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Building e-learning modules

What to keep in mind when building the IWM modules

Overview

1. Introduction

2. Pedagogical design

3. Media design

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1. Introduction

Introduction

Up-to-date online learning modules should

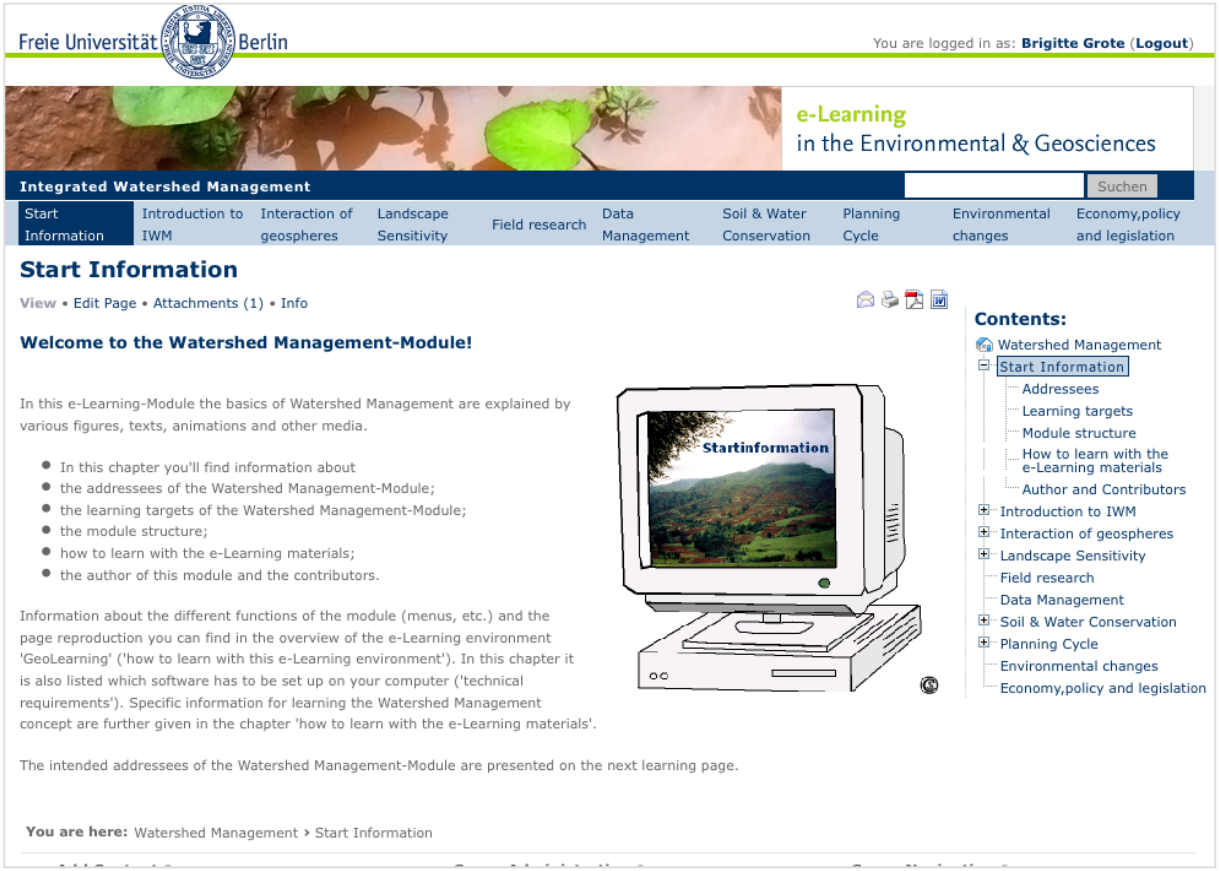
- be self-explanatory and easy to use
- support individual learning processes
- employ media in an adequate manner
- enable learners to assess their learning progress
- provide some kind of interaction and feedback
- …

Introduction

Questions are among others …

- How can content / learning material be presented in an adequate manner?
    - Which content is relevant for the module?
    - What is a reasonable structuring of the content?
- What should the text be like that is suited for screen reading?
- What is the adequate mix of media? How to choose the adequate visualization (graphic, photo, animation, video)?
- Which design aspects have to be taken into consideration?
- How can interactivity be supported? What makes a good assignment and adequate feedback?
- …

Implications for IWM learning modules?



pedagogical design

- content selection
- interactivity
- …

media design

- navigation
- screen design
- integration of media
- …

http://wikis.fu-berlin.de/display/iwm/Watershed+Management

INTEGRATED WATERSHED MANAGEMENT E-LEARNING NETWORK

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2. Pedagogical Design

Pedagogical design

Idea

- develop interest: attract attention, personalization (learning paths), self-paced and self-organized learning, knowledge sharing
- improve understanding of content: building concepts, feedback, situated learning

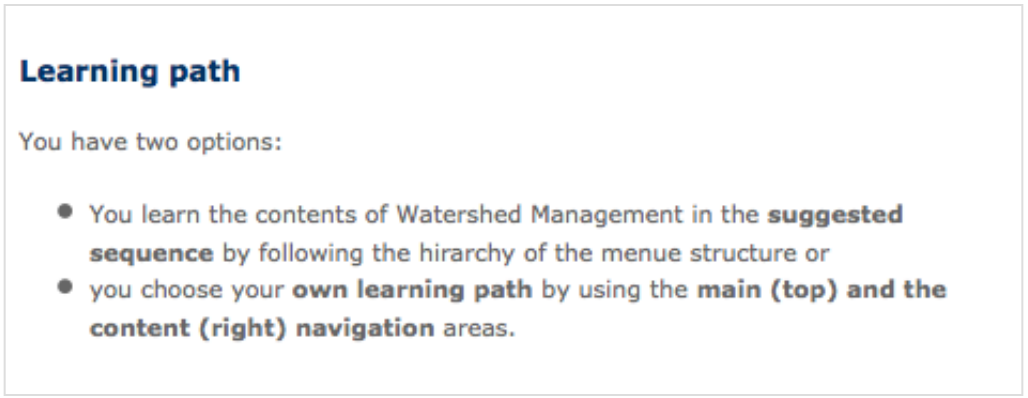
Given by IWM learning modules:
Start information

