Curriculum development in design for all and the use of learning outcomes
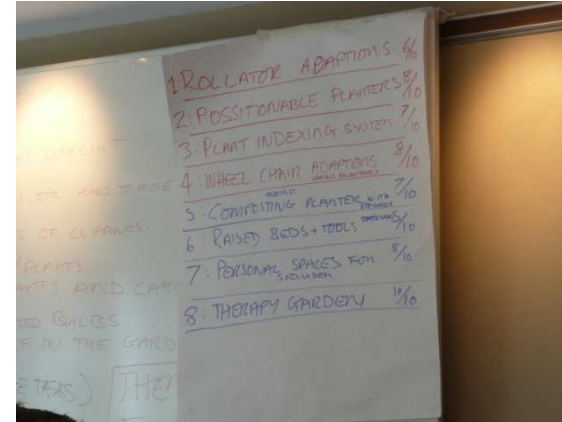
Middlesex University

Suzette Keith and Gill Whitney

The Design for All Research Group
School of Computing Science
Middlesex University, London UK

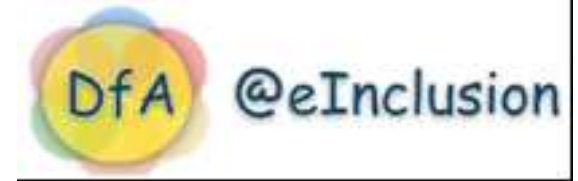S.Keith@mdx.ac.uk; G.Whitney@mdx.ac.uk

EDeAN
European Design for All
e-Accessibility Network

European Conference
design for all
Spain'08

Design for all – in practice

DfA@eInclusion

An EU FP6 Collaborative action with partners in
22 countries who are all EDeAN members

Objectives include:

- Information resource
- Education and training
- Engagement with industry
- Communication
- Promotion of knowledge and best practice

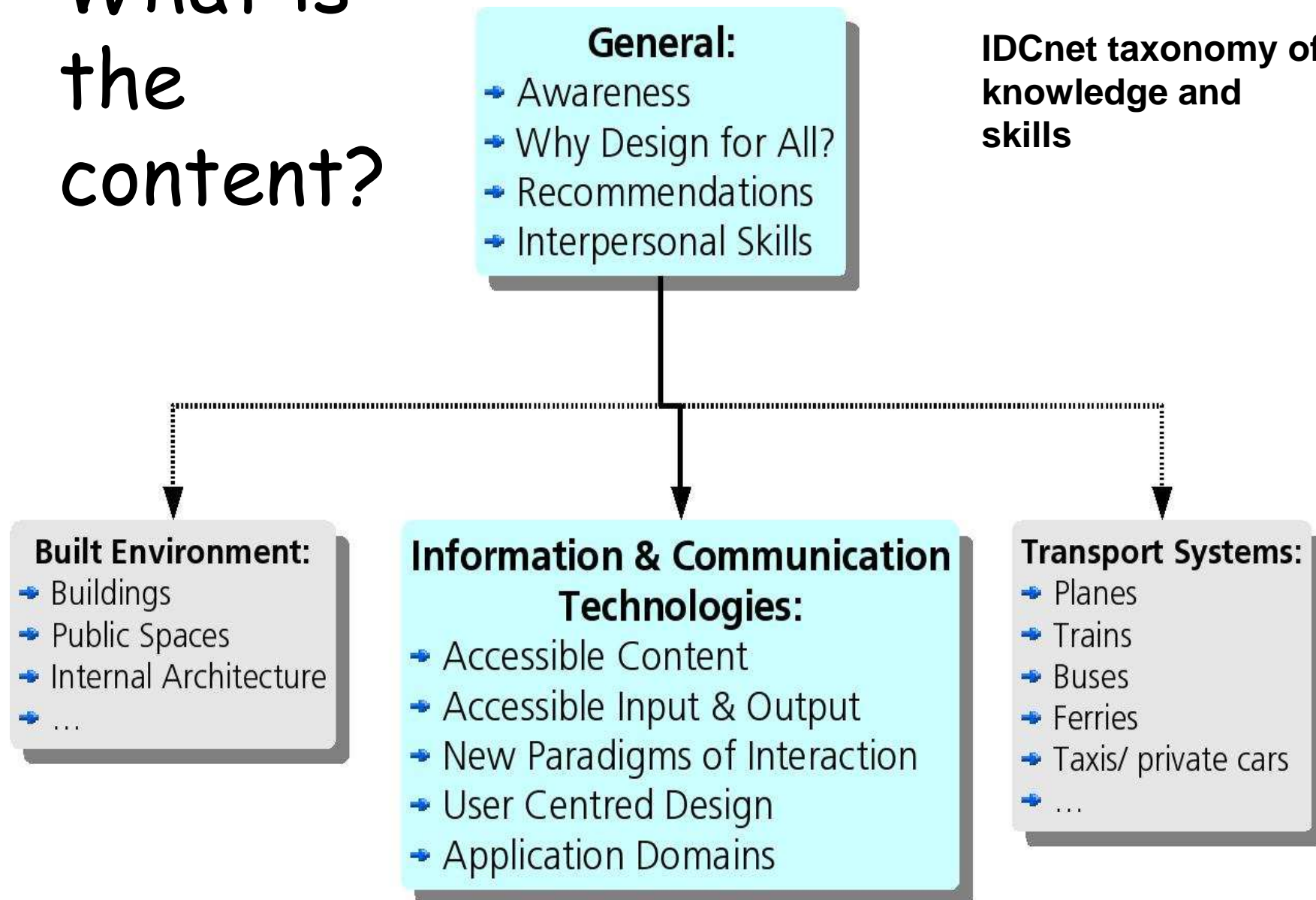# Education and Training in Design for All in ICT

