Evaluation of Educational and Training Program

2012 E.C

INTRODUCTION

- Educational materials are one of the key components of educational technology.

- From the general didactic aspect, educational materials can be defined as:
  - The didactically adapted materials that the teacher can use during the teaching process as teaching materials; for the students who are acquiring or revising their knowledge with the help of the materials, these materials are learning materials or learning sources

    (cf. for example Apple & Christian-Smith, 1991).

- Consequently, educational materials must be prepared in such a way that they help

  - The teacher with quality planning and carrying out of the teaching process and

  - Students with their independent learning, that is, gaining, revising, reflecting on, valuing and using knowledge.

- Educational materials are therefore

    - All the specially prepared materials intended to be used during the processes of teaching and learning,

- In other words, when studying specific educational contents and achieving specific educational goals defined in syllabuses.

- For that reason, they are appropriately didactically adapted.

- Educational materials consist of books, encyclopedias, atlases, dictionaries, textbooks, etc.; that is, mostly written materials, which can be either printed or available in electronic form (on digital media or on-line).

- Both printed and electronic educational materials are indispensable in the teaching process, since they are – in addition to the teacher's direct explanation and other learning activities – an important source for students.

- What does the requirement for a suitable didactic adaptation of educational materials actually mean?

- What characteristics of educational materials have the most decisive impact on their didactic quality, effectiveness and functionality during the processes of teaching and learning?

- These are the issues addressed in the first part
  1. Defines the didactic functions of educational materials,

  2. Defines the factors influencing the selection of educational materials during instruction, and

  3. Discusses some of the main criteria according to which the didactic quality of educational materials can be assessed.

- The didactic functions of educational materials and educational technology In 1970, Gagne wrote about the functions of educational media as an important part of educational technology.

- The key functions of educational media primarily include
  - Presenting the stimulus,
  - Directing attention,
  - Furnishing external prompts,
  - Guiding the direction of thinking,
  - Inducing transfer of knowledge and
  - Assessing learning attainments

  (Gagne, 1970, p. 230).

- The functions that are ascribed to educational technology as a whole are, of course, valid when discussing educational materials as an important part of educational technology, as well.
- They:
  - Enable higher explicitness;
  - Help organize instruction more rationally and effectively (thereby realizing the didactic principles of effectiveness and rationality);
  - Stimulate students' activity and effectiveness;
  - Make the process of learning easier;
  - Help acquire knowledge of better quality;
  - Encourage students' independence and critical thinking when selecting/collecting information and so on

    (cf. also Akhtar, Munshi, & Naseer Ud Din, 2010; Fleischman, 2004; Means & Olson, 1995; Prensky, 2008).

- As Saglam also emphasizes,
  - "Teaching materials provide a great deal of convenience in teacher's ability to convey a message to students in an accurate, proper, clear and understandable manner; in making abstract knowledge concrete and in enabling students to comprehend complex ideas through simplification.

- When properly used, printed materials, audio-visual materials and experience-giving methods help make the learning process easy and enduring.

- Studies concluded that the number of sensing organs activated by the teaching materials used in learning–teaching process is directly proportional to an easy and enduring learning process.

- In other words, the higher the number of sensing organs activated by the teaching materials employed in learning–teaching process, the better and more enduring the learning process is"

(Saglam, 2011, p. 36).

- A Slovene author, Jana Kalin (2004), adds some further functions of educational technology and educational materials: the functions of instruction, control, evaluation and organization.

- We should not overlook, however, that the role of the professionally well qualified and educated teacher is crucial for a didactically good-quality use of educational materials during instruction.

- Factor influencing effective instruction and learning is:
  - "the extent to which the teacher manages to stimulate the learner's activity in the process of instruction, especially with learning tasks that aim at achieving the planned educational goals"

    (Valenčič Zuljan, Peklaj, Pečjak, Puklek, & Kalin, 2012, p. 51).

- The use and implementation of good quality educational materials in teaching and learning processes is, without doubt, one of the key components of the teacher's didactic efforts.

- In this aspect, too, Kalin (2004, p. 212) stresses the importance of the teacher's role when developing and specifying (predominantly operational) educational goals; choosing suitable educational media; preparing, organizing and conducting instruction; and evaluating instruction as well as students' knowledge.

- What are the key factors in selecting educational materials for teaching and learning processes?

  (cf. for example Dowling & Harland, 2001; Ertmer, Ottenbreit-Leftwich & York, 2007; Parker, Bianchi & Cheah, 2008; Wang & Reeves, 2003; Csomai & Mihalcea, 2007)

- Educational objectives and planned learning outcomes.

