Implementing Adaptive Educational Methods in IMS-LD

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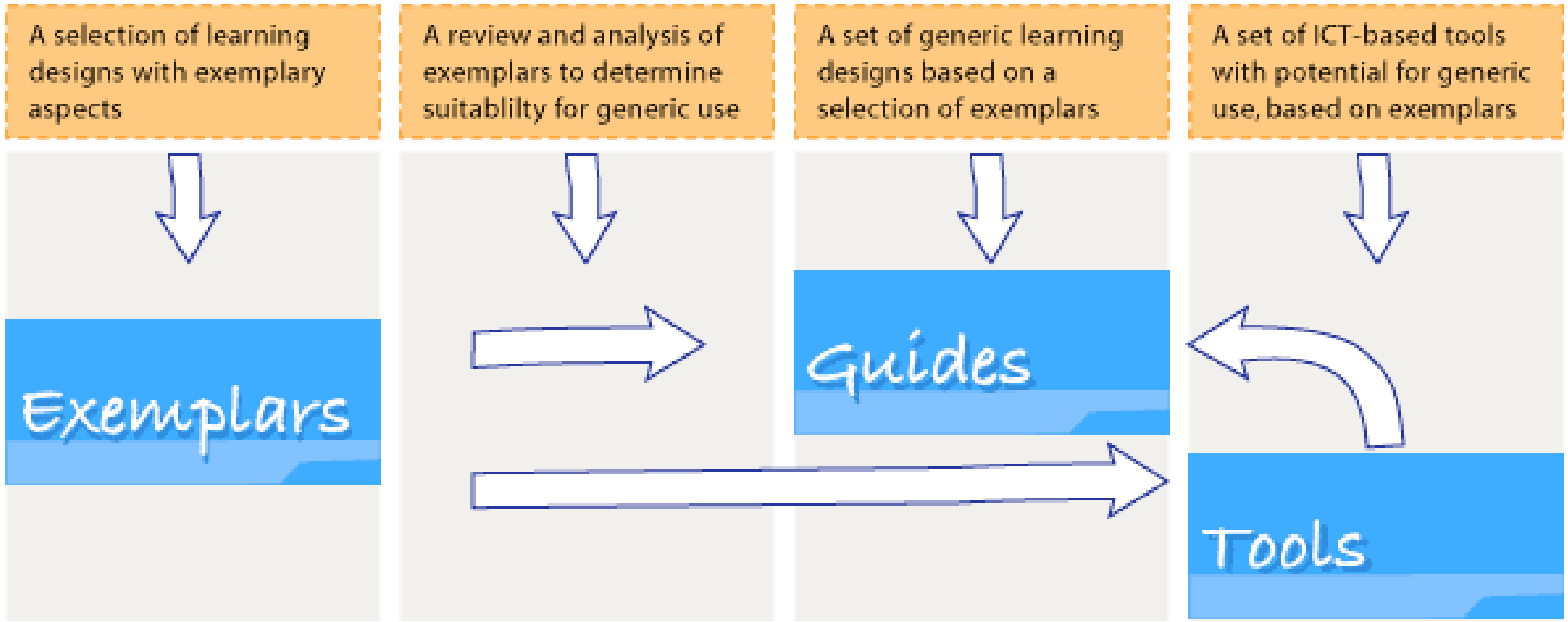
adaptation in educational systems