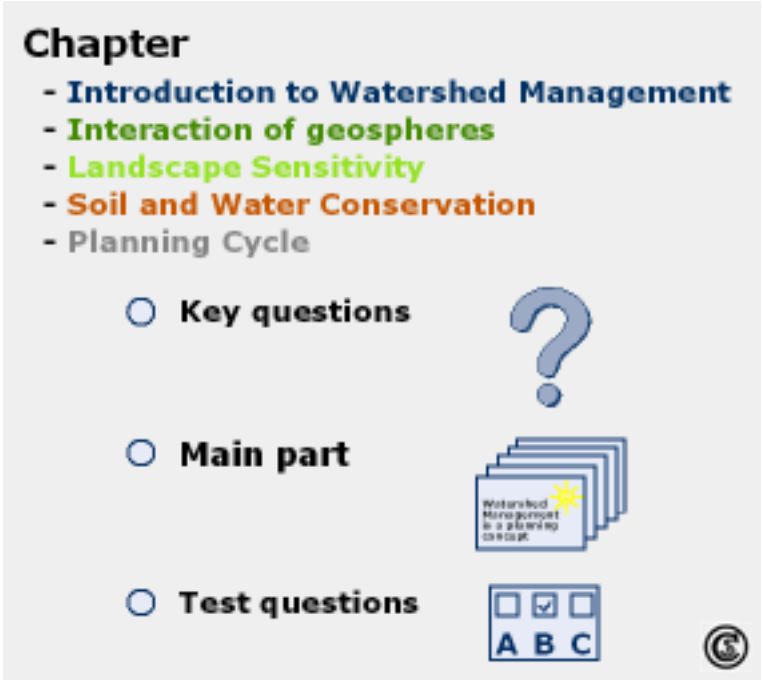
Pedagogical design

Didactical approach of IWM modules

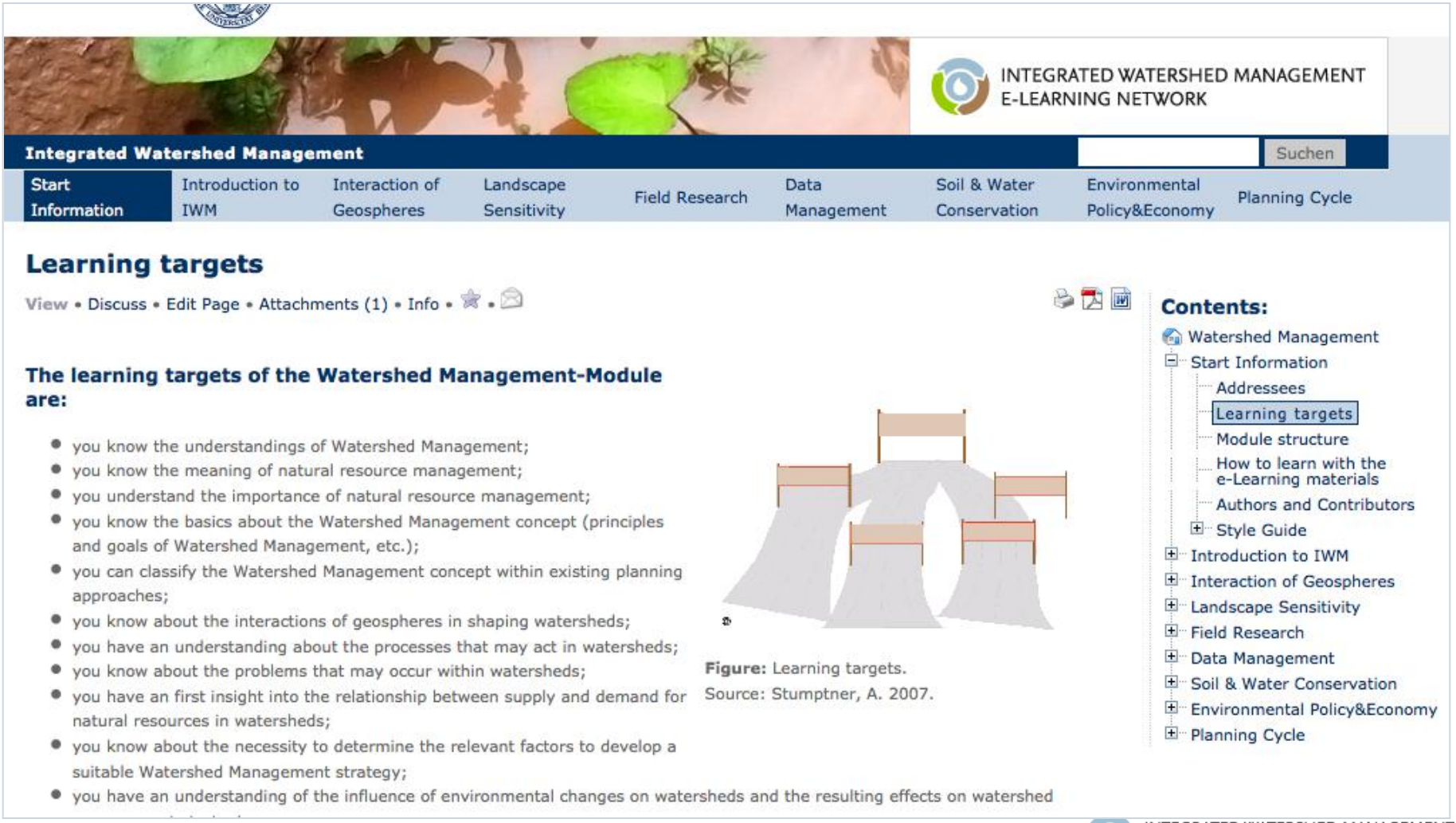
- situated learning
- problem-based learning

Explain approach to learners!





