

Possible criteria for evaluating educational software

These criteria, as a whole, are not intended to be used as check list for each software title. The detail has been included to stimulate thinking and to give ideas to reviewers of the kind of issues they should consider when evaluating software. How much detail is required and the final selection of criteria depends on both context and focus and purpose of the software.

It is very important to first establish:

- What was this software intended to do?
- What is its focus and purpose?

before selecting from these detailed criteria

Open-ended questions used to guide the interpretation of criteria

1. What is the purpose for the educational software? What is it intended for?
2. What assumptions about the learners' prior knowledge, experience and attitudes are implicit in the software?
3. Will student anxiety and confidence with technology be addressed? If so, in what ways?

Criteria for educational effectiveness

This category for review is about the way in which clear and relevant information can motivate and direct learners effectively in their study. Learners need to understand from the outset the requirements of the various components of the software. As learners, they need to be motivated by relevant introductions and overviews within each individual module/unit. They also need to be clear about what they have to achieve in each unit and these aims and learning outcomes should be consistent with the goals of the course or software.

Introduction to the unit/section

- Explains the importance of the topic for the learner and creates interest in the material.
- Provides an overview of what is to come.
- Forges links with what the learners know already and what you are expecting them to learn.
- Points out links with other units/sections.
- Provides aims and learning outcomes in ways that are directly relevant and useful to the learners
- Gives an indication of how long the learner should spend on the material in the unit/section.

Learning outcomes

- Are stated clearly and unambiguously.
- Describe what the learners need to demonstrate to show their competence.
- Are consistent with the aims of the course and programme and aligned to the appropriate curriculum framework.

- Are supported by the content and teaching approach.

In many contexts where rote learning and authoritarian views of knowledge have been the norm, particular attention needs to be paid to the way in which knowledge is presented. The perspective we wish to promote is that knowledge should be presented as open and produced in contexts, rather than merely transferred in a packaged form from the teacher e.g. reading from text books or writing notes on the board. Learners should be given opportunities to reflect on what they learn, and their prior knowledge and experience should be valued and used in the development of new ideas and practices.

Learning skills

- Skills for learning (such as reading, writing, monitoring progress) are appropriate to the level of the learners
- The software models the processes and skills which the learners are required to master - i.e. they 'practise what they preach'.
- Summaries and revision exercises are included at frequent intervals to assist the learners to learn.
- Aside from the obvious importance of clear, coherent language at an appropriate level for the learners, the kind of style used is crucial. Style can alienate or patronize the reader, or it can help to create a constructive learning relationship with the reader. Style needs to be judged in terms of specific audience and purpose, and so a standard set of criteria is not useful. However, it is always helpful if new concepts and terms are explained and jargon is kept to a minimum

Language level

New concepts and terms are explained simply and these explanations are indicated clearly in the text.

- The language used is friendly, informal, welcoming, and accessible. Learners are not patronized or 'talked down to'.
- The language is sensitive as far as gender and culture are concerned.
- The language takes cognisance of the multilingual reality of South Africa.

Criteria for interaction and feedback

A major strategy for effective teaching using educational software is provision of a range of activities and strategies to encourage learners to engage with the content. If the course designer provides feedback or commentary on these activities, then learners will experience a form of the discussion that takes place in lively classrooms.

Activities

- Activities are clearly sign-posted and learners know where each one begins and ends.
- Clear instructions help the learners to know exactly what they are expected to do.
- Instructions allow for students to understand the principles underlying them.
- Activities are related to learning outcomes.
- Activities are sufficient to give learners enough practice for confident use after using the software.

- Activities are distributed at fairly frequent intervals throughout the unit/section.
- Activities show a good range of difficulty.
- Activities are sufficiently varied in terms of task.
- Activities are sufficiently varied in terms of levels of interactivity (self, peer, group).
- Activities are life/work related.
- Activities are realistic in terms of time indications.
- Learners know which activities they have completed and when restarting on a new computer can easily locate their place.