DfA @eInclusion

Aim of work package

- to explore best practice in teaching
- develop practical teaching syllabus guidelines
- address different levels of training:
  - **Masters**
  - Undergraduate
  - **Vocational**
  - Train the trainers

What is the content?

IDCnet taxonomy of knowledge and skills

General:
- Awareness
- Why Design for All?
- Recommendations
- Interpersonal Skills

Built Environment:
- Buildings
- Public Spaces
- Internal Architecture
- ...

Information & Communication Technologies:
- Accessible Content
- Accessible Input & Output
- New Paradigms of Interaction
- User Centred Design
- Application Domains

Transport Systems:
- Planes
- Trains
- Buses
- Ferries
- Taxis/ private cars
- ...

EU survey of training in DfA ICT

- On-line survey publicised through national contact centres for EDeAN, direct emailing, relevant list servers in ICT, assistive technology and human computer interaction

- Initial results revealed few 'named' programmes or modules

- Follow-up request for information on elements within mainstream programmes

Courses, modules and elements

Submitted survey results

Countries: 18
Providers: 35
Courses: 50

Selected case studies

Countries: 10
Providers: 16
Courses: 18

Where were courses, modules or elements found?	
Austria	Italy
Belgium	Malta
Czech	Norway
Denmark	Portugal
Finland	Slovakia
Germany	Slovenia
Greece	Spain
Hungary	Sweden
Ireland	UK

Best practice in knowledge and skills

- Almost all courses included:
  - Design for all awareness, legislation and guidelines, accessible interaction and user centred design

- Most included:

  - Accessible content and new paradigms

- Most academic courses were a small part of a mainstream course in computing or web applications

Gaps in provision

- Masters programmes with major element of DfA in ICT

- Difficult to identify programmes with minor element of DfA content within mainstream ICT courses

- Some training of educators of disabled people eg ICT4T, ALPE but no provision for educators of DfA in ICT found

- Diversity in teaching practices and provision: ECTS, local credit systems and contact hours

ECTS - The European Credit Transfer and Accumulation System

A student-centred system based on the **student workload** required to achieve the objectives of a programme, **objectives preferably specified in terms of the learning outcomes and competences to be acquired**:

- 60 credits measure the workload of a full-time student during one academic year.