Didactical instruction - Example



Didactical instruction - Example

Learning path

You have two options:

- You learn the contents of Watershed Management in the **suggested sequence** by following the hirarchy of the menue structure or
- you choose your **own learning path** by using the **main (top) and the content (right) navigation** areas.

Test and excercise questions

Some information for answering the test and excercise questions:

- Follow the instructions given in the text. Arrows will appear on every page that lead you to the next page.
- You have always the chance to answer the question again!

explain learning and teaching methods

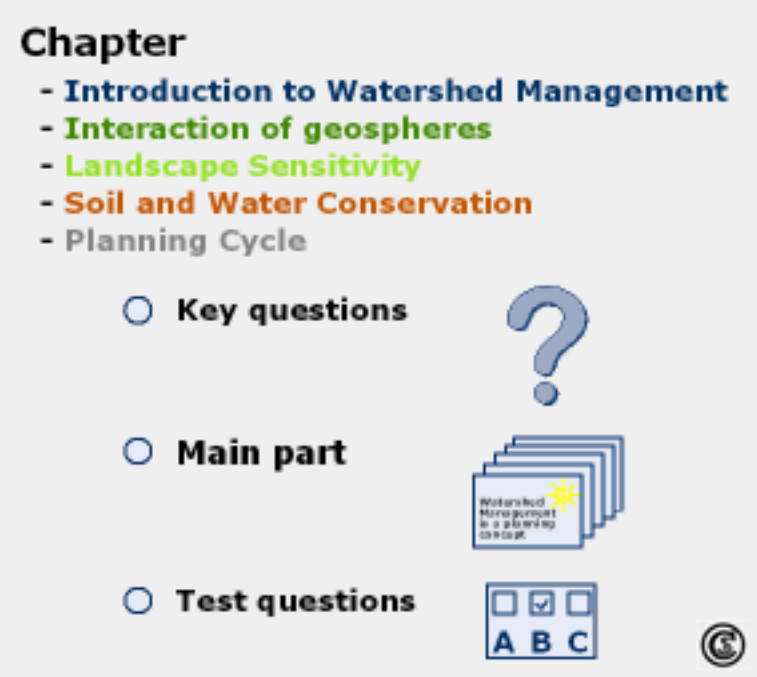
Content selection and structuring

Idea

- selecting the content to be presented
- structuring and modularising content

Keep in mind

- select content to be included according to learning objectives
- didactic reduction
- present content following a common pattern



Pattern predefined by IWM;
realization in your module is your responsibility!!!

Content selection and structuring

Keep in mind: expectations and skills of target group

Integrated Watershed Management

Start Information | Introduction to IWM | Interaction of Geospheres | Landscape Sensitivity | Field Research | Data Management | Soil & Water Conservation | Environ Policy&

Addressees

View • Discuss • Edit Page • Attachments (1) • Info •

The Watershed Management-Module is addressed primarily to

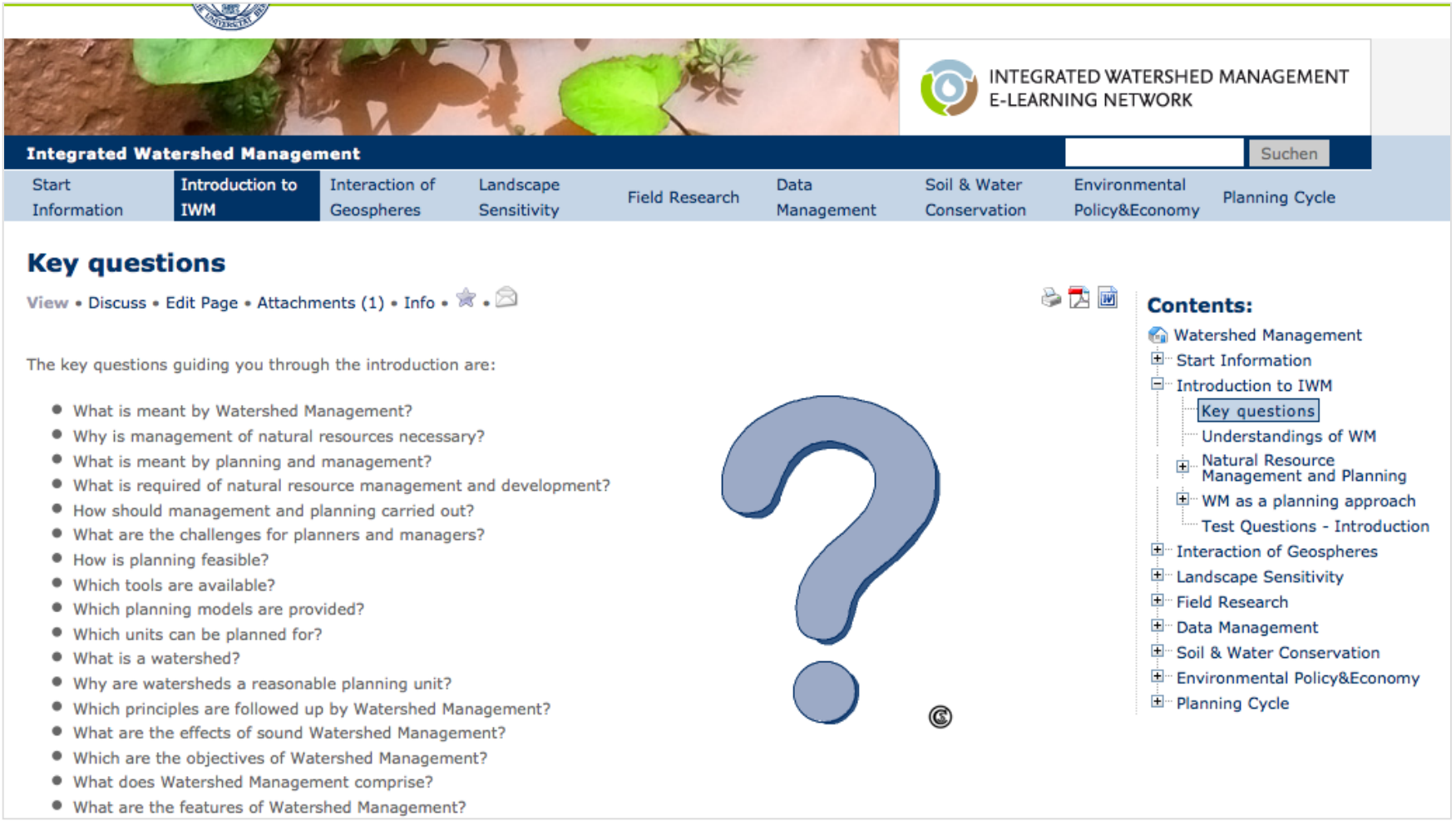
- students of a degree programme on Watershed Management;
- students of a master's degree programme in Geo or Environmental Sciences with elective Watershed Management or sub-areas of Watershed Management;
- students in advanced-level courses of geoscientific and environmental diploma and magister degree programmes with Watershed Management as optional subject or elective.