- The already existing (prior) knowledge of learners

  - The prior knowledge is necessary for a satisfactory understanding of an educational material depends on the level of explicitness of the text.

  - However, it is almost impossible to create pedagogical materials that simultaneously serve the needs of both low- and high-knowledge users"
                    (Csomai & Mihalcea, 2007, p. 557).

- Teachers' didactic practice (their anticipation as to how to achieve the objectives (didactic strategies, teaching methods, forms of class organization))

  - The teacher's decision about the selection of educational media should be primarily deduced from the goals of the practice (i.e. the desired output), learning types, the functions of teaching and the modalities of sensory perceptions

    (Briggs, 1970).

- As a general principle factors to be taken into account when deciding on the use of educational materials in the teaching process:

    - the objectives and goals of instruction,

    - the characteristics of educational contents,

    - the intended didactic strategies,

    - the characteristics of the social environment,

    - the characteristics of students and teachers, and

    - the characteristics of the materials themselves

    (cf. also Kalin, 2004, pp. 213–214).

- The factors influencing the teaching process are, undoubtedly, intertwined and should therefore be addressed as a synchronous whole.

- The objectives and goals of instruction are the starting point for the selection and structuring of materials during instruction.

- They make up a framework for the selection of the materials that will enable the achievement of specified educational goals

(ibid.).

- According to Gagne (1970), the teacher should not start only from the goals themselves; rather, he/she should establish a connection between educational goals and appropriate ways of learning.

- Identifying the learning method suitable for a specific goal also makes it easier to identify an appropriate educational medium through which the goals that different ways of learning lead to can be achieved.

- Educational contents, as Jana Kalin (2004, p. 213) also define the selection of materials, as the teacher should choose such a medium that will allow for a systematic treatment of the educational content and its credible representation and will take into account learning steps.

- When selecting educational media/materials, the teacher should also bear in mind the didactic strategies that he/she will use during the teaching process. Kalin (ibid.) distinguishes the media in terms of methods.

- Considering the characteristics of students and teachers, we have to be aware of and take into account students'
  - abilities, gender, age, experience, prior knowledge, working tempo and learning progress (Kalin, 2004).

- Great importance should also be placed on the teacher's attitude toward
  - Educational media,

  - His/her experience in using educational technology,

  - Qualification for its use and the professional judgment on the manner and frequency of its use (ibid.).

- And, finally, the technical and didactic characteristics of the media/materials are also highly relevant.

- The materials have to be didactically adapted, that is, suited to the needs of the teaching process.

- They should contain and transmit information as well as allow students the attainment of educational goals (ibid., p. 214).

- The criteria applying to the general-didactic suitability, quality and variety of educational materials are:

  - The clarity and coherence of the materials' structure,

  - The quality of multimedia elements,

  - The goal-oriented design of educational materials,

  - The promotion of the development and acquisition of key competences,

  - The use of the inductive approach,

- The methodical and didactic adaptation of the materials for the needs and characteristics of the target group,

- The inclusion of motivational elements in educational materials,

- The provision of stimuli for active learning,

- The incorporation of the activities that lead to the attainment of goals at different taxonomic levels, and

- The inclusion of recommendations for establishing connections with other program units

Evaluation of Training

Learning objectives

- Students will be able to:
    - Describe the components of typical evaluation measures

    - Identify and/or develop a method and an instrument that is culturally appropriate for evaluating a training delivery;

    - Explore measurement issues and considerations

Monitoring the training

- Evaluating the Training (includes monitoring) addresses how one determines whether the goals or objectives were met and what impact the training had on actual performance on the job or in the community.

✓ Generally there are 4 kinds of standard training evaluation:

- Formative, Process, Outcome, and Impact.

Types of evaluation

- Formative evaluation provides ongoing feedback to the curriculum designers and developers to ensure that what is being created really meets the needs of the intended audience.

- Process evaluation provides information about
  - what occurs during training.
    - This includes giving and receiving verbal feedback.

- These two constitute monitoring

Types of ....

- Outcome evaluation determines whether or not the desired results

  - (e.g., what participants are doing) of applying new skills were achieved in the short-term.

- Impact determines how the results of the training affect the strategic goal

  - e.g. health promotion goal of reducing the incidence and prevalence of HIV/AIDS.

- These two constitute what is usually referred to as evaluation or final evaluation

Evaluation Methods

- Evaluation methods can be either qualitative (e.g., interviews, case studies, focus groups) or quantitative (e.g., surveys, experiments).

- Training evaluation usually includes a combination of these methods and reframes our thinking about evaluation in that measurements are aimed at different levels of a system.

