

PEDAGOGICAL AND TECHNICAL REQUIREMENTS FOR THE DEVELOPMENT OF EDUCATIONAL E-MODULES FOR DENTAL CONTINUING PROFESSIONAL DEVELOPMENT

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Aims

To develop the pedagogical guidelines and technical requirements for the development of educational electronic modules (learning units) for the continuing professional development of dental professionals.

Methods

A team was organized, including dental academics and professionals, distance learning and e-learning expert, adult learning experts, a computer programmer and designer. The team performed a literature and internet review, discussed the outcomes and developed the general requirements for the creation of dental CPD e-modules.

Results

Characteristics of Adult Learning

- they need to know the purpose of their education
- they already possess certain values and experiences
- they enter education having specific needs and goals
- they have already established learning patterns (active, reflective, theoretical, experimental)



Principles for designing adult learning Educational Material

- thinking linked to action
- educational process to address learner's needs & interests
- interaction between learner – content
- promote critical thinking
- self-assessment activities, feedback, motivation

Visual and Pedagogical Design of e-learning content

To assimilate and interpret the (mainly) visual content, learners in technology-based environments develop a series of **psychological processes** such as visual perception, attention, understanding, motivation, memory, thinking and conscience.

1. Visual – perceptive learning

...is a reading activity (different from traditional reading; a complex reception of the visual content)

- The particularities of visual perceptive learning in technology-based learning environments emerge from the **characteristic of learning materials**, which should include all the means that ensure the **transfer of knowledge**, associated to a specific methodology, since the contact with the course tutor for further explanations is difficult to achieve.
- The use of visual perceptive language in learning should aim to achieve the following **main objectives**, expressed in behavioural terms:
 - Acquire **pertinent information** in respect to its objective
 - Distinguish **the informative** elements from the connotative ones
 - Analyse and capitalize means that allow to uncover **the intention of the message**, separating symbolic means from non-symbolic ones
 - Achieve a **critical stand** in treating the symbolic information received
 - Develop its capacity to **select new sources**
 - **Integrate** received information into personal experiences
 - Recognize the ideology and inner intention of **symbolic messages**, offered by means of non-specific visual languages expressions



2. Pedagogical design

It requires decisions on specific procedures and rules in every step of the process, from the choice of the learning objectives to the choice of the assessment strategies

Designing rules

- Follow simultaneously **competences development and knowledge transmission**
- Facilitating **independent content structuring** actions in an effort of synergistic action of controlled and uncontrolled learning
- Choose appropriate manners of issues raising in order to assist independent **productive thinking**
- Anticipate and organize the development and training of effective **thinking strategies**
- Organize content structure so as to vary **mental activity levels**
- Create conditions and elements for teaching and learning **efficient orientation**
- Create **self-control** didactical situations

Characteristics

- **instructions** on study management and on the inter-connection of the various features (i.e. text with images)
- clear **aims, expected outcomes** and key-words
- **simple texts** and wording
- referrals to **personal experiences**
- **examples** and case-reports
- tests and **self-assessment** activities, providing feedback
- explanatory **images / videos** replacing relevant texts
- **fragmented** content
- **highlighted areas/ frames** for the key points of the content
- **summaries** of chapters
- **learner-friendly** writing
- clear indication of the possible **difficulties**
- list of related literature / internet sites

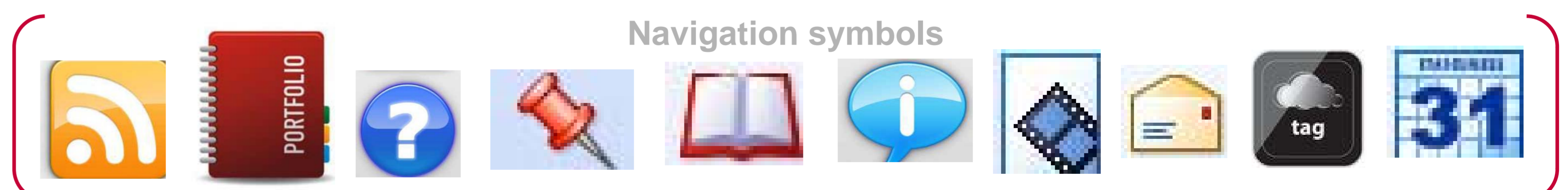
3. Text design principles

Text design must enable the visual-perceptive learning: **knowledge organization and navigation, semiotic process, communication and content interaction.**

- ❖ Clarity and elegance
- ❖ Predictability and regularity
- ❖ Standardisation and consistency in the use of style
- ❖ Good sense of direction in the content
- ❖ Unity and simplicity
- ❖ Position based on importance
- ❖ Grouping elements based on their significance
- ❖ Including lists and tables to structure the content
- ❖ Spacing
- ❖ Highlighting text units
- ❖ Balance and symmetry

4. Technical requirements

- The development of the e-module (interactive website) should be based on Web Design Standards established by the W3C.
- Interoperability can be achieved by using XHTML and CSS technologies
- Unicode character encoding for worldwide use



Conclusions

The development of e-modules for dental continuing development requires a team work from experts in various fields and must be based on clear pedagogical, content design and technical rules.