Further addresses are

- lecturers of Geo and Environmental Sciences who teach Watershed Management;
- geoscientific and environmental professionals who want to learn self-dependently the concept of Watershed Management and
- all people interested in Watershed Management.

Figure: Different addresses of the Watershed

Content selection and structuring - Example



Tests and exercises

Idea

- get learners involved
- test understanding and knowledge
- advance the learning process

Keep in mind

- specify the learning objectives that are tested
- ensure that the assignment type is suitable
- provide adequate feedback
- integrate tests and excecises into the learning process (e.g. pre-test, test following a learning unit, self-test)

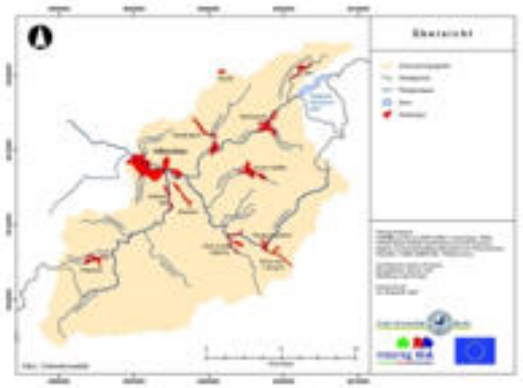
Tests and exercises - Example

'est Questions - Introduction

iew • Discuss • Edit Page • Attachments (1) • Info •

1. Understanding of Watershed Management

The Flöha River drainage basin is located in the border area of the Czech Republic and Germany. It is located in the ridge areas of the middle 'Erzgebirge'.



Click one of the images to enlarge or click arrow to continue.

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3. Media design

Media design

Relates to

- content presentation (e.g. text, figures, audio, animations …)
- navigation
- functionalities (e.g. search, print, sitemap)
- screen design (functionality, consistency …)
- user control
- …

Media design: Text

Idea

Scanning text on screen vs. reading text on paper:

- relevant information / teaser at beginning; something to animate user to stay on page
- limit number of text on page (scrolling)

Keep in mind

- simple language without jargon
- limited number of words in sentences, and number of sentences in paragraphs
- concise, expressive, and visible links - not buried in text
- terms, acronyms or abbreviations are avoided or defined
- same words and phrases are used consistently to describe an item
- unique and descriptive headings
- references according to pattern: http://wikis.fu-berlin.de/display/iwm/Referencing
- …

Media design: Hypertext

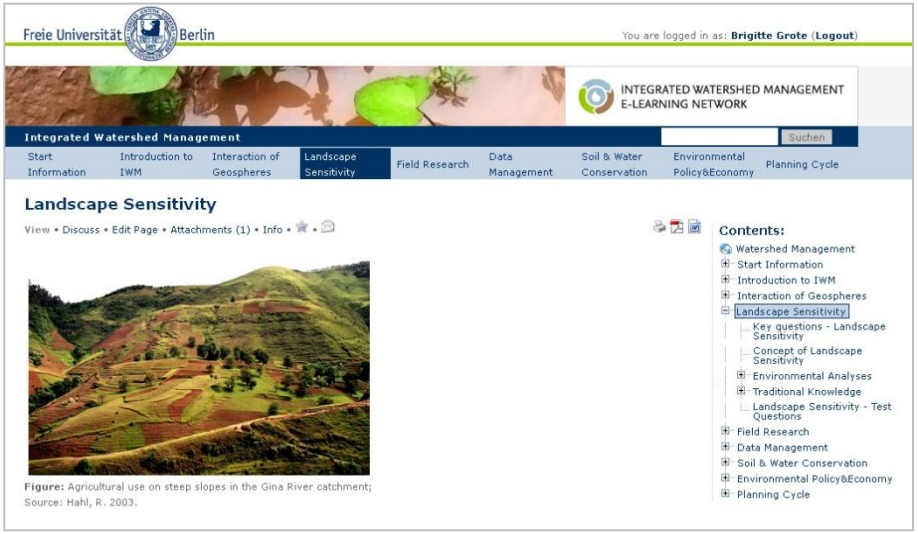
Idea

- Hyperlinks are used to relate chunks of knowledge / texts and link to content in the WWW.
- Modularity supports selective access, flexible access of large amounts of information

Keep in mind

- granularity of hypertext elements
- clear structure of hypertext: hierarchical, network, linear
- link labels make sense when read out of context (avoid “click here”)
- some kind of orientation (cf. screen design)
- internal vs. external links are clearly distinguishable
- See also: http://wikis.fu-berlin.de/display/iwm/Hyperlinks

Media design: Multimedia items



Idea

- depending on the content, a particular medium is best suited
- purpose: illustration, structuring, (decoration)

Keep in mind

- use images, video, animation, audio etc. meaningfully
- provide an introductory explanation for animation/audio/video prior to it being listened to / viewed
- use appropriate formats
- cf. Styleguide / Figures and tables: http://wikis.fu-berlin.de/display/iwm/Style+Guide

Media design: Navigation

Idea

- table of contents of a web page
- provides orientation and access point for navigating the content of the web page
- good navigation answers the questions “Where am I?”, “Where do I come from?”, “What can I do here” and “How do I get on / back?”
- importance of a well thought-out navigation for usability

Keep in mind

- link texts are consistent with the title or headings of the destination (i.e., target) page
- identical links are not named differently
- no misleading cues to click; visual clues for orientation
- text links are used rather than image links
- current location within the site is shown clearly

Media design: Navigation - Example

inconsistent use of link texts
identical links are named differently

Start Information

View • Discuss • Edit Page • Attachments (1) • Info •

Welcome to the Watershed Management-Module!