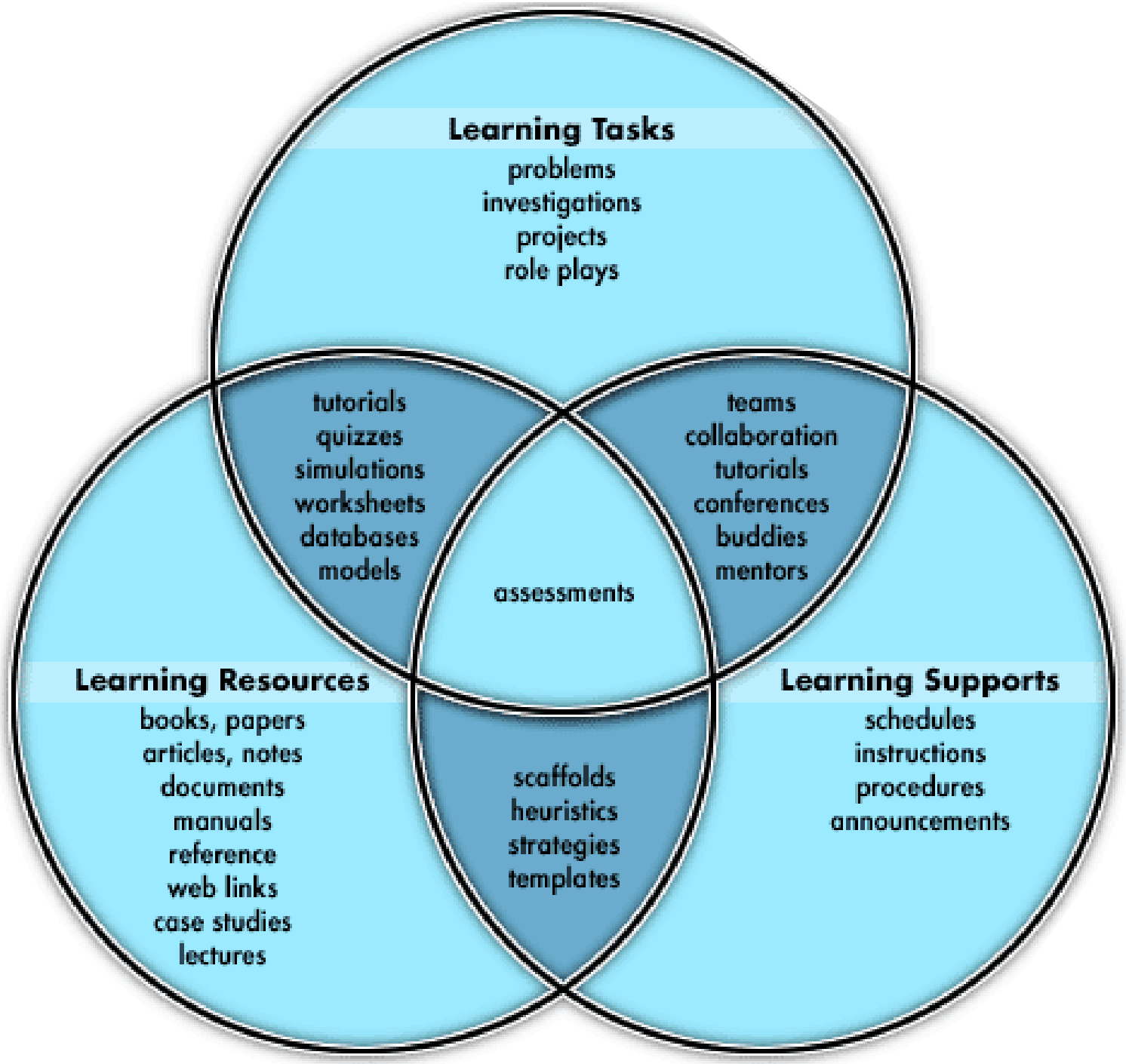
learning paths, exploration in adaptive
systems, flexible content and systems

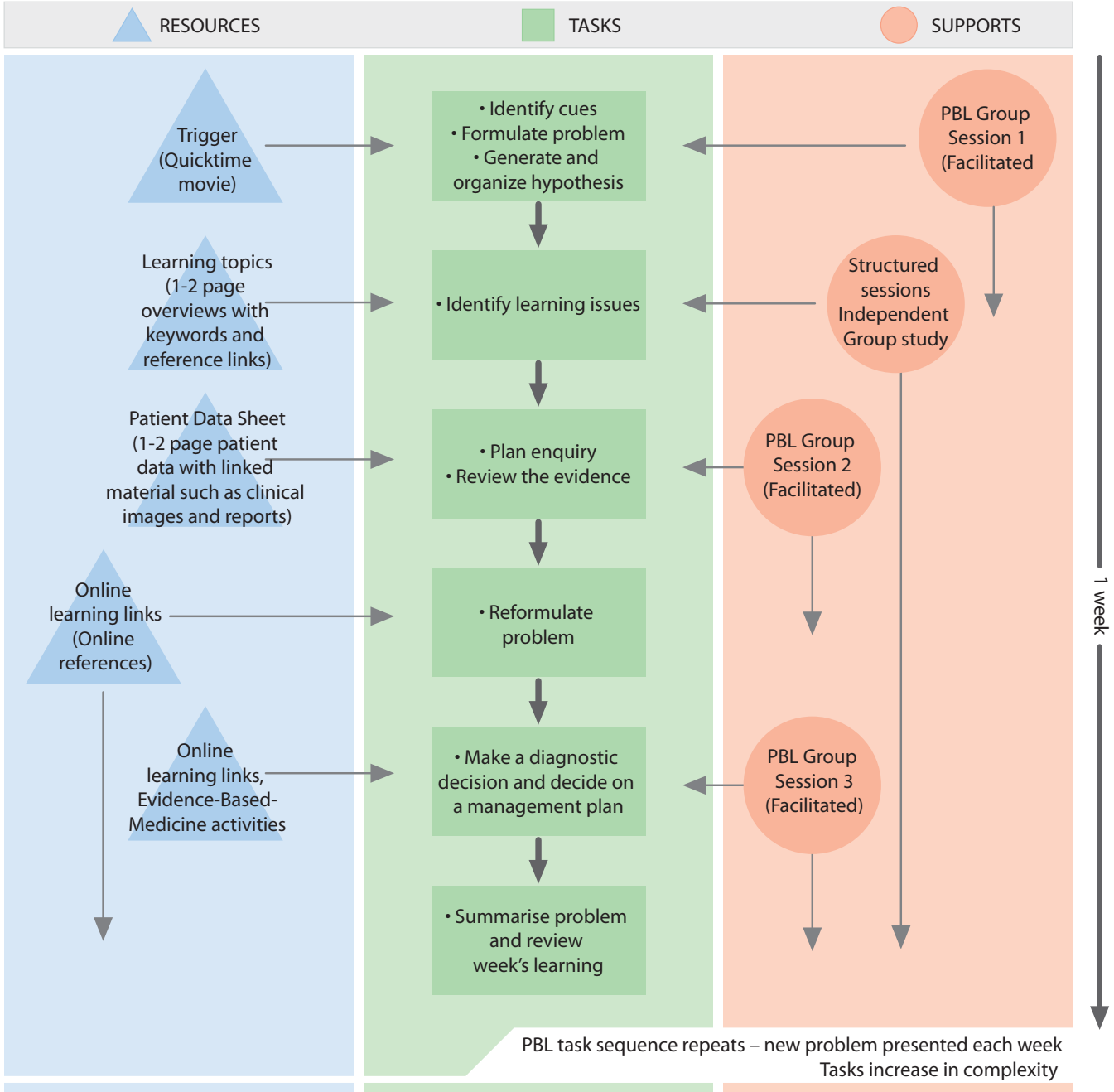
educational patterns, learning design, and adaptation

