) Complete requirements for procurement | |
| 5. VALIDATION (Ensure Quality of Software Supplies) | a) Checking consistency of software specifications. b) Ensuring proper delivery and installation | |
| 6. INTEGRATION (Infusion of Software into Curriculum) | a) Develop strategies for software use in curriculum b) Prepare users for integration through training | |

Note:

It is recommended that a systematic approach be developed for the selection and evaluation of any computer software to be adopted/used in an education

program. Six stages/phases of the selection & evaluation process are shown below. This procedural model is a generic one, and is subject to modification.

Recommendations for Organizing a (Software) Evaluation Process:

1. Form a review panel for collaborative work.
2. Design and develop a technology (software) selection process.
3. Identify available options and reliable sources of products.
4. Determine and calculate/analyze the various costs involved.
5. Consider necessary support systems to be provided.
6. Consider lessons learned from other context (pilot or evaluation studies).
7. Develop a proper training/orientation process for users.
8. Conduct internal (in-house) and External (professional) evaluation.
9. Conduct management review and take decisions about continuity.

15. Indicators of Cost-Effectiveness & Cost-Benefits:

Cost-effectiveness is directly related to product & process relevance, and validity. It is best determined by analysis of the types of costs involved and by indicators of effectiveness.

Types of Cost:

| | |
|----------------------|--|
| UNIT COST: | Total cost of the product divided by the number of users to benefit from it. |
| PREP. COST: | Total cost of all inputs (required up front) to be able to effectively use the product. |
| CYCLE COST: | The total cost of the project cycle (one round of use) relative to the completion/success rate of the beneficiaries. |
| SUPPORT COST: | The value of all resources required for implementation of the product. |

Indicators of Benefit:

- i) Change of awareness and attitude;
- ii) Quality of results and outcomes;
- iii) Rate of adoption and utilization;
- iv) Success stories of real life application of the lessons learned;
- v) Positive side effects (such as indirect influence on attendance);
- vi) Sustainable efforts, and/or project ideas emerging.

16. Curriculum & Technology (Software) Integration Issues:

- **Design Format & Style:** - Varied with teachers, or systematically designed
- **Learning Conditions:** - Rigid, flexible, open, or driven by learning theories
- **Content & Activities:** - Prescriptive, integrated, creative, or structured
- **Access & Scheduling:** - Limited, expanded, open, in periods or chunks
- **Interactivity & Roles:** - Collaborative, networked, or individualized
- **Strategies & Means:** - Appropriate, practical, available, and/or costly
- **Assessment & Evaluation:** - Objective, subjective, Mastery, or context related.

Major Factors Contributing to Effectiveness of Technology (software) in Education:

(Based on Lessons Learned From **JCSEF** Software & Cluster Interventions, 1998-99)

1. **Students' Interest:** - in the technology & learning packages
2. **Technology Leadership:** - demonstrated competencies & initiatives
3. **Teacher Orientation:** - to the technology related software
4. **Involvement /Role:** - of the school principal / administrator
5. **Teacher Inputs:** - guide, instructional design, and strategies

6. **Support Systems:** access - resources, maintenance, facilities,
7. **Curriculum Coverage:** content - quantity & quality of valid
8. **Instructional Strategies:** feedback - presentation schema, activities,

Appendix (i)- Technology in Education Baseline Survey - Form 1B

(For ICT Committee Members and/or Resource Persons)

1. **Biographic Data:** Country:
 First Initial & Surname: _____ M/F: ____ Institution: _____
 Professional Training: Untrained ____ Certificate/Diploma ____ Graduate ____ Trained Grad. ____
 Yrs. Of Teaching: _____ Area/Subject: _____ Grade/Level: ____
 Do you have access to a computer? Yes ____ No. ____ Are you computer-phobic or shy ? Yes ____ No. ____
2. **Technology Skills Inventory:** Use the Key provided to indicate your skill level in each of the following:
Key: 0 = None (no formal or informal training/exposure)
 1 = Basic (up to 15 hours of training, or self-help exposure)
 2 = Intermediate (up to 30 hours of short term practical training)
 3 = Advanced (up to 45 hours of specialized training & experience)
 4 = Professional (training & practice up to certificate/diploma/degree level)

| Technology Areas - Track I | 0 | 1 | 2 | 3 | 4 | Technology Areas - Track II | 0 | 1 | 2 | 3 | 4 |
|--|---|---|---|---|---|---|---|---|---|---|---|
| a) Print materials (e.g., textbooks) | | | | | | j) Keyboard, mouse, & basic computing | | | | | |
| b) Audio tape recorder/player | | | | | | k) Word processing/desk top publishing | | | | | |
| c) Video tape recorder/player | | | | | | l) Basic Windows (3.1/95/98) functions | | | | | |
| d) Graphics (e.g., charts, drawings) | | | | | | m) Computer graphics/illustrations/clip art | | | | | |
| e) Projected media (film, slide, overhead) | | | | | | n) Multimedia presentations / software | | | | | |
| f) Non-projected media (e.g., displays) | | | | | | o) Internet and E-mail communications | | | | | |
| g) Interactive radio, T.V., or Telecomm. | | | | | | p) Spreadsheet and database software | | | | | |
| h) Selection & evaluation of software | | | | | | q) Using online learning materials | | | | | |
| i) Integrating technology in curriculum | | | | | | r) Courseware/software authoring tools | | | | | |

3. **Essential Skills/Training Needs:** On a rating scale of 1-4 (where 1 is low and 4 is high), how important do you consider each of the following set of skills/competencies in the training and professional development of teachers. If uncertain please tick column (UN).