Feedback to learners

- Feedback helps the learners to identify the errors they have made.
- Feedback provides a structured breakdown of the error and explanation of a correct procedure.
- Where calculations are required, the stages in the working are displayed and explained.
- Supportive comments are offered to learners.
- Feedback is offered immediately where appropriate.
- The software allows for multiple learning pathways to accommodate different learners with different needs and levels of competence.

Assessment

- There is an assessment strategy for the module/course as a whole, which includes both formative and summative assessment.
- The assessment tasks are directly related to the learning outcomes.
- The assessment strategy and the assessment criteria are communicated to the learners.
- Self-assessment tasks form part of the activities and where appropriate learners can track and view their progress (see feedback below).
- Software assesses students' prior competence and allow for differentiated progress through the materials.
- Options to store and track students' use of the software and learning progress are available and support on managing this is provided.

Criteria for presentation, accessibility and navigability

This is to do with how content is taught. There is no one 'right' way to teach content – it will vary according to the subject and the audience. However, there are certain pointers for a reviewer. These include, clear explanation of concepts and a range of examples, as well as sufficient and appropriate ways for learners to process new concepts, rather than merely learn them off by heart. What is at issue here is rigour, interest, and relevance. Content should be well-researched, up-to-date, and relevant to the South African context. The learners should also be able to see how content is related to learning outcomes and goals of the course.

Presentation of content and teaching and learning approaches

- Teaching and learning approaches engage learners both intellectually and practically.
- Teaching and learning approaches promote learner responsibility.
- Concepts are developed in a logical progression.
- Concepts are explained clearly using relevant and sufficient examples or instructions.
- New concepts are introduced by linking to learners' existing knowledge.

- A variety of methods are used to present the content and succeed in keeping the learner's interest alive.
- Content is up to date.
- The content presented is comprehensive and sufficient.

Multimedia use and visual (pictures, photographs, diagrams, cartoons, video, sound)

- Visual aids complement the written text.
- Diagrams are well drawn and appropriate for target learners.
- Visual aids are gender and culture sensitive.
- Captions and explanations accompanying visual aids are adequate and give the learners a clear idea of what their purpose is.
- Instructions accompanying diagrams are clear and the learners know what they are expected to do.
- Visual and auditory aids are well placed in the text and support learning.

Layout

It is important that learners are able to find their way through the various units and sections by the provision of contents pages, headings, subheadings, statements of aims and learning outcomes, and other access devices. The text also needs to be broken up into reasonable chunks, and the layout should assist the logical flow of idea

Access devices

- Learners are guided around materials by clear navigation frameworks, which indicate how components are interrelated and how they can be used.
- Instructions on how to use materials are simple and appropriate to the prior computer competence of target learners.
- There is a contents page.
- Pre-tests are used wherever feasible to help the learners know what skills or knowledge they need to have before starting the unit or module.
- Links with previous knowledge and experience, with other parts of the same unit/section and with other units/sections are indicated.
- Learners can access help offered in the materials when required.

Navigability

- Navigation is intuitive and easy to use.
- There is a link back to the main page from all pages, and there is a link to a main level from each page.
- All pages are titled and each title is meaningful.
- There is a functional search facility.
- Consistent symbols and words are used as navigation aids.

Criteria for technical components

Appropriateness of Technology

Readability

- The typography is clean and easy to read.
- Text is broken up in small chunks.
- The screen appears to be clean and uncluttered. Text size is legible in different screen resolutions.

Consistency

- There is evidence of consistency in the design and selection of fonts, styles, bullets and graphics.

Cost

- Any software licensing agreements are favourable to schools and are cost effective.

Support

- Clear installation instructions are provided.
- Computer hardware requirements for using the educational software are made clear.
- The software or supporting documentation explain to educators, taking into account technical experience, what the technical infrastructure and requirements are for the use of the materials.
- There is a help function.