Formative Evaluation is

- *"any combination of measurements obtained and judgments made before or during the implementation of materials, methods, or programs to control, assure or improve the quality of program performance or delivery."*

- It answers such questions as,
  - Are the goals and objectives suitable for the intended audience?

  - Are the methods and materials appropriate to the event?

  - Can the event be easily replicated?

Formative Evaluation-2

- Formative evaluation furnishes information for program developers and implementers.

- It helps to determine program planning and implementation activities in terms of
    - (1) target population,
    - (2) program organization, and
    - (3) program location and timing.

- It provides "short-loop" feedback about the quality and implementation of program activities and thus becomes critical to establishing, stabilizing, and upgrading programs.

Process Evaluation

- Process Evaluation answers the question, "What did you do?"

- It focuses on procedures and actions being used to produce results.

- It monitors the quality of an event or project by various means.

- Traditionally, working as an "onlooker," the evaluator describes this process and measures the results in oral and written reports.

- Process evaluation is the most common type of training evaluation.

- It takes place during training delivery and at the end of the event.

- Most of you probably have done it in one form or another.

- The question we try to answer is "What did you do?"

Process Evaluation-1

- Following is a sample list of the kinds of information collected to answer this question:

- Demographic data (characteristics about participants and their physical location)

- What was taught; how long it took

- Whether or not the objectives were met

- Who did what to whom, and when

Outcome Evaluation

- Outcome Evaluation answers the question,
  - "What happened to the knowledge, attitudes, and behaviors of the intended population?"

- Specific and observable changes in behaviors that lead toward healthier or more productive lifestyles and away from problem causing actions indicates a successful program.

- For example, a successful project is one that is successful in causing a higher percentage of students to use condoms when.... This project would produce both "outcomes" and "impacts."

Outcome Evaluation-1

- Outcome evaluation is a long-term undertaking.
- Outcome evaluation answers the question,
  - "What did the participants do?"

- Because outcomes refer to changes in behavior, outcome evaluation data is intended to measure
  - What training participants were able to do at the end of training and
  - What they actually did back on the job or in their community as a result of the training.

In essence/Principles

- For example, at the end of the training, were participants able to:
    - Develop their own goals and objectives?
    - Develop an action plan for a specific issue?

- Back on the job, were participants able to
    - Conduct a needs assessment of the intended audience identified for a new curriculum design effort?
    - Actually use the Toolkit?

- In other words, outcome evaluation looks at whether or not participants and/or organizations/ agencies/ units achieved the desired results from applying the knowledge, attitudes, and/or skills learned in the training.

Impact Evaluation

- Impact Evaluation takes even longer than outcome evaluation and you may never know for sure that your project helped bring about the change.

- The focus is on changes that have occurred in key social indicators which are used to gauge the levels of problem occurrence.

- Examples of "impacts" are reduction in the incidence of HIV/AIDS; increase in condom use among students

- Impacts occur through an accumulation of "outcomes."

Impact Evaluation

- Impact evaluation is meant to answer the question,
  - "How did what was taught in the training affect the problem?" (Think back on the problem statements you developed.

- Impact evaluation tries to measure whether or not training has affected the initial problem you identified.

- In other words, an impact evaluation is meant to assess the extent to which what was learned is making a difference at the community level, or targeted groups, or beneficiaries of the intervention

Impact Evaluation

- Though this type of evaluation usually takes a long time and costs a lot of money, it is the type that really focuses, for instance, on assessing whether or not there has been a reduction in the incidence and prevalence of specific problems in the community.

- The idea here is that the impact of training will hopefully be far reaching and make a difference in peoples' lives.

Training Evaluation Matrix

Technique	Subject	Information Collected	Description of Technique	Point of Application	Outcome
Participant Profile	Participant	Information on professional background and current work experience.	Short instrument with forced choice and open-ended item.	Prior to the training event.	Indicates participants'' training requirements, characteristics, and special needs.
Reactive Participant Questionnaire	Participant	Information on reactions to the training sessions and overall event and recommendations for improvement.	Short instrument with forced choice and open ended item.	Following each training session and at the end of the event.	Indicates to what extent training sessions and overall event are useful, interesting, and effective from the participants' perspective.
Participant Oral Feedback	Participant	Observations and recommendations on the training content and methods.	Open discussion facilitated by the evaluator. Participant feedback is recorded.	At the close of each training day.	Indicates problem areas, and is used to identify needed modifications.
Training Session Observation	Observer	Assessment of trainer presentation, participants' interests, and group involvement.	Observer records perceptions and recommendations for each session. The notes are collected and analyzed.	During each training day.	Indicates strengths and weaknesses of the course components.
Observer-Trainer Debriefing	Observer Training Personnel	Observations on training content and methods, trainer presentation, and group involvement.	Open discussion facilitated by the evaluator. The discussion is recorded.	At the close of each day and at the end of the training event.	Indicates problem areas, and is used to identify needed modifications.