- one credit stands for around 25 to 30 working hours (includes lectures, seminars and private study time)

(ECTS – key features)

EQF - European Qualifications Framework

- The objective of this Recommendation is to create a **common reference framework** which should serve as a translation device between different qualifications systems and their levels, whether for general and higher education or for vocational education and training.
  - by 2010 ...relate their national qualifications systems to the European Qualifications Framework,
  - by 2012.... all new qualification certificates etc. should contain a clear reference, by way of national qualifications systems, to the appropriate European Qualifications Framework level

European qualification framework (EQF)

- "learning outcomes" means statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence

Why use learning outcomes?

… shifting the focus towards learning outcomes brings significant advantages:

• it supports a better match between education and training provisions and the needs of the labour market (for knowledge, skills and competences);

• it facilitates the validation of non-formal and informal learning; and

• it facilitates the transfer and use of qualifications across different countries and education and training systems.

A framework for developing best practice

Student centred learning:

- Aims of module
  - What is the purpose of the teaching?

- Learning outcome
  - What does the student learn?

- Assessment criteria and methods
  - How is that learning measured?

- Teaching Strategies
  - How can the learning be supported?
  - Needs of accessible learning

Aim of module or programme

……to give universal access to the Information Society

•**Preventing** digital exclusion such as the possibility that disadvantaged people and groups could be left behind

•**Exploiting** new digital opportunities for a better inclusion of socially disadvantaged people or groups, or less-favoured areas.

  – new information and communication services, new job opportunities, overcoming barriers of distance or mobility.

Sample: Learning about diversity

- Learning outcome
  - Recognise interdependency in DfA and diversity in human rights
- Assessment of learning outcome
  - Recognise diversity by writing an essay or carrying out a case study
- Teaching strategy
  - Sensory deprivations, guest speakers with disabilities, visiting user organisations focus group

Example: undergraduate DfA module

– Knowledge: Able to use standards and recommendations and design and prototype DfA enabled solutions. (To put to use)

– Skills: Able to work with and alongside disabled and elderly (user focus groups, questionnaires and surveys), Able to critique work of peers (extended interdisciplinary skills)

Example: mainstream undergraduate

- BSc Web development
  - Over 3 years includes the theory and practice of information architecture along with the practical design and development skills (60 UK credits per course)

  Example of learning outcome:

  - **Demonstrate** effective **skills** in creating and presenting web content and in the selection and use of appropriate Internet technologies (BSc level)

Example: mainstream Masters

- MSc in eGovernance
  - To address the pivotal space arising from the convergence of information technology and the activities of public sector organisations (7.5 credits – accessibility element)

    Example of learning outcome:

  - **Assess** and **critically evaluate** the legislative and technical environment that governs virtually networked agencies and their electronic relationships. (Masters level)

What do you find has most impact on the students learning?

– Practical experience with web accessibility

– Awareness that current mainstream HCI methodologies and approaches are not sufficient to cope with users' diversity in the Information Society

– Direct hands-on experience of novel HCI methods and techniques addressing users' diversity

– Awareness of the complexity of the domain

Conclusions

- Learning outcomes offer scope for harmonisation of syllabus guidelines

- Mainstream modules reach widest number of students
  - Aim for 50% of all ICT students to demonstrate understanding of design for all principles and practices

- Specialist Masters may lead to better exploitation and innovation
  - Aim for students to develop innovative solutions by applying a systematic design process

Thank-you
For further information please contact:

Suzette Keith and Gill Whitney

The Design for All Research Group

School of Computing Science

Middlesex University

S.Keith@mdx.ac.uk; G.Whitney@mdx.ac.uk

www.edean.org

www.dfaei.org

www.mdx.ac.uk/edean