In this e-Learning-Module the basics of Watershed Management are explained by various figures, texts, animations and other media.

- In this chapter you'll find information about
- the addressees of the Watershed Management-Module;
- the learning targets of the Watershed Management-Module;
- the module structure;
- how to learn with the e-Learning materials;
- the authors of this module and the contributors.

Information about the different functions of the module (menus, etc.) and the page reproduction you can find in the overview 'how to learn with this e-Learning environment'. In this chapter it is also listed which software has to be set up on your computer ('technical requirements'). Specific information for learning the Watershed Management concept are further given in the chapter 'how to learn with the e-Learning materials'.

The intended addressees of the Watershed Management-Module are presented on the next learning page.

Figure: PC illustration.
Source: Stumptner, A. 2007.

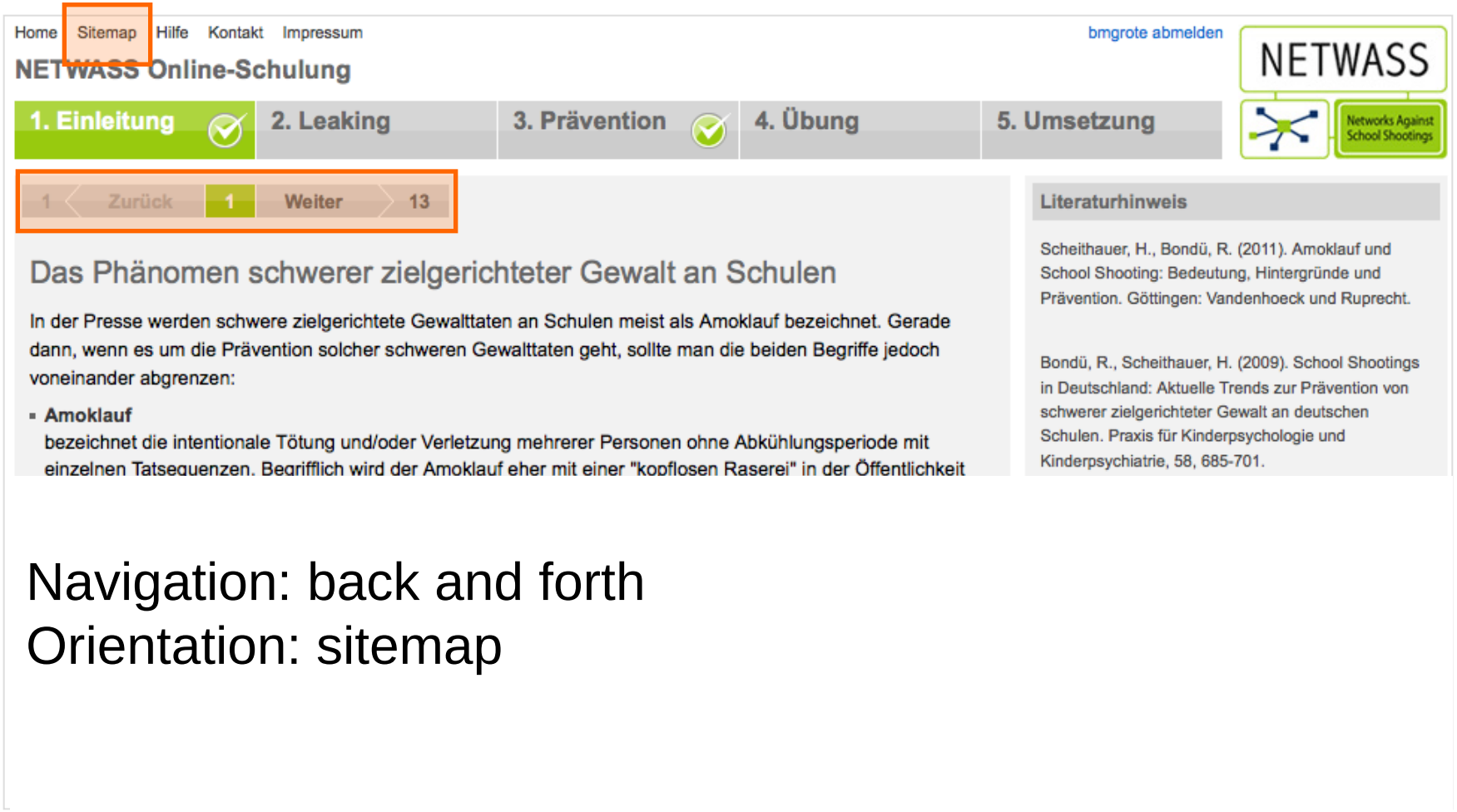
Contents:

- Watershed Management
- Start Information
  - Addressees
  - Learning targets
  - Module structure
  - How to learn with the e-Learning materials
  - Authors and Contributors
  - Style Guide
- Introduction to IWM
- Interaction of Geospheres
- Landscape Sensitivity
- Field Research
- Data Management
- Soil & Water Conservation
- Environmental Policy&Economy
- Planning Cycle