Sample Evaluation Tool

- What are the three most important things you learned during this training?

- Do you think you will have the opportunity to utilize the training skills you've practiced during this workshop within the next three months? Yes/No

- If yes, please briefly describe when and how you might apply these skills.

- If no, please explain why you will not be able to utilize these training skills within the next three months.

- If you were given the task of redesigning the workshop, what would you change?

Evaluation…

- is the systematic collection of information on the activities, characteristics, and results in order to:
  - Make judgments

  - Improve effectiveness

  - Inform decisions

  - Increase understanding

Effective Training Evaluations:

- Are planned ahead of time

- Are individually tailored to the goals and desired outcomes of the presentation or training

- Provide credible and valid information

- Identify actionable improvements that can be instituted in the program, training, or presentation

Methods

- In general, deciding on how you will evaluate your presentations and trainings will depend on
  - what will be measured,
  - the purpose of the evaluation,
  - available resources, and
  - other factors unique to the situation.

Methods

- Interviews
- Focus groups
- Questionnaires
- Observation
- Surveys
- Analysis of records

- In choosing your approach for data collection, both the context and content of the questions of interest are important considerations.

- Context
  - How much money or time can be devoted to data collection and measurement?
  - How soon are results needed?
  - Are there ethical considerations?

- Content of the question
  - Is it a sensitive issue?
  - Is it about a behavior that is observable?
  - Is it something the respondent is likely to know?

- Target audience Evaluation data is only valid if the respondents understand the questions being asked.

- Asking very specific technical questions to an audience that is still grasping basic concepts will not yield useful information.

- Consider audience demographics such as age, gender, level of education, profession, and expertise.

  - For instance, if the audience consists primarily of public health

The Kirkpatrick Model

- A well-known and useful model for measuring the effectiveness of training programs was developed by Donald Kirkpatrick in the late 1950s.

- It has been adapted and modified over time; however, the basic structure has remained.

- The Kirkpatrick's four-level model includes:
    - Level 1 – Reaction: To what extent did the participants find the training useful, challenging, well structured, or organized?
    - Level 2 – Learning: To what extent did participants improve knowledge and skills and change attitudes as a result of the training?
    - Level 3 – Behavior: To what extent did participants change their behavior back in the workplace as a result of the training?
    - Level 4 – Results: What measurable organizational benefits resulted from the training in terms such as productivity, efficiency and sales revenue?

- In Kirkpatrick's model, levels of evaluation are sequential; evaluation of higher levels requires prior evaluation of lower levels.

- Kirkpatrick's model enables planners to understand evaluation in a systematic, organized way, and helps classify the types of information that can be obtained.

- Using Kirkpatrick's model can be helpful when considering how to collect data.

- While the Kirkpatrick model is useful, not every level can or should be reached in every training assessment.

- The level of evaluation for any training should correspond with the scope of the presentation, the length of time available, and the resources available for evaluation.

- If your training consists of a short presentation, the assessment will focus on Level 1 (reaction) and 2 (learning).

- If your training consists of a longer workshop, with resources to assess changes over time, using Level 3 (behavior) may be possible.

- Assessing at Kirkpatrick Level 4 (Results) is challenging and rarely done in practice.

The matrix below outlines the level, questions, and considerations to carefully think through.

Kirkpatrick Level	Question	Considerations
Evaluating reaction	How well did the trainees enjoy the training?	• Could be collected through verbal feedback or a post-training survey. • Do you want to find out how well the trainees liked a particular aspect of the training or the training as a whole? • Does not include measurement of learning
Evaluating learning	What principles, facts and techniques were learned?	• An increase in knowledge can be measured using both a pre- and post-survey • A post-training survey can measure an increase in confidence related to learning objectives since taking the training. • Avoid questions like "Have you learned anything?"
Evaluating behavior	What changes in job behavior resulted from the training?	• Best evaluated through appraisal by on-the-job supervisors or observations
Evaluating results	What were the tangible results of the training in terms of improved job performance or the effect on the organization?	• Also evaluated through on-the-job observations and organizational performance measures. • Some types of training results are easily measured (e.g. self-report knowledge gains) • Others are not easily measured (attitude shifts)

Thank You!!