Developing Web-based Courses:

Formative Evaluation

Reading Material


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Reading Material

Overview

Institutions that offer distance-delivered courses and programs share a compelling need to determine their quality. A major challenge of evaluation in distance education emanates from the distance that exists between the learner and the teacher. This distance creates a situation whereby the control of the teacher is reduced and the control of the learner is increased. And, of course, as the teacher's control is reduced so is the teacher's ability to completely control the design and implementation of evaluation strategies.

Measurement

A measurement is the clear presentation of a set of scores, a set of outcomes, or a set of information that has been drawn from an instructional program.

Examples of measurement statements:
- The distance education learners scored a combined 87% on the final examination.
- The concept of a t-test was learned by all learners at the 3 downlink locations.
- Clarity of materials, flexibility of learning times and prompt feedback were rated 4.8 by the learners on a 5.0 scale.

Assessment

In assessment two different measures or sets of information are brought together to allow comparison. However, no attempt is made to assign any value to the similarity or difference between the two sets of information.

Examples of assessment statements:
- The distance education learners scored a combined 87% on the final examination, which was 4% higher than the same class taught in a face-to-face situation.
- The concept of a t-test was learned by all learners at the 3 downlink locations of which only 10% knew the concept at the beginning of the course.
- Clarity of materials, flexibility of learning times and prompt feedback were rated 4.8 by the learners on a 5.0 scale. A rating of 4.0 was considered acceptable.

Evaluation

Evaluation is the comparing of two sets of information and the placement of value on this comparison.

Examples of evaluation statements:
- The distance education class surpassed our prediction when they scored a combined 87%, which was 4% higher than the same class taught in a face-to-face situation.
- Great improvement was shown when the concept of a t-test was learned by all learners at the 3 downlink locations of which only 10% knew the concept at the beginning of the course.
- The computer-based correspondence program exceeded expectations when clarity of materials, flexibility of learning times and prompt feedback were rated 4.8 by the learners on a 5.0 scale. A rating of 4.0 was considered acceptable.
Formative vs Summative Evaluation

Formative evaluation serves to improve products, programs and learning activities by providing information during planning and development. Data collected during design and development provide information to the designers and developers about what works and what doesn't early enough to improve the system while it remains malleable.

Summative evaluation determines if the products, programs, and learning activities, usually in aggregate, worked in terms of the need addressed or the system goal.

Formative vs Summative Evaluation (cont.)

Formative and summative evaluations differ in terms of:
- The audience for the information collected (Instructors, developers - funding agencies, clients)
- The time in the development cycle when the information is collected (occurs on an ongoing manner - occurs at the conclusion of the program)
- The intention behind data collection (improve instruction - draw decisions to use or continue funding or stop the distance learning system)

“When the chef tastes the soup is formative; when diners taste the soup is summative”

Robert Stake

Formative Evaluation Issues

Instructional design issues, e.g.
- Teaching strategy
- Learning content
- Assessment (test and exercise) methods

Examples of questions related to instructional design:
- Did the students learn what the goals and objectives intended? If not, why?
- Was the instruction well-written?
- Were the objectives clearly stated and measurable?
- Were appropriate instructional strategies chosen?
- Were examples provided?
- Did assessment methods correlate with instructional content and approaches?

Formative Evaluation Issues (cont.)

Interface design issues, e.g.,
- Appeal (aesthetics)
- Usability
- Workability

Examples of questions related to interface design:
- Was the Web-site easy to navigate?
- Was it aesthetically pleasing as well as legible?
- Did each page in the site download easily?
- If special plug-ins were needed, were links provided to acquire them?
**Formative Evaluation Stages**

- Design review
- Expert review
- One-on-one review
- Small group evaluations
- Field trials
- Ongoing reviews

**Design review**

- **Design review is:**
  - The use of other designers or learning theory familiar to evaluate the elements of design
- **Is performed:**
  - At the very early stages of the design process and continues until the design is set
- **Aims at:**
  - Improving the instructional design of the DE course

**Expert review**

- **Expert review is:**
  - The use of learning content experts, instructors, test creators and others to judge the appropriateness of the learning content and learning activities for the target learners
- **Is performed:**
  - At the beginning of the development phase
- **Aims at:**
  - Avoiding the development of a DE course that will not work for the intended learner population

**One-on-one review**

- **One-on-one review is:**
  - The co-working of a member of the design/development team and a member of the learner population on a piece of the interface (probably mockup or prototype) of the DE course
- **Is performed:**
  - At the beginning of interface design
- **Aims at:**
  - Getting a first information from real learners for issues relating with appealing, usability and workability of course’s web-site
Small group evaluation

Small group review is:
The co-working of a small group of the learner population on a fairly finished part (real world situation) of a DE course

Is performed:
At the final stages of the development phase

Aims at:
Probing more deeply the questions of usability and workability. To effectively analyze these questions, two types of information were gathered:
- Performance data (objective measures of behavior, such as error rates, time measures, and counts of observed behavior elements)
- Preference data (more subjective data that measures a learners feelings or opinions of course's web-site)

Field trials

Field trial is:
Trying out the completed DE course with a sample or samples of students in the actual filed setting ("prova generalle")

Is performed:
At the final stage of the development phase

Aims at:
Identifying last time problems mainly due to the real setting (for example technological or communication problems)

Ongoing review

Ongoing review is:
The collection of data and identification of problems while the course is delivered

Is performed:
During the delivery of the DE course

Aims at:
Collecting additional information in case where reanalysis, redesign and redevelopment of the course is required

Discussion

Discuss the value of formative evaluation