Media design: Navigation - Example

current location within the site is shown clearly

Media design: Navigation - Example

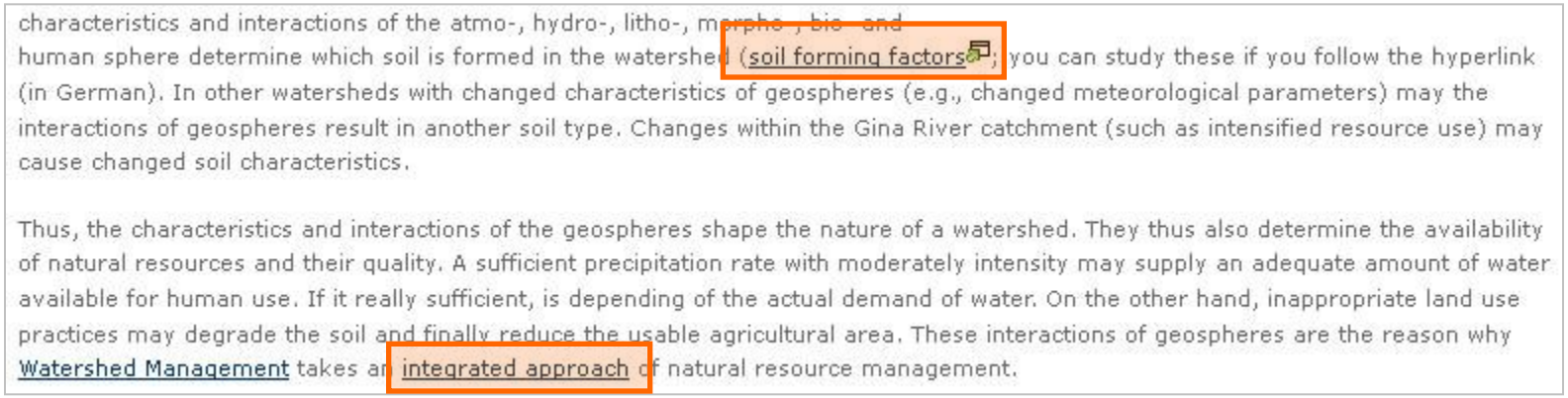


Navigation: back and forth
Orientation: sitemap

Media design: Navigation

Keep in mind [cont.]

- colour changes are used to indicate to users when a link has been visited
- when using embedded links, link texts accurately describe the link's destination text
- internal vs. external links are indicated
- no unclear or missing relation of the link destination to source page



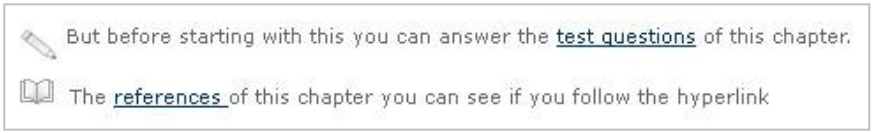
Media design: Screen design

Idea

- design decisions wrt presenting information on the screen
- visual clarity, self-explanatory, user guidance

Keep in mind

- navigation clearly distinguishable from other elements (e.g. content, links …)
  - consistent layout (font, colour, etc.)
  - consistent position on screen
- structuring
  - site design and layout is straightforward and concise
  - important items are placed consistently (and top center)
  - use structuring elements to improve orientation and steer user attention (captions, lists, icons, …)
  - recurring layout of pages (grid)



Main menu: top

Functions: top

Navigation: right

Content area: left

- Heading
- Activities / Functionalities
- Text: left-aligned
- Picture: right-aligned
- Quote: grey box
- Comments / site info: bottom

Functions: top

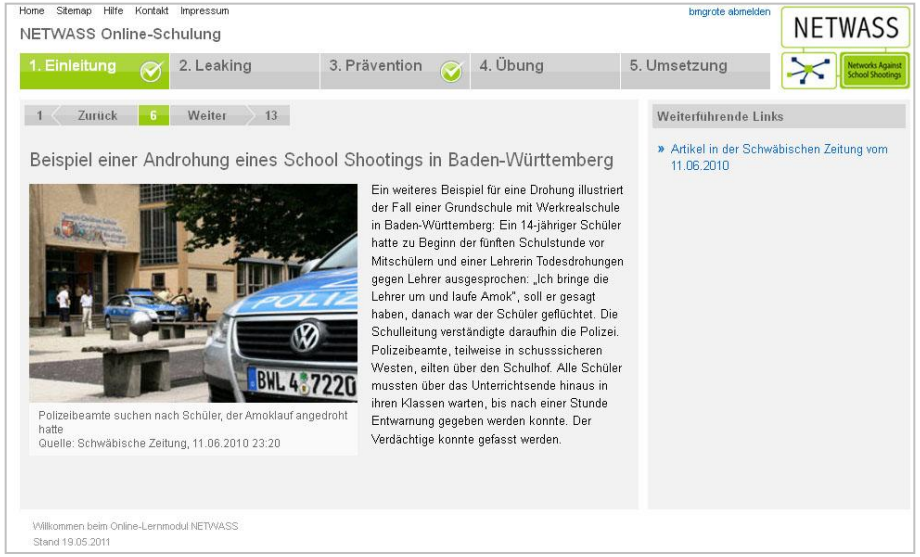
Navigation: top

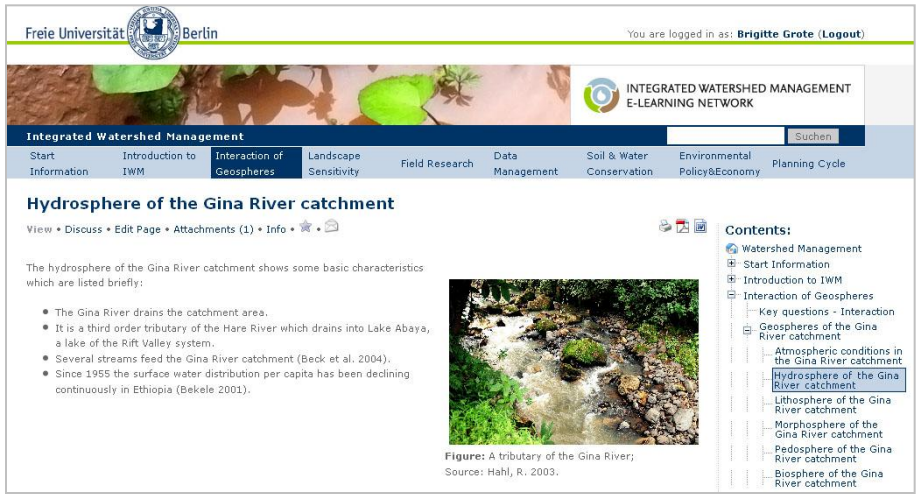
Main Content area: left

- Heading
- Text: left-aligned
- Picture: right-aligned

Additional content: right

Media design: Screen design





Keep in mind [cont.]