| Technology-related Skills & Teaching Competencies | U | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
|---|---|---|---|---|---|

| | N | | | | |
|---|---|--|--|--|--|
| a) Use computer and other technologies to enhance teaching/learning activities | | | | | |
| b) Use computer with selected software for personal development, and professional work | | | | | |
| c) Apply learning principles, research and assessment skills to technology in education | | | | | |
| d) Use the computer for problem-solving, and for database & information management | | | | | |
| e) Evaluate and select computer software & related technologies for use in instruction | | | | | |
| f) Plan instruction and match technology resources/strategies (Means) with objectives (ends) | | | | | |
| g) Use productivity tools (e.g., word processing, database, spreadsheet) to enhance instruction | | | | | |
| h) Apply knowledge & skills in multimedia presentations to support instruction & learning | | | | | |
| i) Integrate computer and other technologies in school curriculum and instructional activities | | | | | |
| j) Design instruction and develop appropriate technology support materials & systems. | | | | | |

4. Technology Related Work/Experience:

What is your primary technology-related role in your organization ? _____

Briefly describe your training/orientation to perform this role ? _____

5. Software Evaluation Experience:

Briefly describe your experience in software selection and/or evaluation: _____

List a few software packages/materials you have used, state the primary purpose for which each was used, and then by using a rating scale of 1-4 (where 1=poor; 2=fair; 3=good; 4=excellent), rate each software in terms of its effectiveness and/or appropriateness.

| Name or Type of Software | Primary Purpose or Use | 1 | 2 | 3 | 4 |
|--------------------------|------------------------|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

6. Your Opinion:

Provide a very brief response to express your opinion on each of the following technology-related questions/issues:

| Critical Question / Issue | Brief Opinion |
|---|---------------|
| a) How important is training in instructional Technology to other subjects in the School curriculum? | |
| b) What are the likely obstacles to the effective integration of technology in education and school curriculum ? | |
| c) What are the likely areas of positive Impact of a technology course on the Education system in your territory? | |

Appendix (ii)-Technology in Education Baseline Survey - Form 1A:

(For Teachers)

1. **Biographic Data:** Country: _____
 First Initial & Surname: _____ M/F: _____ Institution: _____
 Professional Training: Untrained _____ Certificate/Diploma _____ Graduate _____ Trained Grad. _____
 Yrs. Of Teaching: _____ Area/Subject: _____ Grade/Level: _____
 Do you have access to a computer? Yes _____ No _____ Are you computer-phobic or shy? Yes _____ No _____
2. **Reasons for Pursuing Training in Technology.** Please tick as many as relate to you:
 a) I am expected to use technology in my work _____ b) I wish to enhance my instructional delivery _____
 c) To keep up with, or ahead of my students _____ d) To be able to use certain computer software _____
 e) To be familiar with computers for personal use _____ f) To upgrade my skills & academic qualification _____
3. **Technology Skills Inventory:** Use the Key provided to indicate your skill level in each of the following:
Key: 0 = None (no formal or informal training/exposure)
 1 = Basic (up to 15 hours of training, or self-help exposure)
 2 = Intermediate (up to 30 hours of short term practical training)
 3 = Advanced (up to 45 hours of specialized training & experience)
 4 = Professional (training & practice up to certificate/diploma/degree level)

| Technology Areas - Track I | 0 | 1 | 2 | 3 | 4 | Technology Areas - Track II | 0 | 1 | 2 | 3 | 4 |
|--|---|---|---|---|---|---|---|---|---|---|---|
| a) Print materials (e.g., textbooks) | | | | | | j) Keyboard, mouse, & basic computing | | | | | |
| b) Audio tape recorder/player | | | | | | k) Word processing/desk top publishing | | | | | |
| c) Video tape recorder/player | | | | | | l) Basic Windows (3.1/95/98) functions | | | | | |
| d) Graphics (e.g., charts, drawings) | | | | | | m) Computer graphics/illustrations/clip art | | | | | |
| e) Projected media (film, slide, overhead) | | | | | | n) Multimedia presentations / software | | | | | |
| f) Non-projected media (e.g., displays) | | | | | | o) Internet and E-mail communications | | | | | |
| g) Interactive radio, T.V., or Telecomm. | | | | | | p) Spreadsheet and database software | | | | | |
| h) Selection & evaluation of software | | | | | | q) Using online learning materials | | | | | |
| i) Integrating technology in curriculum | | | | | | r) Courseware/software authoring tools | | | | | |

4. **Essential Skills /Training Needs:** On a rating scale of 1-4 (where 1 is low and 4 is high), how important do you consider each of the following set of skills/competencies in the training and professional development of teachers. If uncertain please tick column (UN).

| Technology-related Skills & Teaching Competencies | UN | 1 | 2 | 3 | 4 |
|---|----|---|---|---|---|
| a) Use computer and other technologies to enhance teaching/learning activities | | | | | |
| b) Use computer with selected software for personal development, and professional work | | | | | |
| c) Apply learning principles, research and assessment skills to technology in education | | | | | |
| d) Use the computer for problem-solving, and for database & information management | | | | | |
| e) Evaluate and select computer software & related technologies for use in instruction | | | | | |
| f) Plan instruction and match technology resources/strategies (Means) with objectives (ends) | | | | | |
| g) Use productivity tools (e.g., word processing, database, spreadsheet) to enhance instruction | | | | | |
| h) Apply knowledge & skills in multimedia presentations to support instruction & learning | | | | | |
| i) Integrate computer and other technologies in school curriculum and instructional activities | | | | | |
| j) Design instruction and develop appropriate technology support materials & systems. | | | | | |