Project AUTC

http://www.learningdesigns.uow.edu.au/project/index.htm




Learning Tasks
problems
investigations
projects
role plays
tutorials
quizzes
simulations
worksheets
databases
models
teams
collaboration
tutorials
conferences
buddies
mentors
assessments
Learning Resources
books, papers
articles, notes
documents
manuals
reference
web links
case studies
lectures
scaffolds
heuristics
strategies
templates
Learning Supports
schedules
instructions
procedures
announcements



Intended Learning Outcomes:

Development of a wide range of abilities appropriate for a beginning medical practitioner, clustered under 4 themes:

- basic and clinical sciences
- patient-doctor
- community-doctor
- personal and professional development.

Adaptive Methods and a Classification Schema

taxonomy of adaptive methods

What is adapted …

- Learning goal
  - Content
- Teaching method
  - Content
  - Teaching style
  - Media selection
  - Sequence
  - Time constraints
  - Help
- Presentation
  - Hiding
  - Dimming
  - Annotation

… to what features…

- Learner
- Preferences
- Usage
- Previous knowledge, professional background
- Knowledge
- Interests, Goals
- Task
- Context
- Complexity
- Situational Context
- Position

… and why?

- Didactical reasons
- Preference model
- Compensation of deficits
- Reduction of deficits
- Ergonomic reasons
- Efficiency
- Effectiveness
- Acceptance

	what	to what	why	how
adaptive sequencing 1	sequencing learning activities	tested knowledge, quiz	compensation of deficits	user tracking
adaptive sequencing 2	introduction of interaction possibilities	level of expertise	usability, focus on learning activity	usage tracking
adaptive presentation	selection of media (DIVs)	preferences, learning style	compensation, acceptance	user input
adaptive navigation support	hyperlink annotation	knowledge	guidance	user tracking
adaptive navigation support 2	hyperlink annotation	community activities	social guidance	user tracking, clustering

Implementation in IMS LD

main components of IMS-LD to model adaptivity

- Local, Global, Group, Role Properties
  -> Adaptation to Knowledge, Preferences, Attributes, Group, Stereotypes

- Environment
  ->Adaptive User Interfaces and increasingly interactive learning environments

- Conditionals and Calculations
  ->Adaptive Content Presentation

- Roles -> Collaborative Distributed Learning, Adaptability

	what	to what	why	how
adaptive sequencing, jazz example	predefined activity-structures	preferences, knowledge quiz	compensation of deficits	activity structures, assessment LO, user dialogue
adaptive user interface, interaction facilities	introduction of environment LO, annotation possibilities, blog or wiki facilities	level of expertise, number of contributions or interactions	usability, focus on learning activity	usage tracking, calculations, properties, environments
adaptive content presentation	selection of media (DIVs)	preferences, learning style	compensation, acceptance	properties, usage tracking, condtionals, calculations
tutorial navigation support	hyperlink annotation	teacher feedback,	guidance	local and global properties, roles, calculations
social navigation support	hyperlink annotation	average learning success of peers in same activity	social guidance	local and global properties, roles, calculations
synchronized collaborative learning	scaffolding activity structure	peer success in learning activities	blended collaborative learning	local, gloabl properties, conditionals