- overall impression
  - integration of pictures, graphics
  - unnecessary animation is avoided
  - white space is sufficient; pages are not too dense
  - sufficient contrast foreground/ background: black text on plain, high-contrast background
  - quiet background in order not to distract from content
  - pages that are not too crowded with items of information

Media design: Screen design

Keep in mind (cont.)

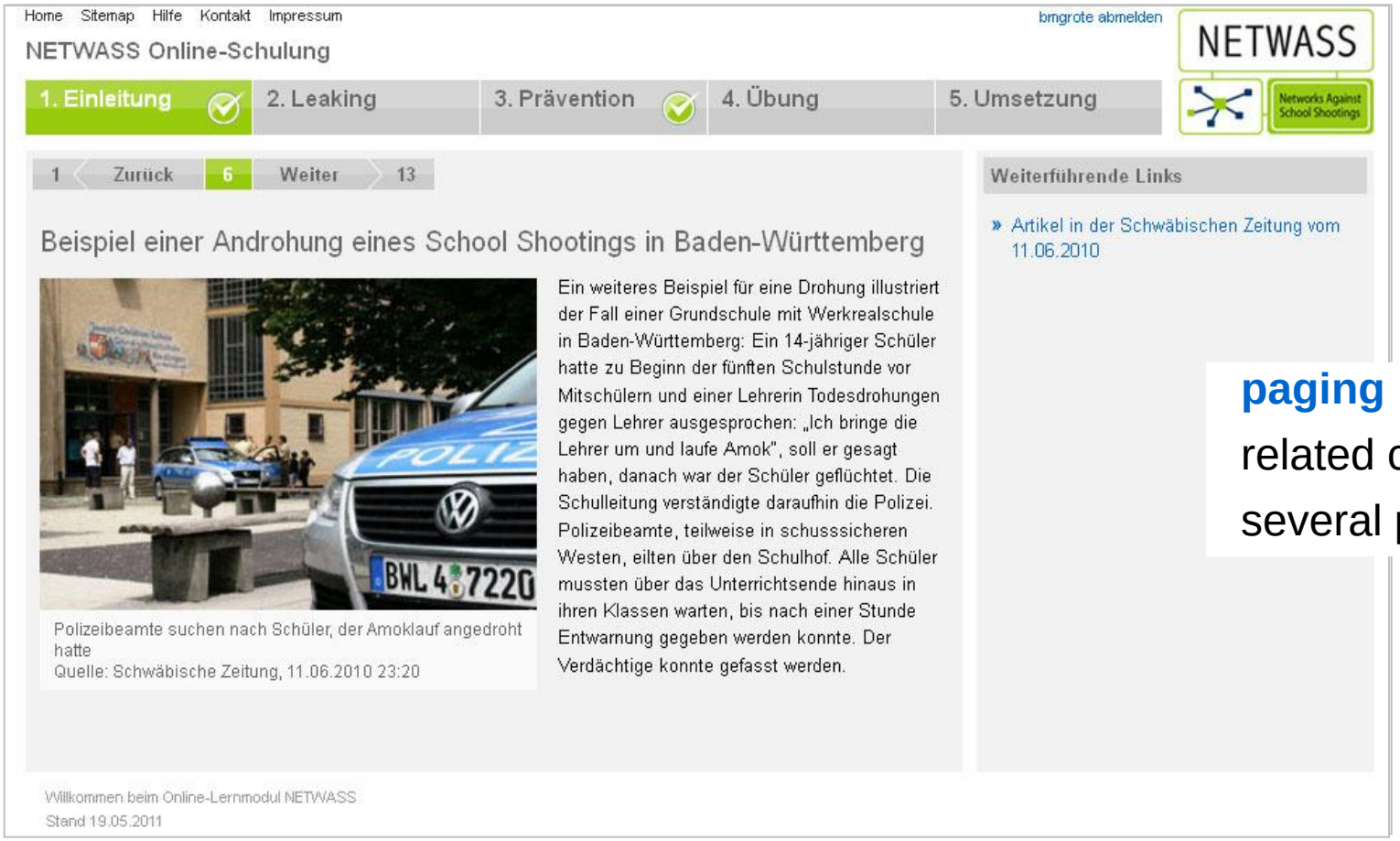
Predefined in IWM learning modules: Cf. styleguide:
http://wikis.fu-berlin.de/display/iwm/Style+Guide

- use bold and italic text sparingly but consistently

- language and style
  - short phrases and sentences, small readable paragraphs
  - simple and clear language / wording, correct spelling!
  - important items are placed at the top of lists

Media design: Screen design

Paging vs. scrolling



paging

related content on several pages

Media design: Screen design

possible desirable future end states, and development of courses of action to reach such end states" (Mitchell 2002, 6).
Definition of management

Management refers to the controlling and planning of details (Bauer 1998). By judicious use of available means the actual decisions are made and actions are carried out to achieve the objectives (Storey 1960).

Figure: A planner is planning;
Source: Stumptner, A. 2007.

Management thus requires both plans and objectives (Storey 1960).

The manager has therefore to control, handle and direct the decision-making and the course of action. He has the responsibility and the authority to allocate the capital, technology and human resources to achieve the desired end (Mitchell 2002; Ratter 2002).

Natural resource management thus comprises actual decisions and actions concerning policy and practice regarding how resources are appraised, protected, allocated, developed, utilised, processed, rehabilitated, remediated and restored, monitored and evaluated (Ewert et al. 2004; Mitchell 2002).

This management process includes the broad economic, social, environmental and technical considerations that influence natural resource management decision-making (Ewert et al. 2004). Thus, management is complex and requires substantial advance planning.

Planning the development and management of natural resources should involve the broader development goals of the community aiming to improve the living conditions of the local population (such as marketing opportunities for the cultivated crops). In this context, natural resource management means less the outright protection of natural resources (e.g., game reserves to which local people are denied access); rather it means a sustainable and environmentally appropriate management (Bollom 1998).

What is meant by sustainable is explained on the next learning page.

Kommentar hinzufügen

You are here: Watershed Management › Introduction to IWM › Natural Resource Management and Planning › Meaning of planning and management

Add Content ⇓ **Space Administration ⇓** **Space Navigation ⇓**

- Realisation of Integrated Natural Resource Management
- Challenges for planners and managers
- How to plan
- WM as a planning approach
- Test Questions - Introduction
- Interaction of Geospheres
- Landscape Sensitivity
- Field Research
- Data Management
- Soil & Water Conservation
- Environmental Policy&Economy
- Planning Cycle

scrolling

related content on one page

Media design: Screen design

Keep in mind

- scrolling
  - no need for users to scroll horizontally
  - facilitate fast scrolling by highlighting major items
  - location of headings and other page elements does not create the illusion that users have reached the top or bottom of a page when they have not (avoid scroll stoppers)
- paging
  - related information or tasks are grouped on the related pages
  - sometimes need for many clicks, not everything at a glance
  - provide printing option for related content

both have advantages and disadvantages => sensible combination of both

Media design: Functionality

Idea

- improve usability

Predefined in IWM learning modules:
Wiki functionalities

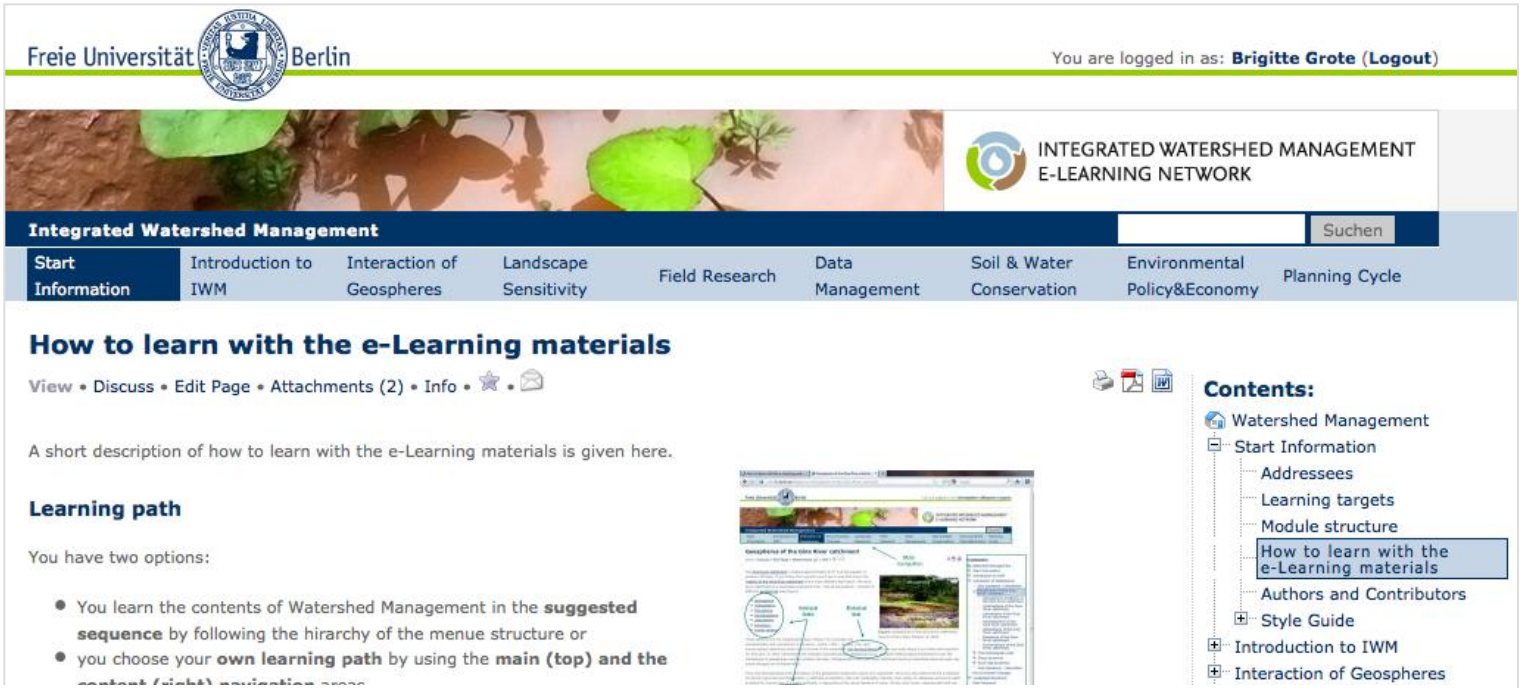
Media Design: Online help & user guides

Idea

- prevent users from getting lost
- provide information for efficient use

Given by IWM learning modules:
Start module

Media Design: Online help & user guides



provide assistance to inexperienced / first time users, incl. didactic instructions

Media Design: Interactivity

Idea

- extent to which the learning programme allows for user interaction
- motivate, inform, active learning, transfer, organise learning process …

Levels of interactivity (Schulmeister, 1997; e-teaching.org)

1. examining and absorbing objects
2. examining and absorbing multiple presentations (-> learning preferences)
3. varying forms of presentation
4. manipulating content of learning module
5. constructing objects
6. receiving feedback

Keep in mind

- adequate design of instruction, tasks, feedback; cf. pedagogical design

References

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Thank you!

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